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VIRTUAL PRESENTATION OF CULTURAL HERITAGE
CASE STUDY: ANI

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VIRTUAL PRESENTATION OF CULTURAL HERITAGE
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CASE STUDY: ANI

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

VIRTUAL PRESENTATION OF CULTURAL HERITAGE
CASE STUDY: ANI

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The field of preservation of historic and cultural heritage has been a multidisciplinary science from the beginning. And the demand for any pioneer technique that may ease the conservation task still lives. In the past four decades computational design has started grow with the aim of conservation and the evolution of its techniques have been helping the specialists in nearly every step of decisions they make, notably in archeology. The digital data derived from a physical site, whether it is an object, monument, territory, or landscape prepares a flexible space for any specialist and student to investigate experience and design without any economical limitations. Also the virtual recreation has been very important especially in archeological manner when you get to rebuilt any missed part of the heritage without touching it in reality. The advantage of this digital data gets more amazing when we get to add the details of the life that had been going on in there.

The digital recreation when joined with stimulation and turning to slides and videos is highly potentiated to be presented to public or special groups in order to transmit information about any aspect of the heritage to them. The Surp Amena P'rkich Church at archeological site of Ani in Kars province of Turkey has been studied in

this research and its story has been chosen as the case to be told by simple techniques and a short movie.

Keywords: Armenian Church, ANI Archaeological Site, Virtual Presentation, Presentation, Storytelling, Surp Amena P’rkich Church

ÖZ

KÜLTÜREL MİRASIN SANAL SUNUMU:
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Tarihi ve kültürel mirasın korunması konusu en başından beri disiplinler arası bir bilim olmuştur. Ancak günümüzde hala koruma konusunu rahatlatacak öncü bir teknik ihtiyacı mevcuttur. Geçtiğimiz kırk yıl içinde, sayısal tasarım koruma amacıyla geliştirilmeye başlanmış, ve bu konuda geliştirilen teknikler uzmanlara, bilhassa arkeolojide, aldıkları kararların hemen her adımında yardımcı olmaya başlamıştır. İster obje, olsun isterse de anıt, alan ve ya peyzaj; alandan toplanan dijital veriler, uzmanlara ve öğrencilere hiçbir ekonomik kısıtlama olmaksızın deneyim kazanabilecekleri esnek bir ortam sağlamaktadır. Bunun yanı sıra, sanal rekreasyon, özellikle arkeolojik alanlarda yapılara gerçekte dokunmadan kaybolan kısımlarını tekrar inşa etmek söz konusu olduğunda oldukça önemli bir noktada bulunmaktadır. Bu tezin kapsamı, Doğu Anadolu bölgesinde, Kars yakınlarındaki bir ortaçağ yerleşmesi olan Ani Kenti'nin ve Surp Amena Prikitch kilisesinin sahip olduğu mimari değerlerinin incelenmesi, değerlendirilmesi, sanal gerçeklik kapsamında sunum önerilerinin sade bir dilde ve kolay tekniklerle hazırlanmasıdır.

Anahtar Kelimeler: Ermeni Kilise, Ani Ören Yeri, Sanal Sunum, Sunum, Hikaye Anlatımı, Surp Amena P'rkich Church

To Legha & Mohammad Ali

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TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF FIGURES

FIGURES

CHAPTER 1

INTRODUCTION

1.1. Aim and Scope

The field of preservation of historic and cultural heritage has been a multidisciplinary science from the beginning. And the demand for any pioneer technique that may ease the conservation task still lives. In the past four decades computational design has grown with the aim of preservation and the evolution of its techniques have been helping the specialists in nearly every step of decisions they make, notably in archeology.

Virtual Reality (VR) technologies have joined the field of cultural heritage now for two decades for the purposes of protection and fulfillment of the remains of the past thanks to its potentialities of visualization and reconstruction of sites and finds.

"The virtual model is a valid cognitive tool and is a fundamental medium through which a user (a scholar, a student or simply somebody who shows an interest for the subject) can interact with 3D models and agents in a virtual environment. This technology can be applied to the world of cultural heritage as a vessel for preservation, reconstruction, documentation, research and promotion" (Fabio Bruno, 2010).

While the initial steps of protection is to inform the community surrounding that heritage about its worth and values, digital recreation when turned into slides and animation joined with stimulation is highly potentiated to be presented to public or special groups in order to transmit information about any aspect of the heritage to them. Presenting heritage in a virtual way as a tool is my focus area in this thesis research. The case study would be *Surp Amena P'rkich* Church at *Ani* near *Ocakli* town in Turkey.

Ani has been the capital of firstly shaped Armenian kingdom which is situated in the northeast of Turkey in the Kars province.

It is 40 kilometers to the east from Kars city until the borders of Turkey-Armenia are reached. The site is placed on top of a plateau limited by cliff valleys from three sides. The fourth side in the North is the way the site is reached. Ani started as a fortification center and then the population living there shaped it as a city that continued to live nonstop for generations, though there were ethnics who came and gone. The major traveler populations have affected them for a specific amount of time and they have succeeded in living there for nearly 500 years with so many ruler changes. It was home for many academicians and religious men and in its heyday the urge of making buildings that were in dignity of the statue of the city resulted in the buildings that are still alive and on their feet in Ani.

In between those pieces is the Church of Holy Redemeer or Church of Holy Savior of All (Surp Amena P'rkich (Armenian) or Aziz Patrik Kilisesi (Turkish)). P'rkich has different inscriptions on it giving information about the building and its history (Appendix A). According to one of them the church was made at 1035 A.D. by the command of *Ablgharib Pahlevuni* to embed a piece of True cross which he had obtained at Constantinople .Inscriptions report that the relic was kept at church at least till the end of 14^{th} century. Church was partially damaged in 1319 due to earthquake and its dome was repaired at 1342. The eastern half of the church was collapsed at a firelight and thunderstorm in 1957 reported by local villagers. And that is the reason that the villagers call the church 'The Half Church' (or Yarim Kilise in Turkish) due to its very interesting graphical shape. Structurally the dome has survived nearly half of its interior layer so the church still owns most of its graphical half both inside and outside. This sometimes comes tricky when people see the standing part and wait for the minute they get inside which results in disappointment as they turn around and find out the collapsed part of it which was digged in the summer of 2012 under the supervision of Promet Proje firm. A preservation project was started in the same year under the list of sites in danger of WMF (World Monument Fund) named as 'Conservation at Ani Cathedral and the

Church of the Holy Savior'[1] in cooperation with Turkish government (Turkish ministry of Culture).during the project which is still carrying on, Excavation and emergency measurements and Documentation-Restitution drawings were done and Restoration Project were prepared. Initial interventions according to the project kicked in summer 2013 when I joined the team. The Laser scanned data of building and all its drawings and measures that was already prepared were used effectively in the last steps of this study.

1.2. Methodology and Constraints

Ancient Armenian language engravings on the church's walls and any other Armenian or Russian sources were out of my linguistic knowledge, so translated versions or articles mainly written in English were used. I was able to visit the building and site (While the Restoration Project of P'rkich is continuing, public visit is prohibited and limited to a far view of building defined by fences due to its critic situation) under the observation of Promet Proje firm (*İsmail Yavuz Özkaya*) and with the permission that was taken from the *Ministry of Culture and Ministry of Foreign Affairs of Turkey* (According to the Government rules of Turkey, any research on heritages should be under the observation of Ministry of Culture and as a foreigner an extra permission must be obtained from the Ministry of foreign affairs of Turkey). Another constraint that was faced during the researches was the most archeological and less architectural studies found which related to the subject of Virtual presentation. The multidisciplinary nature of thesis demanded in guidance of professionals of the other fields than architecture but more exploration lasted in fewer findings thereupon unfortunately researches were limited to doctoral theses and published papers on subjects that I could reach.

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[1] Conservation at Ani Cathedral and the Church of the Holy Savior field project, available from: <http://www.wmf.org/video/conservation-ani-cathedral-and-church-holy-savior>. [Viewed on 30 May2013].

On the other hand the knowledge of programs used in modeling phase was already taken and I had no attempt of learning those tools during thesis. However I was aware that preparing the project for the research (a short film) demanded a multidisciplinary team work to last in ideal results but unfortunately I could not reach the sources that may have resulted in a team work but that did not stop me from my experimentation within my own abilities.

Initial aim of my research was about understanding the core and mentality of presentation. When and where was it started and why and how it came to an international importance? Later on the different versions of presentation were studied. The research took me from very basic on site visit to the very complex new immersive technologies used in museums. I also participated in workshop of "*South-east European Virtual heritage School: Digital Storytelling for Virtual Museums*"[2] held at *Sarajevo* to get familiar with the new upcoming techs and understand the most effective yet cheap and easy-to-create tools for the aim of presentation. The project we did there was later presented at the "*Digital Heritage International Congress 2013*"[3].During this phase of research I was so many times lost in the mass of very new information I was getting from disciplines other than architecture and it took me some while to find my position in between them.

The noticeable point was the amount of well-prepared documentation projects that were prepared in offices or institutes but rarely turned into any 3-Dimensial documented models which are highly potential in presenting to a public that could hardly understand architectural drawings.

Later researches on the history of Ani were started and I got to know the community that was living there. The Architectural histories of buildings were more or less available but I found very rare information on social life of the Ani. In between my

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[2] Available from: < http://www.v-must.net/schools/south-east-european-virtual-heritage-school-digital-storytelling-virtual-museums#sthash.bqyTag38.dpuf >. [Viewed on June2013].

[3] Digital Heritage International Congress 2013, available from: < http://www.digitalheritage2013.org//>. [Viewed on 30 May2013].

readings I sought for the spirit of the city and tried to sense the physical importance of each living space inside the city in different generations. From initial studies I was nearly sure that the building that was taking my attention was P'rkich and this get to be sure when I visited the site.

The chance of visiting church onsite prepared the opportunity of studying details of the building. spending a whole month at site was enough to understand building structurally and to get prepared for the time I started modeling.

After being able of defining what presentation was and how it differed when transformed to a virtual way, I got to have a wider look on techniques and ways they were done. Very broad range of tools and techniques are shaped mostly (especially immersive type) in demand of high technique and equipment to be done. But very basic and easy to design and in the meantime very efficient in presenting by any available device was transferring the story (the scenario that has been defined beforehand according to the history and features of heritage) using 2 senses of human body: Seeing and hearing. These two lasts in a sensing result which is the initial aim of protection field. The outcome that is mostly a short movie (Video) can be used both on-site and away from site in museum, on the internet and can even be carried on mobile devices.

In between four groups of examples for videos that were studied, I concentrated on the available sample and examples that were already successfully prepared and published. Studying the way their scenario was written and how much amount of information they were giving helped me to decide about my way of story that I was going to tell about the Church. On site observations showed the dis-attraction of visitors to the church due to the physical tiredness that occurred while reaching the church which was only a 10 minute walk. In between the visitor, two groups were attracted: Early Morning and late Afternoon visitors paid attention to the words written on the informing board at the entrance of the building which is limited to two languages of English and Turkish. In other hours visitors mostly denied to read the board or even watch the church for longer than a 30 second lap.

Beyond these physical limitations the lack of interest was due to low level of knowledge about the building. P'rkich has a very strong part in its story that needs

to be told. Also the condition of P'rkich makes it very interesting. The whole site comes under archeological field but the standing part belongs to architectural studies.

Based on its current graphical shape, P'rkich lets the visitors to guess how the other collapsed half was. This imagination is very experience-based and it may or may not amaze the visitor. So in this cases giving the information comes very necessary to avoid any mis-imagine (mis-inform).

Unfortunate Observations at Ani showed that general public could come to visit their heritage without having true information which resulted in their very fictious (far from the reality) brain-storming on the reasons of construction and designer, abundance and social life of heritage. An attractive and effortless to watch presentation with a story based on real studies seems to be preventing their wrong information and answer all the questions came to visitors mind while visiting the site.

On the other hand this short story could be told on the mediums that are available internationally (mostly social media) so the limitations of visit could be in some parts tolerated and the information can be passed in a very efficient and quick way.

The process of transmitting information and inviting the audience to watch and enjoy the interpretation process about the study case was done by a 7 minute movie that was prepared by various tools and techniques with the help of the data that was gathered both from the building and its surrounding and from the literature scanning.

The Words and Images complete each other and cannot be replaced. As the building is a 3d physical object, best way of presenting and understandings it is 3d models. The potentials of each image and data thrived from 3dlaser scans if available should be used.

The history is sometimes complicated and difficult to understand. Due to limits that 10 minute interval creates, information should be clear and if possible use hints rather than full explanations.

The lack of financial sources and helps that was mentioned earlier limited the stage of film making to home versioned tools and the experiences I had gained previously.

But as guessed it only affected the quality of the film in different contexts but could not stop the procedure of making it. This was happily welcomed to our favor as it proved that a student or simply someone that can use any digital medium easily can inform the public about a heritage by gathering the right information about it (categorized in chapter 4) and transmitting it by the help of preservation project with public-friendly visual to audience. Nonetheless, the resulted film in this research should be examined both onsite and on the social media and the reflections to it could be detected afterward. (Time limited the process of research to be lacking this experiment.)

CHAPTER 2

VIRTUAL PRESENTATION OF CULTURAL HERITAGE

2.1. History and Scope of Virtual Presentation

From the first attempts of making rules and defining ethics for conservation of heritage rather than restoration in 1877 by *the Society for the Protection of Ancient Building's Manifesto*[4] till the current decay, the challenge of conservators have not only been physical protection and maintenance of heritage but also transference of its spirit and value. This subject led the first step of the community of specialist after defining the terms of Conservation, Preservation and Restoration to be the definition of words Interpretation, Presentation and Representation. The last draft of *ICOMOS*[5] *Charter for the interpretation and presentation of cultural heritage sites*[6] were ratified in 2008.The 4th part of principle 6 in this chart talks about the rights of using media "such as on-site multimedia presentations, digital media, and printed materials" and slightly points the use of digital media in the process of presentation of heritage. The other point of this part was the on-site or away from the site presentation of the heritage. The familiar way of learning the things that we are not able to feel with any of 5 sense at the time of action happening is hearing stories about it. As children the first experience of experiencing things without actually

[4] The Society for the Protection of Ancient Buildings, The manifesto of the SPAB, available from: <http://www.spab.org.uk/what-is-spab-/the-manifesto/>. [Viewed on 3 February 2014].

[5] ICOMOS is a non-governmental international organization dedicated to the conservation of the world's monuments and sites. Website is available from :<http://www.icomos.org/>.[Viewed on 3 February 2014].

[6] Charter for the interpretation and presentation of cultural heritage sites, ICOMOS ,available from: <http://www.international.icomos.org/charters/interpretation_e.pdf>. [Viewed on 3 February 2014].

do[7]ing them is by hearing stories that most of the times come with drawings to -specify the idea you may get from that words you are hearing.

This is the exact way that itineraries have shaped to transmit the information the traveler has gained to the people that are not/won't be able to gain. The illustrations included in them were transmitting the part of this experiment that words would had difficulty (or even were unable) to tell. This shaped the desire of recording a visual moment and shaping the initial cameras in 18th century.

The initial concept of capturing something in a specific moment that(the time-pass will not affect the information inside it) started to role as an important source of visual information that protected things and gave the viewers the information they wanted to gain about something that they could not be in it which was past.

While Conservation field was moving so carefully towards, the branch of computer science had a mutation from late 1950s to 70s when first digital tools got available for public use (Allan, 2001). Techniques of *analogue photography and photogrammetry* and later digital form of them for documentation of heritage appeared in mid-19th century and a new page started in this field.

By start of digital era and following it the *Information and Communication Technology* (ICT) started to define the techniques of handling heritage in a systematic way.

After the Enlightenment era in 17th century the idea of museum shaped and exhibiting what is worthy was vogued. In 18th century the replicas or photos and drawings of heritage which the importance of it was being realized day by day started. Museums (As Didactic presentation tools meaning 'away from original context exhibition') and archaeology were very useful for each other attracting people specially tourists to show the part of history in a visual way to them. The objects or items shown in museums were unique objects found on restricted to visit archeological sites or were the ones impossible to protect there. On the other hand were the huge architectural pieces or partially ruins of them that were impossible to

[7] Here the verb Do is used generally for the way we shift information into the brain by using any -(combination) of our five senses. It is the process of experiencing an action or thing by getting interacted with it.

carry, so people were visiting them on-site and they walked through them otherwise they could have only see the photos and/or architectural documented drawings of them.

The initial concept of the documentation that was a gather of points and lines in a 2 dimensional (from now on 2-D) way and presenting the information needed on a plane completing its aim by using replicas (realistic or non-realistic) of the object, Monument, a set of buildings and rarely site and territories had an evolution by the invention of CAD[8] tools in the beginning of 1980s when factor of 3rd dimension (3 dimensional from now on 3-D) was proposed.

While *Venice charter 1964* [9] discussed the importance of documentation and need for publication of what has been recorded under its article 16: Article 16.

"In all works of preservation, restoration or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs. Every stage of the work of clearing, consolidation, rearrangement and integration, as well as technical and formal features identified during the course of the work, should be included. This record should be placed in the archives of a public institution and made available to research workers. It is recommended that the report should be published."[9], *The Charter of Cultural Tourism*[10] discussed the importance of self-experience of human on site and how the rise of awareness about heritage and also income of this action would help the conservation of heritage in 70s. But only a decay later result of experimentations started to affect this motivation as the on-site visits were slightly harming the valuable heritages. The personal observations started to be limited (banned for some

[8] The Computer aided design/drafting

[9] The Venice Charter for the Conservation and Restoration of Monuments and Sites, available from:< http://www.icomos.org/charters/venice_e.pdf>.[viewed on 3 February 2014]

[10] ICOMOS, The charter of cultural tourism, available from: <http://www.icomos.org/tourism/tourism_charter.html>.[viewed on 3 February 2014]

sites) in the sake of safeguarding the cultural sites and buildings. (Cameron F., (ed.)2007)[11]

In the meantime film and animation industries[12] were two branches that were growing so the overlap of these two let the conservative world to start using motioned photos and drawings to broke the limits in 'seeing'[13] the heritage. From that point an affective progress happened in the methods of presentation and representation.

2.2. Techniques/ Methods

There are varieties of techniques for presenting heritage (site, building or object) both on site and away from the site. These methods starts from very basic ways of interacting (i.e. Talking) to very high-tech ways of them. During this research it was strongly realized that these techniques are in fact a group and they can pay out by working hand in hand. The basic ways of presenting which were the paths of reaching the very complicated type of them still have their own demands and none of them replaced others. *Figure 1* was prepared to be a quick guide on these techniques. It also exaggerates the methods that can be multi-used and are free from the limitations other ones have. These methods vary in cost and profession level and in level of interaction. In depth discussion about it would be done at 2.3.

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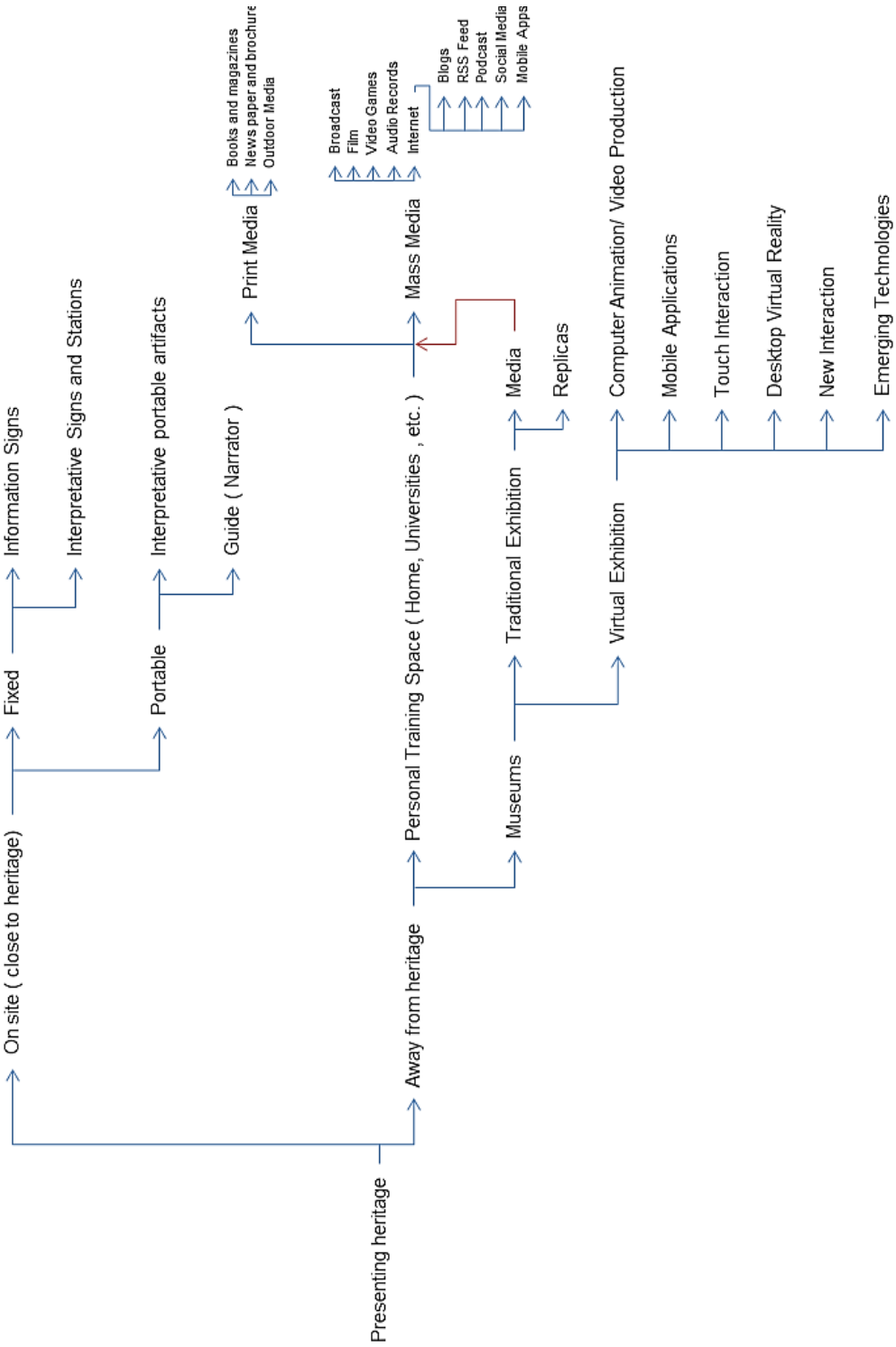
[11] Flynn, Bernadette 2007, 'The morphology of space in virtual heritage' in *Theorizing Digital Cultural Heritage:A critical Discourse*, eds Fiona Cameron,Sarah Kenderdine, MIT press,Cambridge, pp: 362-365.

[12] Film industry transmits the real motioned images with sound to the viewer. Animation industry transforms the drawn sketches with sounds to viewer. Both have started in early 20th century and by 90s they had a huge compact on the way people were getting their information. Briefly Media was the digital way of transmitting information to people.

[13] Here the verb see points out the initial need of a person in manner of exploring and experiencing something that is out of reach so the other two senses of smell and touch (obviously tasting is out of context in architectural heritage topic) are unavailable.

Figure 1. Techniques of Presentation, Prepared by Author



2.2.1. On-Site *(Fixed)*

Information Signs:

They are fixed street furniture that can be digital and/or printed materials including words and images (Photos/ Maps/ Drawings).They give brief information about the heritage to shape a basic imagination about it.

Interpretative Signs and Stations:

Interactive and manipulative street furniture usually with a textual/graphical description.

They are digital and non-digital type of them. These elements can be fun to look and they give the viewer a very specific graphical natured way of information about the heritage. They work best for the buildings and objects.

The *Katzrin ancient village*[14] that dates back to Bronze Age and has continued to the Islamic period is now an open air museum that presents the ruins of multiple buildings and a synagogue that has been partially reconstructed in wall and interior columns. Audience can understand the ruins with the help of a sign tool that suggests the person to stand in a specific distance and position from the ruins. Then with the help of a hand drawn restitution of buildings original state on a transparent sheet, the person looks trough it towards the building and that is the moment that the idea of synagogue's initial shape and feature in audience's mind is shaped. (Figure 4-Figure 5)

The well-known digital type of these stands is the *Ename Project*[15] for the *Ename settlement* founded in 975 AD and abandoned in 1795 AD which is also left with ruins that only look like labyrinth. A stand that is formed of a shelter and bearing

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[14] Katzrin ancient village and synagogue is an open-air museum representing the belongings of Talmudic-era village,

Available From<http://humrp1.utsc.utoronto.ca/ePorte/sites/default/files/biblio/relatedfiles/2012-05-03/TALMUDIC%20HOUSE%20IN%20ISRAEL.pdf >[viewed on 1 February 2013]

[15] Ename Project, Available From< http://www.pam-ov.be/ename/erfgoed/site >[viewed on 1 November 2014]

columns provides a digitally drawn restitution applies on the live video of the ruins displaying on a monitor that transforms the data both visually and audible. Also time frames that show the different states of the building throughout the time are available in this part of project. (Figure2-Figure3)

Figure 2. The Design Stage of the Shelter and the Time Frame (Başağaç, July 2005)

Figure 3. Ename Open-air Museum, The shelter is marked in the photo, Available from < http://www.pam-ov.be/ename/erfgoed/site>

Figure 4. Katzrin Synagogue, Standing Zone (ÖZKAYA, 2014)

Figure 5. Katzrin Synagogue, Restitution Sketch on Transparent Glass (ÖZKAYA, 2014)

2.2.2. On-Site (Portable)

Interpretative Portable Artifacts:

Portable devices such as mobile devices like smart phones or tablets transferring any kind of information such as textual, audio, visual, etc. The upgraded type of them provides the user to get a suitable use of them according to age, gender and level of interest. The interaction between user and the tool works in the benefit of the user to get specific, quickly reachable and easy to understand to the point information about the question that arises while visiting. The ease of moving while getting information turns the experience of visiting heritage enjoyable, time saving and practical.

iTACTUS (Figure 6) is a tool designed by *Fraunhofer Institute for Computer Graphics Research IGD* [16] as a part of project series for providing mobile information systems in cultural heritage. This portable tool is designed to transmit visual information with a pocket sized device to the user that could command in it with touch actions. A tracker supports the data of the user's position and automatically notices the object-heritage that the user is watching.

Reggia Venaria Reale [17]has been experimented by this tool in helping audience to get detailed information and ease the task of understanding the damaged parts of paintings or the ruined parts of the palace complex.

Even though an electronic device has been designed for this project the upgrade of smartphones and countless number of them available has shaped other projects where the application for the smartphone or tablet is designed and installing that application and connecting to the internet are the only steps to prepare user to start

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[16] *Fraunhofer IGD is a pioneer institute in applied research in visual computing*, Available from <https://www.igd.fraunhofer.de/en/Institut/Abteilungen/Virtuelle-und-Erweiterte-Realit%C3%A4t/Projekte/iTACITUS >[viewed on 15 August 2014]

[17] *The palace of Venaria* built in 1675 BC is placed in Turin, Italy and has been registered in UNESCO heritage list in 1997, Available from < http://www.lavenaria.it/web/ > and from < http://www.youtube.com/watch?v=SbIioo09Ou4 > [viewed on 15 August 2014]

using it. This has lowered the budget needed for this type of projects and has accelerated the process of production.

Augmented Reality Sightseeing[18] is another project introduced by this institute at 2009 which uses iPhone as a device for the program designed for the Berlin, Germany. Urban development of the city between years 1940-2008 and 3D model of Berlin wall are displayed in the program. The location sensitive application superimposes historic photos of monuments of Berlin on their live video while watching it.

[18] The description of the project and design idea is available from

< http://www.instantreality.org/augmented-reality-sightseeing/ > [viewed on 15 August 2014]

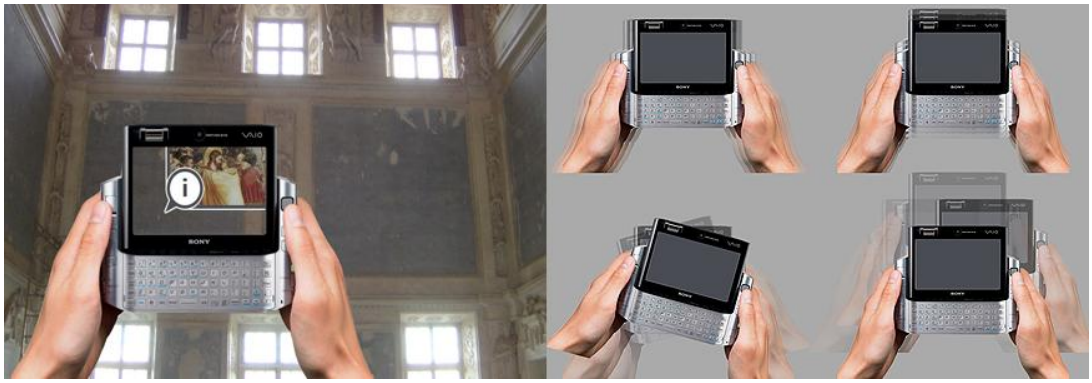

Figure 6. iTACITUS Reality Filtering Portable Guide Device, Available from < http://www.instantreality.org/itacitus/>

Figure 7. Augmented Berlin Sightseeing, Available from < http://www.instantreality.org/augmented-reality-sightseeing/ >

Guide (Narrator):

A person who guides people; or a recorded voice being played with speakers around the heritage. In this type only eyes are interacted and they can freely seek the parts of heritage continuing the audible information. In both ways the information that is going to be given is researched and prepared beforehand. Guide itself has the control of managing the amount and type of information that could be transmitted while entertaining the audience. Guide also points out the different parts of heritage

visually while describing. This person masters the heritage that is being introduced and should be able to answer questions of visitors in a standard level.

2.2.3. Away From Site *Personal Training Space*

Print Media:

Printed information (Words and Images) generally on paper in different scales such as Books and Magazines, Newspapers and brochures and outdoor media such as billboards. They are graphically attracting in general and pocket type of them is usually preferred by tourist for use on sites. Brochures are usually freely given to the visitor for informing aims but books, magazines and newspapers are normally bought by the visitor upon their interest. Billboards carry quotes or short sentences to absorb visitor's attention and to leave a message in their mind.

Figure 8 shows one billboard from the series of Great Britain's heritage and sightseeing billboards using the word 'Great' as a symbol and tries to arise the national senses towards their heritage in public mind.

Figure 8. Billboard of Heritage, Available from <http://www.dailybillboardblog.com/2011/06/calvin-klein-swimwear-models-billboard.html>

Mass Media:

It is generally transferred via a gadget like TV, Radio, Personal Computers, Laptops and tablets, phones and big screens.

Different types of it are:

- Broadcast
- Film
- Video Games
- Audio Records
- Internet:
    - Blogs
    - RSS Feed
    - Podcast
    - Social Media: These mediums are the cheapest yet affecting type of platforms to reach huge number of communities and populations. They generally support all kind of visual data and any prepared type could

be shared with controllable access to public. The possibility of commenting on the shared data is another positive feature of them where public can reflect to the project made and evaluation of them prepares the base of public need.

- Mobile Apps: The incredible variety of this type has opened very different opportunities for any user of smartphones to record and present and share the information that they can gather very easily. As was introduced in 2.2.2. Purchasable and free type of them is available in variety of formats for different kind of operating systems. Concerned with heritage issues has shaped the economic idea of sourcing by designer where the fee for the projects to remain on the domain of those applications are paid by the owner of project therefore the public could use it freely. In between them some of noticeable ones are:

- Photosynth 

: 360 degrees photo shooting software application. Designed and prepared by Microsoft Live Labs and the University of Washington, it analyzes digital photos that user captures in the limits introduced to him/her and generates a 3D model and point cloud of it while letting user to view it on their device as a panoramic photo. Also location sensitivity of the application notices the location of the photos taken and has the ability of sharing data on the internet freely for the public access. The produced data is also accessible via computers [19](Figure 9)

[19] Photosynth software application , available from < https://photosynth.net/> [viewed on 15 August 2013]

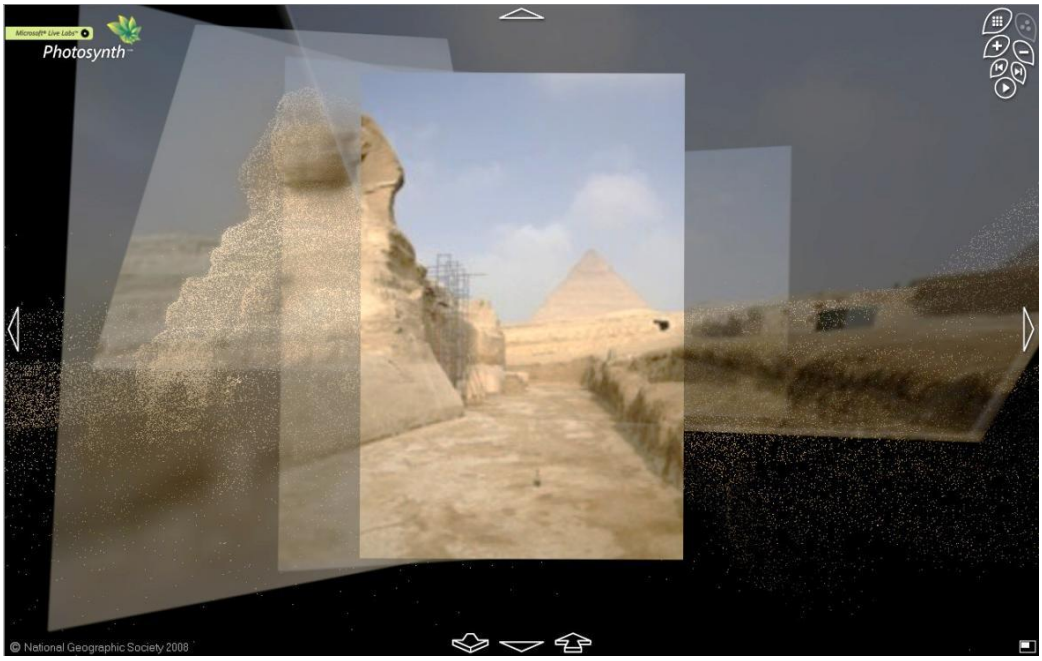

Figure 9. Sphinx trough Photosynth,

Available from <https://photosynth.net/view.aspx?cid=7baa4f1a-893d-4e15-b6e6-526399e2752a>

Augment AUGMENT: Founded in 2012 by the *AugementeDev Group* [20] in France Turns Codes and trackers to augmented 3d models. Available for most of operating systems has the option of introducing designers own tracker that could simply be a photo. That is in favor of heritage interpretation where 2D maps can be prepared as tracker and 3d model can be augmented on it. Also printed postcards can turn to an enjoyable experience by tracking them with Augment.

Figure **10)**

[20] Augmented Reality Application, Available from <http://augmentedev.com/> [viewed on 15 August 2013]

Figure 10. Augment Application Tracking a Pre-defined Photo for its 3d Model, Available from < http://augmentedev.com/blog/en/>

Layar: Founded in 2009 by the *Blippar Group* [21] in Netherlands this application has the responsibility of Reading pre-defined trackers and turning them into videos, slideshows, websites or any other graphical data. This application is also in favor of any book, magazine, brochure, postcards or any other printed material that needs to transmit 3D information. Layar while Available for most of operating systems, entertains the user while learning them by accelerating the process of reaching this type of data quickly in compare with

[21] Layar Application, available from < https://www.layar.com/ > [viewed on 15 August 2013]

the past few years only by browsing internet or reaching the data only on memory sticks or CD-DVDs.(Figure 11)

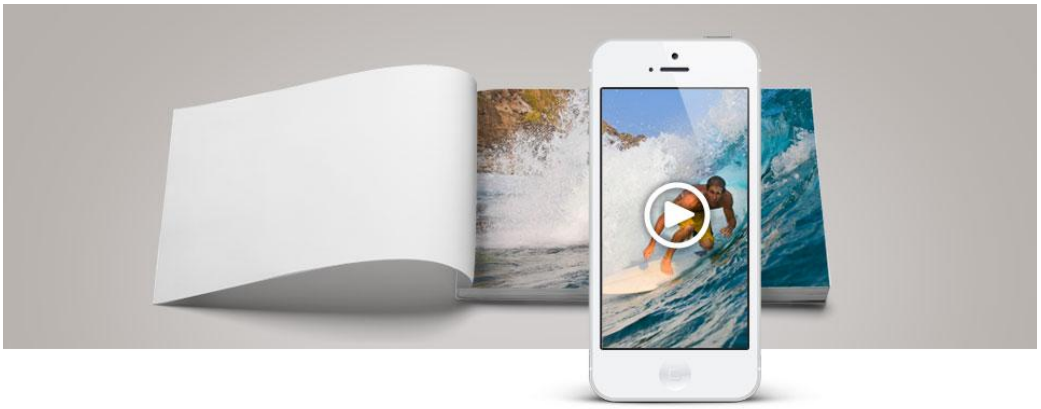

Figure 11. A Snapshot of Layar Application While turning a Photo to a Video, Available from < https://www.layar.com/products/app/>

- Matera, Tales of a city: Custom designed apps for special heritages usually contain story, maps, and graphical description fruited with narrators such as animals or warriors or any fictional character. When combined with GPS tracker they are highly potential for using onsite visits. Matera is the story of a small city in Italy. This project was coordinated by CNR ITABC with the aim of making a platform for serving public before and during the visit to Matera city that was found by romans in 3rd century BC and has been on list of World Heritage since 1993. [22] Application supports most of operating systems and should be installed before use. It contains photos, films, graphical maps and uses narrating way of transmitting information. Some short movies have been

[22] Matera Tales of a city Application, available from
< http://www.materacittanarrata.it/homepage.asp> [viewed on 15 August 2013]

prepared for the project in aim of introducing the intangible features of the era that is reachable inside the application. As the symbol of city, a falcon has been designed that assists the user to fly over the city and explore it.

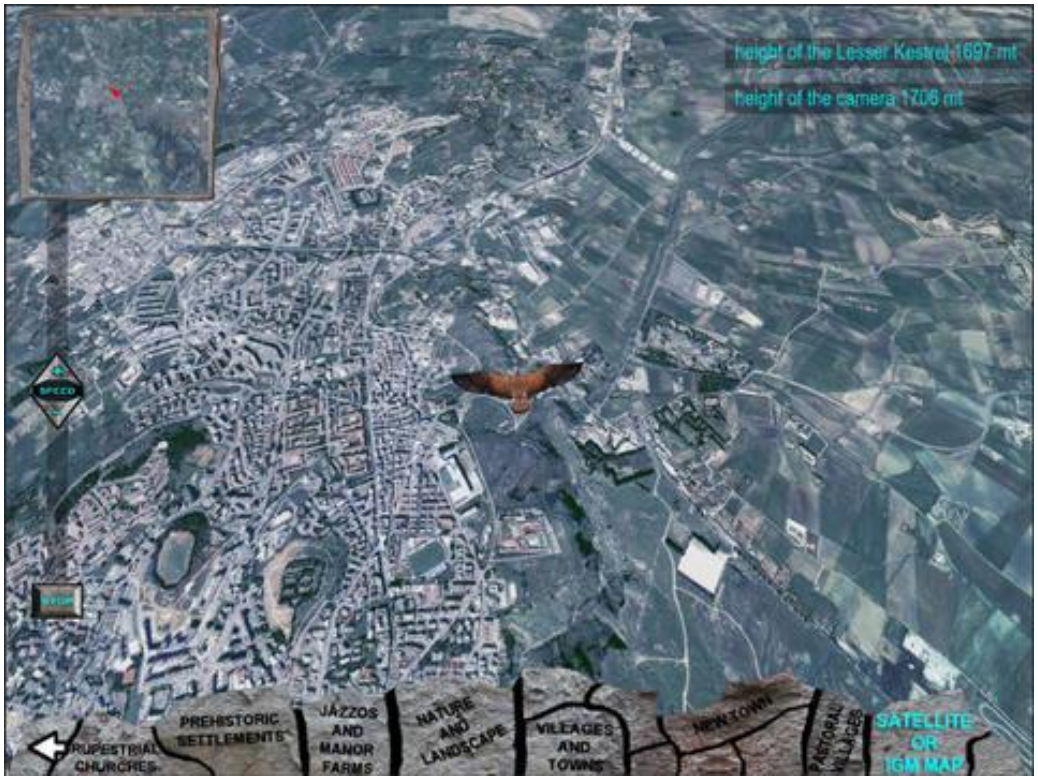

Figure 12. A Snapshot from the Matera, Tales of a city Application, Available from <https://itunes.apple.com/us/app/id439208206?mt=8&ign-mpt=uo%3D8>

2.2.4. Away From Site *Museums*

Traditional Exhibition:

1. **Media:** Same ass mass Media which was discussed before in Mass Media.

2. **Replicas:** A copy usually in a smaller scale with all details of the main artifact or building.

Virtual Exhibition[23]**:**

- Computer Animation/ Video Production
- Mobile Applications
- Touch Interaction
- Desktop Virtual Reality
- New Interactions
- Emerging Technologies

Computer Animation/ Video Production

Movies or Films are the combination of images and motional images (videos) with a scenario that is set to describe specific amount of information visually and audibly to the audience. Upgraded technologies has prepared formats of this produced data to be compatible with most of the devices therefore its Easy-to-share and edutaining[24] character has turned films to be one of the most popular types. Computer animation that are usually prepared by animators with the help of computer software has progressed rapidly as they are able of preparing reality looked images and videos. Movies and their types would be discussed more in-depth later in Chapter 4.

An animation (short film) has been prepared as a part of the reconstructive study of *Jupiter Anxur sanctuary in Terracina*[25] in Lazio, Italy which dates back to 600 BC.

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[23] The groups and titles were derived from the *Archeovirtual* that is biggest virtual exhibition for archeological belongings in Europe.
Available From<https://www.v-must.net/activities/archeovirtual-2011>[viewed on 3 February 2013]

[24] Educating while entertaining.

[25] Jupiter Anxur sanctuary in Terracina, Available From<http://www.youtube.com/watch?v=vkOZKKFgRu4 >[viewed on May 2014]

This digital movie was prepared by *Francesco Gabellone* (IBAM -- CNR (National Council of Research), Italy). The animation won the 2012 CHNT video award.[26]

Figure 13. Snapshot from The Terracina: the sanctuary of Jupiter Anxur digital Movie [25]

Byzantium 1200 is another project that has started in 1994 aiming the reconstruction of totally ruined monuments and houses of 12th century of Istanbul, Turkey. They share prepared 3d images and animations in their website and in their Youtube account.[27]

[26] Conference On Cultural Heritage And New Technologies, Available From < http://www.chnt.at/ > [viewed on May 2014]

[27] Byzantium 1200,Available From < http://www.byzantium1200.com/index.html> [viewed on May 2014]

Touch Interactions:

This technique prepares monitors for users to get the control of interaction by touching the surface of it. Nowadays tablets and smart phones are good example of this type's home version. Big touch screen can be settled at museums or on sites.

Desktop Virtual Reality:

Very similar to Touch interaction where the controller in not hand touching the surface but hands touching a gadget mostly mousses.

Virtual Museum of Ancient Via Flaminia[28] in Roman National Museum is a project that has widened this experience by turning it to a multi-user project; where 4 users can sit in the chairs prepared for them and at the same time explore the virtual space as a chosen character by using a controller and looking at the monitor embedded there. Other audience can watch their exploration via a big screen. This project was one of the first to be joining the different techniques together in aim of educating heritage in 2008 developed by CNR ITABC in Italy. The virtual reality that has been designed to communicate with audience has gathered 3d scanned data and computer animation for reconstruction aims and users can experience the heritage which is hard to reach and understand away from it in a high detailed way. (Figure 14)

[28] Virtual Museum of Ancient Via Flaminia, Available From< https://www.v-must.net/virtual-museums/vm/virtual-museum-ancient-flaminia-2008> and <http://www.youtube.com/watch?v=krmH8H9I-tc> [viewed on May 2014]

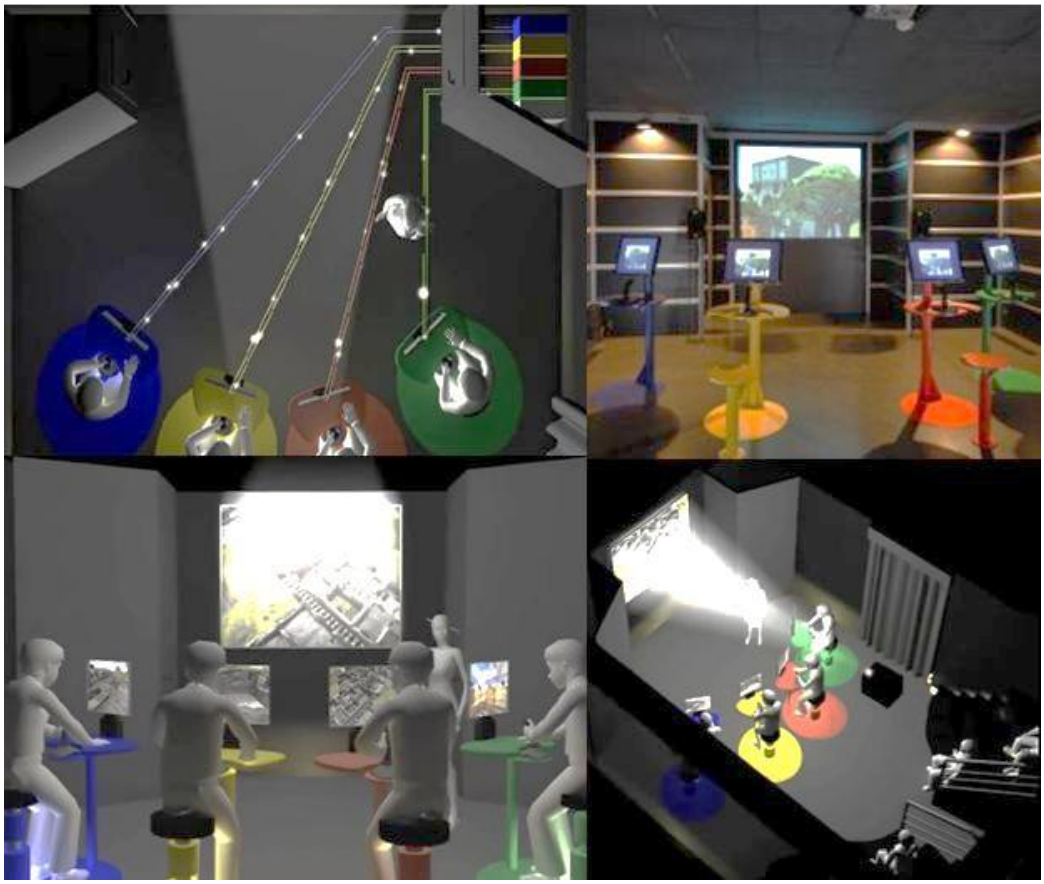

Figure 14. Virtual Museum of Ancient via Flaminia, Animated Images Showing the System of Design[28], four chairs and the main screen can be seen in images.

Kaman Museum in Kırşehir,[29] Turkey has also been equipped by projects that *Reo-Tek Co.*[30] *Ltd* has designed. In this museum two different ages of *Archeological site of Kalehöyük* has been reconstructed in real time 3d and exploring them is possible with controller tools. The objects on the site have been modeled and they are being

[29] Kaman Kalehöyük Archaeological Museum, Available From <http://kalehoyukarkeolojimuzesi.gov.tr/> [viewed on May 2014]

[30] Reo-Tek is a developer of interactive technologies within METU Technopolis., Available From < http://www.reo-tek.com/en/> [viewed on May 2014]

presented on screen and also by reflecting those on the ground where this reflects are sensitive to user movement. This archeological site that dates back to Bronze Age has been fully scanned and later reconstructed and interpreted in computer environment.

Figure 15. Kaman Museum, Desktop Interactive Information system' Available from < http://www.reo-tek.com/en/projects/kaman-kalehoyuk-archeology-museum/>

Figure 16. Kaman Museum, Children friendly Desktop Interactive tools, Available from < http://www.reo-tek.com/en/projects/kaman-kalehoyuk-archeology-museum/>

New Interaction:

When you use your body to walk through a virtual route or space, or you get to only show the turning ways and you avatar would got to that direction. No touching is needed in this method. As the augmentation of this method is very enjoyable and very close to reality, the high techniques and gadgets needed are pricy and expensive to maintenance and they should be in closed spaces.

Rediscovering Vrouw Maria [31] is a gesture based interactive real time virtual reality simulation project about the underwater archeological site. It has been it has been undertaken by Department of Media in Aalto University School of Arts, Design and Architecture and the Maritime Archeology Unit in the National Board of Antiquities of Finland in 2010. It is installed in a 6x6 meters dark and silent room containing 3x2 wide screen and a projector and 5 loudspeakers that has been spread around the room and a sensor that monitors hand gestures of the visitor. User can explore the undersea reconstruction by giving command according to the rules of project.

[31] A novel gesture-based interface for a VR simulation: Re-discovering Vrouw Maria., Available From< http://vimeo.com/40924271/> and
< http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6365941&isnumber=6365890 >
[viewed 20November 2014]

Figure 17. Snapshot from presented video for the project of Re-discovering Vrouw Maria, (Sen, F 2012), Available From< http://vimeo.com/40924271/>

Etkivizyon is another project by Reo-Tek Co. that attracts users attention by a simulated interactive installation that forces them to act physically (walking or passing by) for a reflection from project. It comes useful for the parts that heritage is reflected on the walls and passing by them acts as a controller to show the original state of that heritage. This core design idea can be used in variable ways.[32]

[32] Etkivizyon, Available From < http://www.reo-tek.com/tr/projeler/etkivizyon/> [viewed on May 2014]

Figure 18. Etkivizyon, The back side of coin is shown while stepping on it

Available From < http://www.reo-tek.com/tr/projeler/etkivizyon/> [viewed on May 2014]

Figure 19. Etkivizyon, The image changes while the person passes by the screen

Available From < http://www.reo-tek.com/tr/projeler/etkivizyon/> [viewed on May 2014]

Emerging Technologies:

The most recent technologies concentrate on immersive technologies where the gesture of eyes or command of brain is being transformed to controlling command

to the avatar that is acting instead of the person in this space. One of the public available types of this technology is Google glass introduced in 2012.

Roma Nova[33] is a project in the aim of teaching young generation about the history of city Roma by engaging them with virtual Romans in an immersive space. This project under the supervision of *Conventry University* in England is still under research and completion. (Figure 20)

BRAVO [34] is "a brain virtual operator for education exploiting brain-computer interfaces" designed in *University of Bologna* which gathers the data of concentration and mediation levels and while browsing through data in the response of interest the programs gives more information on the content. This education tool can be multi used as in classroom and low concentrations could be notified. New subjects are suggested in this condition by the program. (Figure 21)

Figure 20. Snapshot from the Roma Nova, a prototype brain-controlled serious game,

Available from < http://www.youtube.com/watch?v=gbQssBMklOY>

[33] Roma Nova Project, Available From< http://www.coventry.ac.uk/research-bank/ref-2014-units-of-assessment/computer-science-informatics/funded-projects/roma-nova/> [viewed on May 2014]

[34] BRAVO Project, Available From< http://www.researchgate.net/publication/236632566_BRAVO_a_brain_virtual_operator_for_education_exploiting_brain-computer_interfaces> [viewed on May 2014]

Figure 21. Snapshot From BRAVO, A Content Visualization Software That Works With Brain-Computer Interface,

Available from < http://www.youtube.com/watch?v=gbQssBMklOY>

2.3. Development of Criteria for the Assessment of Presentation techniques

Comparing different methods with each other and evaluating the 'better' one would not be very realistic and practical. But self-comparing them and evaluating their weak and strong points would be rational. In order to do that I prepared a table (evaluating each method under clauses: Type, Concept and aim and design, Location and characteristic of space, maintenance, Adaptation to public (interactivity)) (Grevtsova, 2012).The chart helped in realizing the importance of using two senses of sight and hearing in the process of presenting which are basic and practical in comparison to others. The very simple example of it is a movie that could be presented in both fixed and portable elements in all places. This kind of presentation is suitable and flexible enough to design and be played with the amount, type and quality of information that could be presented. Also it is fun for user to watch if designed well and its appealing way of interaction has been favorable for decays now. This resulted in my decision for making a short movie for my study case that would be described in 3rd chapter.

Table 1. Evaluation of presentation techniques, Prepared by Author

Name	Type	Concept, Aim and design	Location & Charactristic of Space	Maintence	Adaptation to public (interactivity)
Guide (Narrator)	Human	Transferrer of information (story) of heritage in an auditory manner guided by pointing gestures	---	---	Face to face interaction (vistors may have difficulties in hearing guid) Any question could be asked
Information Signs	Street furniture digital and/or printed materials including words and images (Photos/ Maps/ Drawings)	Transferring information in a rational(possible) short way to reader	-They are usually placed in specific spots of heritage (i.e. entrance ,important parts etc.) or they guid visitor through a route -The other type is Print Media	Affectable by climate factors – vandalism	2 languages are usually used to be adapted to public who can read and analyse graphics with reality -Age limitations may occur due to the complexity of language/graphic used
Interpretative signs & Stations	Interactive and manipulative street furniture usually with a textual/graphical discription	Forcing eyes to see the desired target in designed limits in order to relate to them by the help of information given	-They are usually placed in predesigned specific point and usually make visitors to look through them -Sometimes they are only spots that suggest you to stand on them and look	-Affectable by climate factors - vandalism -accidental harms during usage	-Any age can understand the point of view in this furnitures* -Encouraging charactristic of these tools are signified(edutainment)

Table 1. (Continued)

Name	Type	Concept, Aim and design	Location & Charactristic of Space	Maintence	Adaptation to public (interactivity)
Interpretative Portable Artifacts	Portable devices such as Mobile devices like phones or tablets transferring any kind of information such as Textual,Audio,visual,etc.	Freedom in getting (amount/complexity/order of) information from designed source (Applications or programs inside the device) usually supported by GPS information	-They are usually carried by the owner an can be used according to the design of Application installed on them -Long chargeholders and light weight of them have made them easy to use and carry	-they are normally user owned who is in charge of its problems -Application are relatively high to design but teh final product is applicable to uncounted devices	-Any age can understand the point of view in this furnitures* -Encouraging charactristic of these tools are signified(edutainment) -very useful for disabled visitors
Printed Mass Media	Printed information (Words and Images)generally on paper in different scales such as Books and Magazines, Newspapers and brochures and outdoor media such as bilboards	Transferring information in a short or detailed way to reader according to its varieties	They are portable. Usually bought by the user or distributed by the informing centre.	-they are normally user owned who is in charge of its problems -they can be affected by time, fire and water.	According to the level of the language used in it, any one who could read without age limits can get information inside it -graphical designs could be used to motivate children to enjoy while getting information
Digital Mass Media	Different types of media such	aimed to reach large groups of people using	They are usually broadcated from a predefined station	-	Many variety of them are being applied to many

Table 1. (Continued)

Name	Type	Concept, Aim and design	Location & Charactristic of Space	Maintence	Adaptation to public (interactivity)
	as broadcasts,films,video games, audio records and internet* generally transfered via a gadget like TV,Radio,Personal Computers, Laptops and tablets, phones and Big screens	mass comunication	or are prepared material to transform information using senses of seeing and hearing		different ages. This type of media is the most used media in the world.
Internet*	Under the category of digital mass media, this unit has had a massive grown and is the most interactive type of it. One needs a gadget to reach internet.	World wide web which is the domain of networks is reachable via internet.It makes every kind of information to be reachable for public and literally eliminates the factor of time .	Reached by different type of gadgets, internet let person to person or group to person or person to group kind of interactions where you can share your information inside specific rules.	The highest risk is when the informations are deleted which is caused by varirty of factors that could be controlled.	No age limits are applied for using safe sites and even internet has become a strong part of education tools and system.
Replicas	A copy usually in a smaller sclae with all details of the	1.in case of artifacts they are made to transfer the visual inofrmation such	They are kept in museums and sometimes low-quality ones can be found at	Based on material made from they are usually safe at museums if	Any age will have a understanding from replicas based on their knowledge

Table 1. (Continued)

Name	Type	Concept, Aim and design	Location & Charactristic of Space	Maintence	Adaptation to public (interactivity)
	main artifact or building.	as shape, color, dimensions to the viewer in place of the artifact itself (as they ar being preserved from light and other affectable factors) 2.In case of big scale heritages they are made to transfer shape and colors and usually the ratio of dimensions to the viewer in case they are not able to visit the heritage itself.	stores.They are also sold to on-site visitors as a memorible piece.some simplified ones are designed for edutainment purposes.	they get a routine care.Color changes may be possible.	
Animation and video games- Mobile Apps -Desktop and touch interaction - New Interaction and emerging Techs	These are computer based designed ways to transmit information about different parts of heritage by interacting people with it virtually.	Virtual way of feeling and sensing the importance of heritage and its functions by using entertaining gadgets .	Reachable by gadgets that are affordable and expensive.affordable ones are used at home and mostly portable so one can carry them around. Expensive ones are mainly designed to be used at exhibit centres near sites or in museums for a higher sense of interaction and	Gadgets need care and they have expiration dates due to fast grown digital sector.otherwise they need only routine cares . For the programs and apps ,highest risk is when	Interactive ones are the most user friendly and motivating ones to use for any age as you entertain while learning.Specially children are the fan of them.

Table 1. (Continued)

Name	Type	Concept, Aim and design	Location & Charactristic of Space	Maintence	Adaptation to public (interactivity)
			they are usually big in size and none portable.	the informations are deleted which is caused by varirty of factors that could be controlled.	

CHAPTER 3

ARCHAEOLOGICAL SITE OF ANI AND SURP AMENA PRKITCH CHURCH

3.1. History of the Region and the City and Urban development

Ani is situated in the northeast of Turkey in the Kars province. It is 40 kilometers to the east from Kars city until the borders of Turkey-Armenia are reached. The borders are defined by a river called *Akhurian* (Armenian) or *Arpaçay* (Turkish) and it is the limits of Ani archaeological site to the east. The site is placed on top of a plateau limited by cliff valleys from three sides. The fourth side in the west is the way the site is reached. In this side you will face fortification walls of the site but right behind those walls lays a 900 people populated village called Ocaklı. The freeway connecting Kars to Ocaklı would continue with a narrower road passing through Ocaklı and reaching to the main gate of Ani.

The altitude of Ani is about 1465 meters from see level and has a humid continental climate[35]. Great difference between temperature in summer - winter and also day - night may have been a big reason for the type of architecture that has appeared there. The very rare plant tissue catches attention in these areas as there is no single tree in the site of Ani. Trees are only grown right near the river down the valley. And this lack has resulted so many to mention Ani as a deserted place. According to local people only a decay ago all the vegetable and fruit demand of the Ocaklı was

[35] World maps of Köppen-Geiger climate classification published by Wladimir Köppen 1884, reviewed by Rubel and Kottek 2011,Available from: <http://koeppen-geiger.vu-wien.ac.at/> [viewed on 16 November 2013]

supplied by agricultural activities in valleys but it discontinued due to water problems which still exist.

Figure 23. Turkey (highlighted Kars province), Available from Maps@google 2013, Satellite view layer, <http://maps.google.com > [Viewed 16 November 2013]

Figure 24. Kars Province (highlighted), Available from Maps@google 2013, Satellite view layer, <http://maps.google.com > [Viewed 16 November 2013]

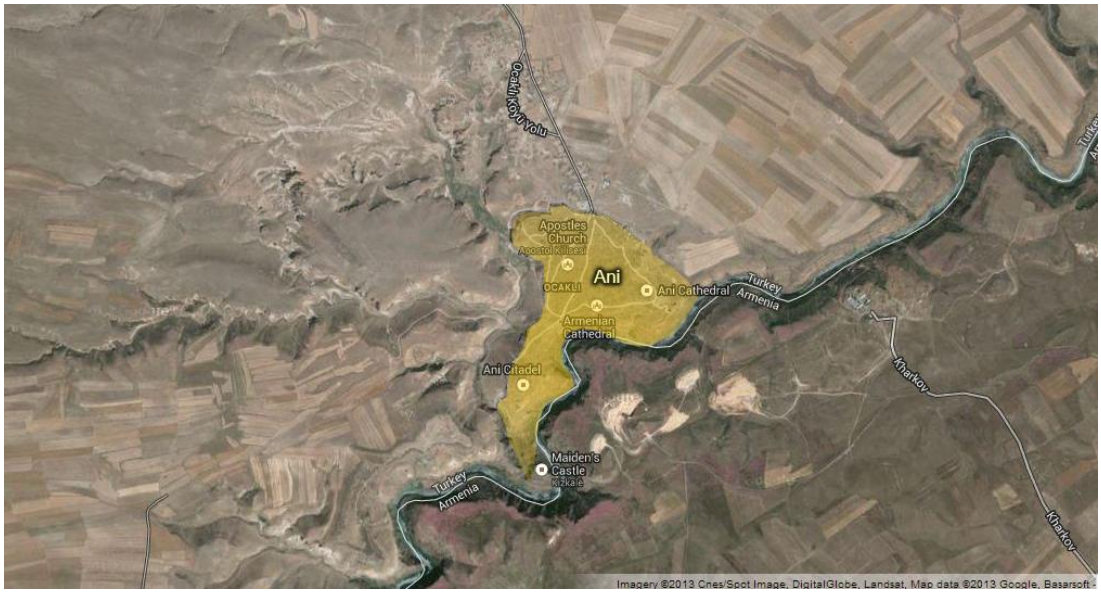

Figure 25. Ocaklı town (highlighted Ani archaeological site), Available from Maps@google 2013, Satellite view layer, <http://maps.google.com > [Viewed 16 November 2013]

The Site was registered in 1984 as archeological site by The Minister of Culture and Tourism of the republic of Turkey[36]. Later in 1996 the site was listed in World Monuments Fund's watch list.

Strabo[37] has referred the name of Ani (Also known as Anion, Anisi, آنی, Անի) to a group of people living in these areas of Armenia Called Ænianes.

All the information about Ani comes from inscriptions found in site graved on different buildings and also copy of inscriptions done by historians of time or later about the city and their analysis.

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[36] The information was obtained from Kars Müze Müdürlüğü (Directorate of Museum at Kars).

[37] .The Geography of Strabo. Literally translated, with notes, in three volumes. London. George Bell & Sons. 1903.Available from: <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0239%3Abook%3D10 > [viewed on 16 November 2013]

Figure 26. Aerial Photo of Ani , 2006

At the beginnings of the Ninth century the Arab rule over the Armenia started to weaken and some families of Armenia started to regain their power. This was the times that they started to use the word King for themselves and it was also accepted by Arabs and byzantine rulers. Bagratuni kingdom was shaped by *Ashot I Bagratuni* who was in a suitable condition (people trusted him as his father *Smbat* had died in exile in *Samara,* nowadays Iraq and also he was a refuge in *Tayk* which geographically was an advantage for him) after death of *Caliph al Mutavakkil* in

861 to recover the political supremacy in Armenia. He was officially accepted as king later in 884 he was awarded royal crown and many clothes and honors by the caliph of time *Al Mutamid*. Ashot I chose *Avan of Bagaran* a town at the south of Ani as his capital and he also was buried there and he was the first king ever of Armenia and the founder of Bagratuni dynasty which ruled until 1045.

Later after Ashot I death in 890 his son *Smbat I* chose *Erazgavork/Shirakavan* to be his capital as the city was his estate but at the same time Kars and Ani were also a very important fortress for Bagratunies. It is even mentioned by *John Catholicos* that Smbat imprisoned an opponent in Ani in about 904 and all the things in Ani belonged to the king. According to Tim Greenwood both Ani and Kars were mentioned several times as *berdk* rather than *avan* or *kaghak* meaning military fortresses rather than city or town, so clearly the defensive nature of Ani was already being used in this era.

After Smbat I, *Ashot III* (952/3-977) was crowned at 961 in Ani where he chose it to be the capital of Armenia and kingdom of Bagratuni by the Catholicos of time *Anania Mokatsi* who also lived in Ani. Ashot III was entitled King of Kings (Shahanshah, Persian شاهنشاه) and this continued also to his sons *Smbat II and Gagik I*. The time of Ashot III may be the first time Ani has been mentioned by *Stephen of Taron* an 11th century Armenian historian as a *city*. The first fortification walls of earlier Ani have been made in time of Ashot III. These walls were made at the narrowest part of Ani guarding the buildings and life behind it to the south of Ani. The king may have had lived in Citadel (Armenian : Midjnaberd) The part at the south east of Ani on a higher heel typed part of it which is believed to be built earlier in 7th century by the Armenian *Kamsarakan* family who ruled until invasion of Arabs. In less than a generation later second set of fortification walls were made by Smbat II (977-989/90).According to Tim greenwood there have been no defensive purposes but "…the dramatic increase in the size of the city's population." (Hovanessian, 2011). The newer fortification walls surrounded Ani from north, East and west and newer gates were added. New walls and in between towers were designed very uniquely in two layers with gates slid some meters with a narrow passageway in between to make the accessibility of Site really hard for

Horses and soldiers in attacks. Even today major parts of them have been preserved still in quick demand of conservation. Access to Ani was done with these gates (the may have had been 40 of them but today only 5 is left) from north and with bridges on the Akhurian River from east which only a part of one of them is left now.

The great Cathedral of Ani was designed before death of Smbat II at 989 by *Trdat* the most famous architect of times. Following Smbat's death his brother *Gagik I* was crowned and His kingdom period is known for the most peaceful and glorious era of Bagratuni kingdom. So many new buildings were made and city enlarged the most at his time. Both him and his wife queen *Katranid* valued art and culture and the very important church of Gregory designed by Trdat was designed and made then at the command of Gagik I. His Statue Holding the church in his arms was later found by archaeologist Nikolai Marr and his group in 1906.

Gagik I son *Smbat III* (1020-1040) and grandson *Ashot* (1042-1045) were last kings of Bagratuni kingdom and the last kings ruling in Ani as the Capital of Bagratuni.

From 1045 to 1064 only two decades after the rule of byzantine in Ani, the second king of Seljuk dynasty *Alp Arslan* conquered the city and later gave the city to Shaddadid dynasty king, emir of ganja who let his grandson *Manuchehr* (Minuchihr, Armenian Manuche) rule Ani for nearly four decays (1074-1110).This was the first time Islamic architecture started in city and the mosque of Manuchehr has been made probably at the time. After his death his son named as his father *Abulaswar* wanted to sell the city to the king of Kars but the city was captured by *King David Bagriationi* of Georgia and exiled Abulaswar but not long after it was again in the hands of Muslims, son of Abulaswar *Fadlun*. He died in 1030 but his brothers and nephews continued in Ani only until 1061 that *Sargis* from *Zakarian* dynasty in Georgia captured Ani again which only lasted two years till 1064 when brother of Fadlun again gained city. Ten years later Georgio-Armenians again got the city but two years later in 1176 gave it back to *Eldiguz*, Fadlun's brother due to some political issues.

The *Shaddadid kingdom* where kings have been called as Sultans (the Arabic term) ruled until 1198 at Ani by the capture of city by *Zakarian* Brothers. The most Persian and Arabic inscriptions at Ani are believed to belong to this period.

In the Zakarian period that lasted until 1236 the commercial and mercantile significance of Ani was loaded again and wealthy merchants visited the city. One of the most important churches at Ani with amazing frescos is made by a wealthy merchant called *Tigran Honents*.

Two attacks were done to Ani in 1208 by *sultan of Ardebil* and later at 1226 by sultan of *Khwarezm Jalaleddin* but both were defended by population and warriors. According to Claude Mutafian when in 1236 Mongols appeared out of the walls of Ani while waiting for the king (who was out of town) to come back, population killed the ambassador of Mongols which resulted in 12 days of Capture of Ani with a general massacre which caused huge emigration to Italy, Crimea and Poland. (Hovanessian, 2011)

Holaqu grandson of *Chengiz khan* the ruler of Mongols, helped most part of damaged parts to revive, But political relation of Mongol and Georgio-Armenians were dark and resulted in hecatomb of Armenian lords from time to time. The second half of thirteen century continued as a revival for Ani but Very high taxes and inevitable tendency of Mongols to Islamization of their state weekend the rule of Christians in the city. It is known that at the end of the beginning of 14th century the city was very poor and the middle of the century the last Zakarian king who got to rule was *Atabek* Shahanshah.

In the middle of the 18th century two monks wrote that a divine punishment ruined Ani where people had bullied a man of God who was there to lead them to the write path. They point to earthquake that happened in year 1319 and caused a major emigration starting in 1331.But this story has proved to be in some aspects wrong due to coins found Ani struck at the 1370s.There also have been Earthquakes in Ani at years 1064,1131,1263 which obviously have not been reason for abundance of city.

The End of the Ani is not precisely known beside information declaring that *Tamerlane* (Timur the lane, تیمور لنگ in Persian) destroyed big parts of it(which already reduced to a village) in 1394 and around 1606 the big deportation of Armenian community from ottoman lands to *Isfahan* and *Nakhchivan* is known by Abbas Shah of Persia. He fired all lands and cities once owned for political reasons.

Resulting from these the city must have turned totally silent at the end of 17th century.

3.2. Archeological and Architectural Researches

It is very well known that in 20th centuries villagers lived in caves under the city of Ani but before that many visitors have visited the city producing gravures and paintings and later photos of Ani. One of the most important between them is *Charles Texier* a French man who visited Ani at 1839 later publishing a book titled *"Description de l'Armenie"* containing his own engravings of Ani. *M.F. Brossett* visited the site later that age and prepared trustable engravings from there. Later *Henry Finnis Blosse Lynch* visited Ani and gathered his photos and engravings in a two volume book titled *"Armenia: Travels and Studies"* which was published in London in 1901.

Ani started to gain its significance again but this time as a historic site so excavators and archeologists got interested in it. One of the first excavations done in it was in years 1864-1934 by *Nikolai Marr* an archeologist sent to Ani by St. Petersburg Academy of Scientists as Ani and its surrounding was under control of Russians. When he arrived there he met an architect called *Toros Toramanyan* at Ani doing some documentation about buildings. Toramanyan is a high affective person in conservation of information about heritage in Armenian architecture who was doing documentation and sometimes restorations on heritages. A part of his drawings are remained who are very important sources for nowadays studies about these heritages. He later joined Marr's team and continued to analyze each important building in Ani with their help. Marr came back in 1904 with a great group of professionals and they nearly explored every part of Ani and did many excavations and small restorations and even shaped two museums presenting what they had discovered to the visitors who started to take their way into Ani until 1917 when Russian army was flopped and later in 1921 the new borders was set as Akhurian river so Ani was destined to be at Turkish part.

Other archeological practices were done at Ani by Turkish archeologists: *Kılıç Kökten* at 1944 in citadel, *Kemal Balkan* at 1965 on two Bathes (Hamams) and by *Beyhan Karamağaralı* between years 1989-2005 mostly concentrated on houses and bazaar part and Oil presses. From 2006 till this day all excavations and restoration-preservation activities have been under management of Museum of Kars.

Some other earthquakes happened later at years 1966 and 1988 which caused damages to the buildings that are left at Ani. Also the villains living in the caves was given permission to use the stones and materials in Ani to make a village for themselves called Ocaklı now which has caused damages. Unfortunately treasure hunters have with some illegal diggings has caused demolitions in ground coverings all around the site.

The city that was called 1001 churches city now after 1000 years has changed to a site that has fortification walls with a filling of ruins but what attract attention to this amazing place are the buildings standing still on their feet.

Luckily both Lynch and Marr have prepared plan for the deserted city and they have tried to draw the up standing buildings. Lynch's map and its guide show us 31 numbers with buildings name and short description if possible. On the other hand Marr's plan contains 118 numbers, showing all his discoveries at Ani in and outside of the fortification walls. Marr has also prepared an axonometric plan of Ani site and in his list also new elements like oil press and tumulus are found.

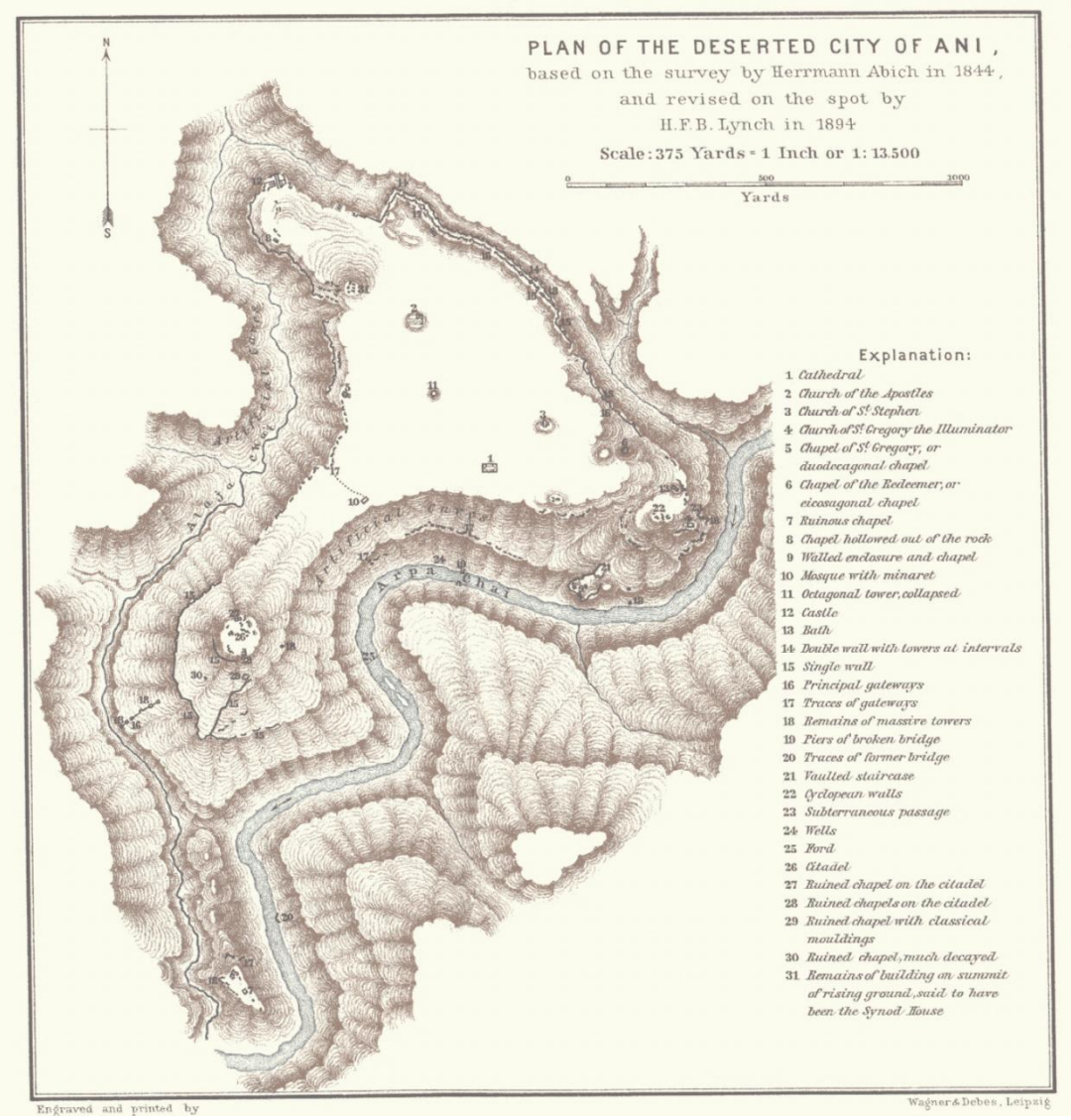

Figure 27. Plan of Ani prepared by Lynch 1894

Figure 28. Plan of Ani prepared by Marr first decay of 19ies

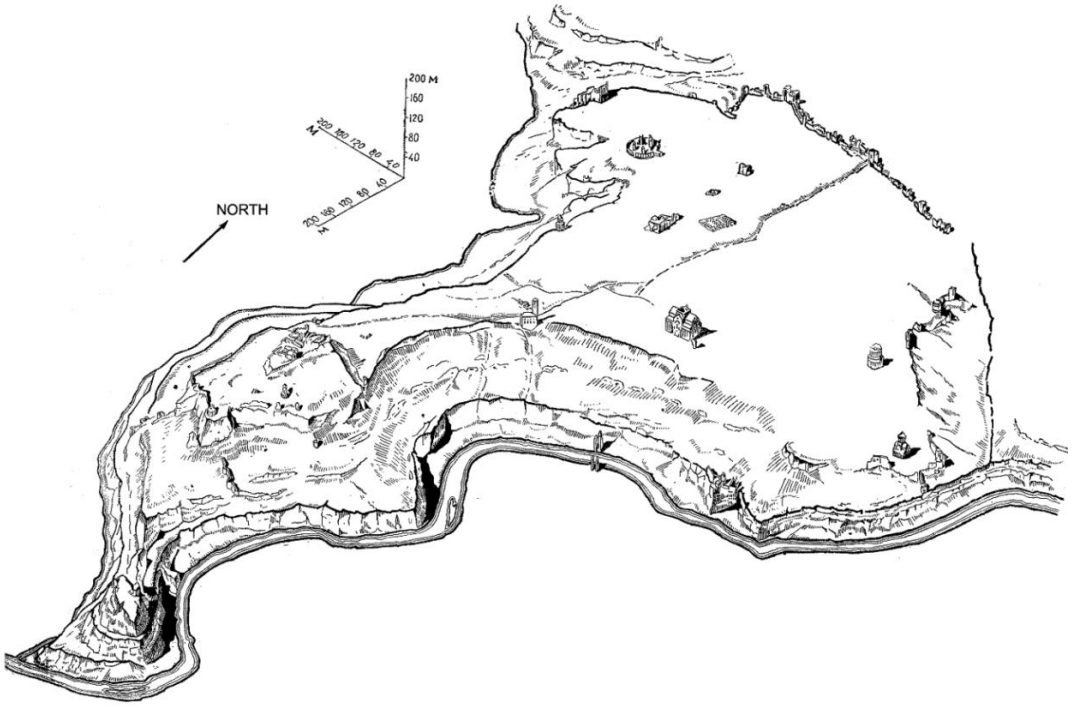

Figure 29. Bird-Eye Plan of Ani prepared by Marr first decay of 19ies

Figure 30. Ani city of 1001 church, Available from: <http://peopleofar.wordpress.com/>,

3.3. The Church of Holy Redemeer, Church of Holy Savior of All (Surp Amena P‘rkich), Aziz Patrik Kilisesi, Halaskar Kilisesi, Keseli Kilise

Surp Amena P’rkich or the shortened name P’rkich has several different inscriptions[38] found on and around it giving information about the building and its history (Figure 36 & Appendix A).

According to one of them the church was made at 1035 A.D (Some documents propose it to be 1036 A.D.) by the command of *Ablgharib Pahlevuni* to embed a piece of True cross which he had obtained at Constantinople “with great effort and great expense” and talks about the golden and silver decorations of the church .The ruins of it are placed nearly 300 meters to the north-east of Cathedral and in the eastern borders of city looking at *Mığmığ Deresi* (Gayladzor valley) very close to the gate opening to this valley. This great position of church in the city and its vicinity to Cathedral which was the most important building in the city has been subject of argues on its significance.

There is also a partially preserved inscription that suggest of a guest house built very close to P’rkich at 1040.The inscriptions also show that some repairs were applied on church at 1193 by the priest *Trdat* with the help of his wife and he has been mistaken with the famous architect Trdat as the architect of building. At the same year interior frescos were added and they are believed to be done by painter *Sargis Parshik*[39]. (Figure 37)

According to another inscription a bell was brought to the church at 1271 and a bell tower and a Zhamatun[40]were later added to the church. Inscriptions report that the relic was kept at church at least till the end of 14th century. Church was partially damaged in 1319 due to earthquake and a new dome was built at 1342 under the supervision of the mayor of the city *Grigor*.

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[38] Inscriptions and their English translation can be found at appendix1 of this document.

[39] Painter has also drawn himself as praying in front of Matthew the evangelist and including this text:” holy evangelist of Christ, may you ask Christ for mercy towards me, Sargis Parshik”.

[40] Zhamatun or Gavit are Armenian terms for a meeting hall or vestibule in front of the churches.

The engraving of *Brossett* is the oldest document showing the state of building in 1860 where the dome and some parts of lower levels were already damaged at the 19th century. *Lynch* had mentioned his concerns about church collapse in his notes after his visit form site at 1894. Only some years later *Arshak Fetvajian* Watercolor painted the church (Figure 31) with its details proving Lynch's concerns. When *Nikolai Marr* was excavating the site at 1913, church's unstable condition urged them for some interventions. The team filled blank parts of western and eastern walls with a different material (Figure 39-Figure 41).P'rkich was also documented and measured by *Toros Toramanyan* published in his second book which are now base of the ongoing study about the church under the directorate of *World Monuments Fund* and *Ministry of Culture of Turkey*.

The eastern half of the church was collapsed at a firelight and thunderstorm in 1957 reported by local villagers. Later at 1998-9 the main door was filled with rubble stone masonry and some interventions were done on walls by the historical heritage protection foundation to help the stabilization of building. The church was documented and 'Historic Preservation Project' was prepared for P'rkich in 2008. (Figure 45- Figure 54)

Since 2012 some conservative interventions has been done on building .The project started with excavation inside and outside of church,3d laser scanning and virtual modeling of the pieces found ,wall paint analysis. After architectural and structural surveys the emergency stabilizing works started. Normal settlement of building and its reaction to natural forces notably wind is being monitored by professional group at Ankara.

P'rkich that is situated in the eastern edge of the plateau of Ani is designed in a circular plan to withstand earthquakes. The 19 facets of building surrounds a circle of about 15 meter diameter in plan and 8 apses shaped toward same center but the 8th apse is nearly twice bigger. The Door is situated at south and a hidden staircase was made inside western wall connecting a ground level to the mid part of the church. The height of now standing part is nearly 22 meter.

The initial documentation sketches are now being kept at the Saint Petersburg's *Institute of Material Culture of Russian Academy of sciences* Archive which give

very important information about the church and its context in the city (Figure 56-Figure 58) .The surrounding of the church and parts that Marr's team has excavated and probably later filled in are obvious in sketches. (Kazaryan, December 2013)

Diane Favro[41] has tried to explain the unusual 19 facet system of P'rkich (in compare to other similar planned churches of the time and later periods) with astronomical cycles and numerical symbolism of the time. She also has prepared a structural 3D model of church showing its features. Prior to this *Strzygowski* had published some render of basic 3D models of church's structure. *Armen Kazaryan, Christina Maranci and Artak Ghulyan* are recent scholars that have ongoing researches about the building and its aspects.

Figure 31. 1901, paper, cardboard, watercolor, 49.8 x 35.2 cm, National Gallery of Armenia

[41] Favro D. 2011, Encircled by Time: The Church of the Savior, Armenian Kars and Ani, Edited by R.G. Hovannisian. Costa Mesa, California: Mazda publishers, pp. 136–144.

Figure 32. South west view

Figure 33. South East view

Figure 34.North West view

Figure 35. East view-2013

Figure 36. Inscriptions on walls

Figure 37. Interior Frescos

Figure 38. Brossett, 1860

Figure 39. Photo of Marr's team, 1913

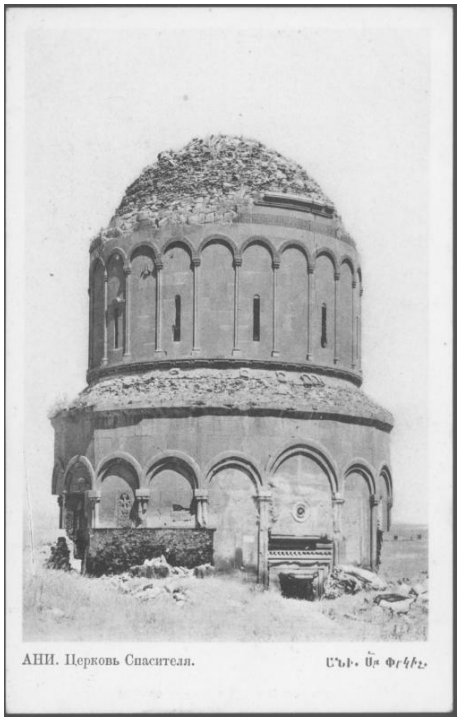

Figure 40. Photo of Marr's team (before restoration), 1913

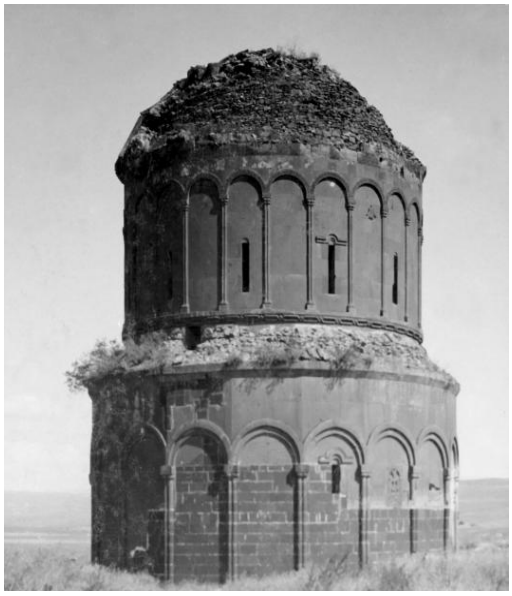

Figure 41. Photo of Marr's team (after restoration), 1913

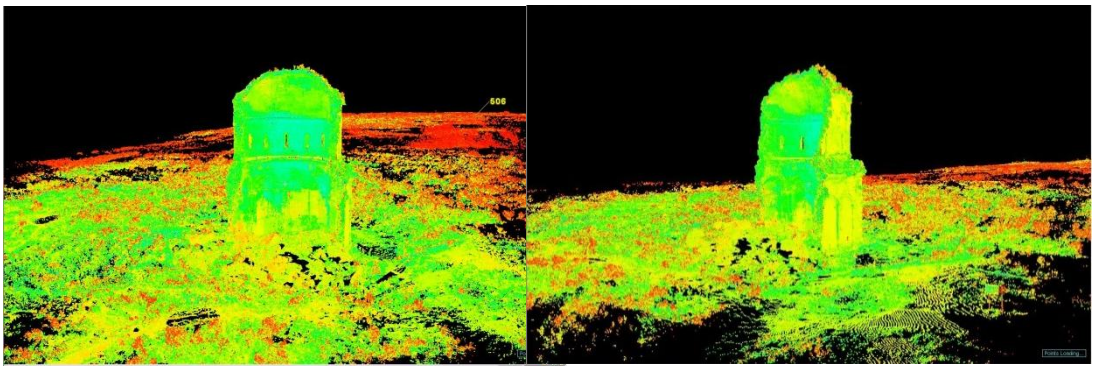

Figure 42. Exported images of data produced by laser scanning phase 1 (before excavation), (Solvo Tek Engineering and IT Services Ltd., 2011)

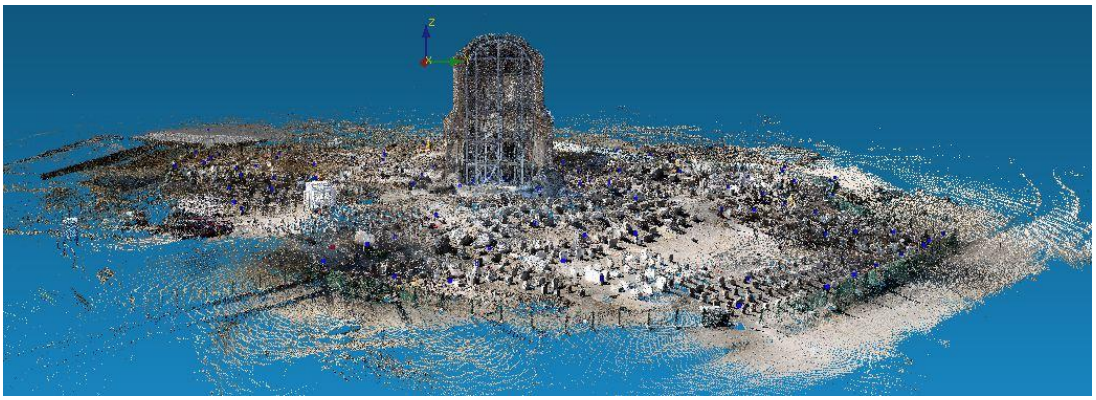

Figure 43. Exported images of data produced by laser scanning phase 2 (after excavation), (Solvo Tek Engineering and IT Services Ltd., 2011)

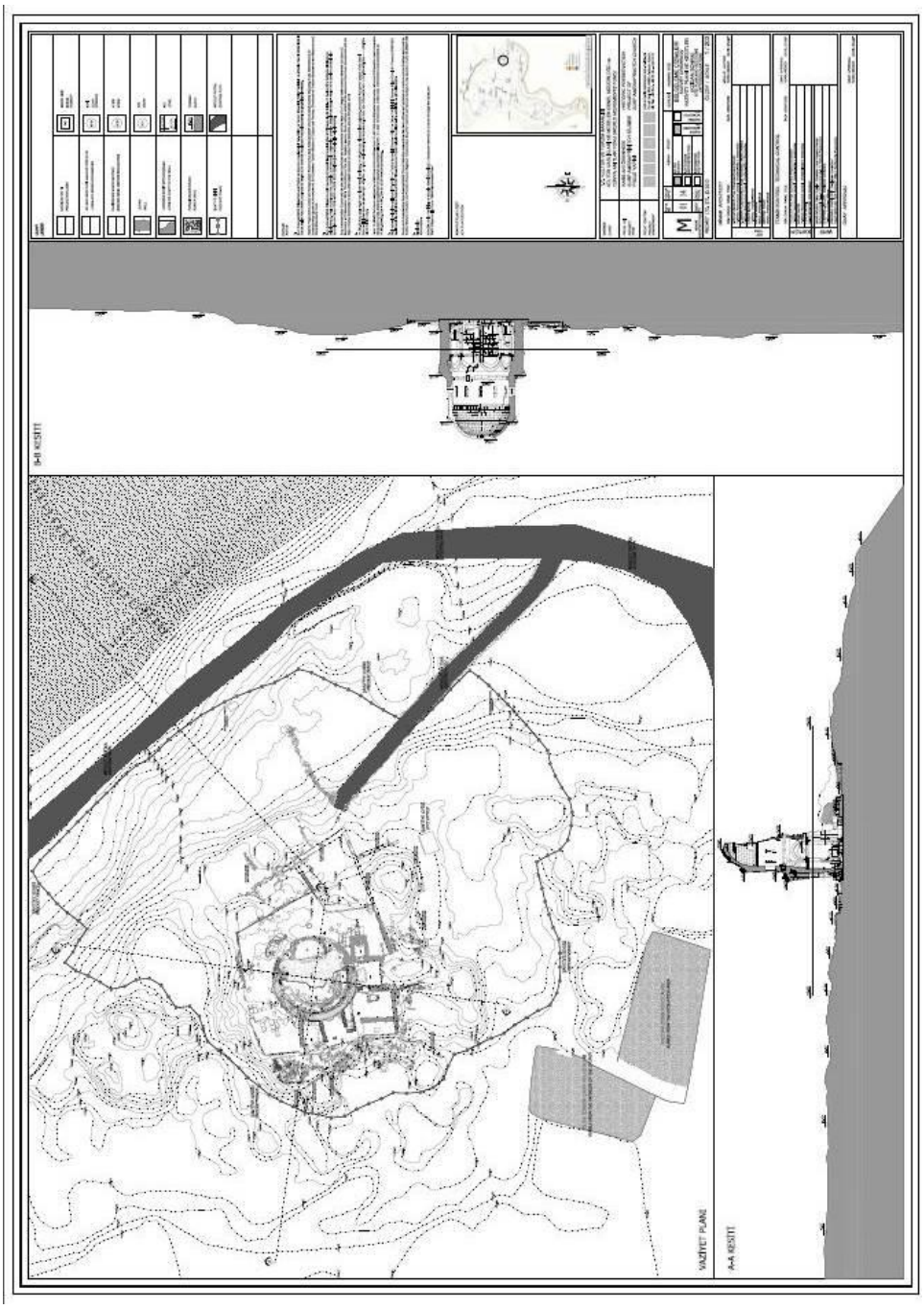

Figure 44. Site Plan, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

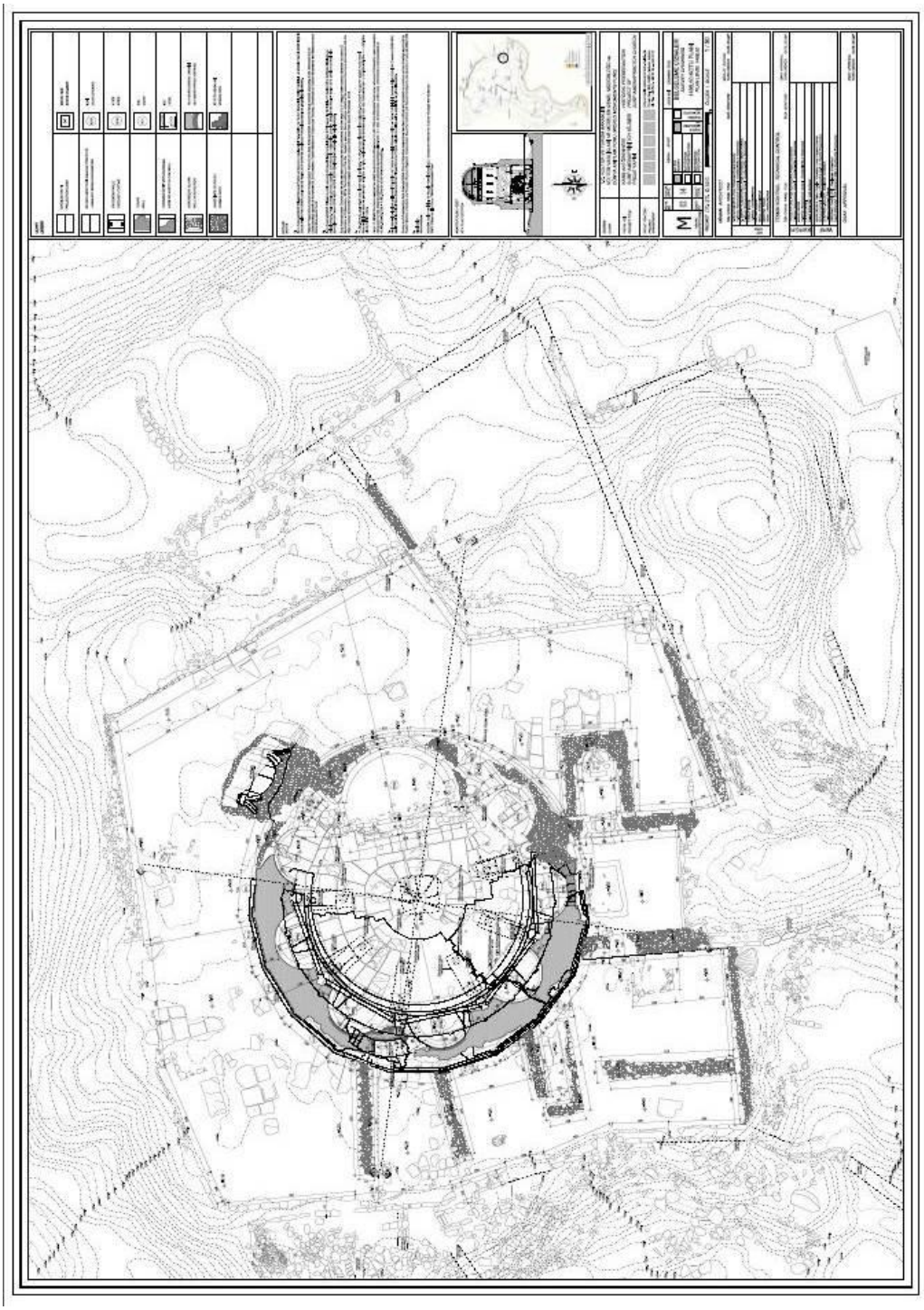

Figure 45. Plan at level +1491, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

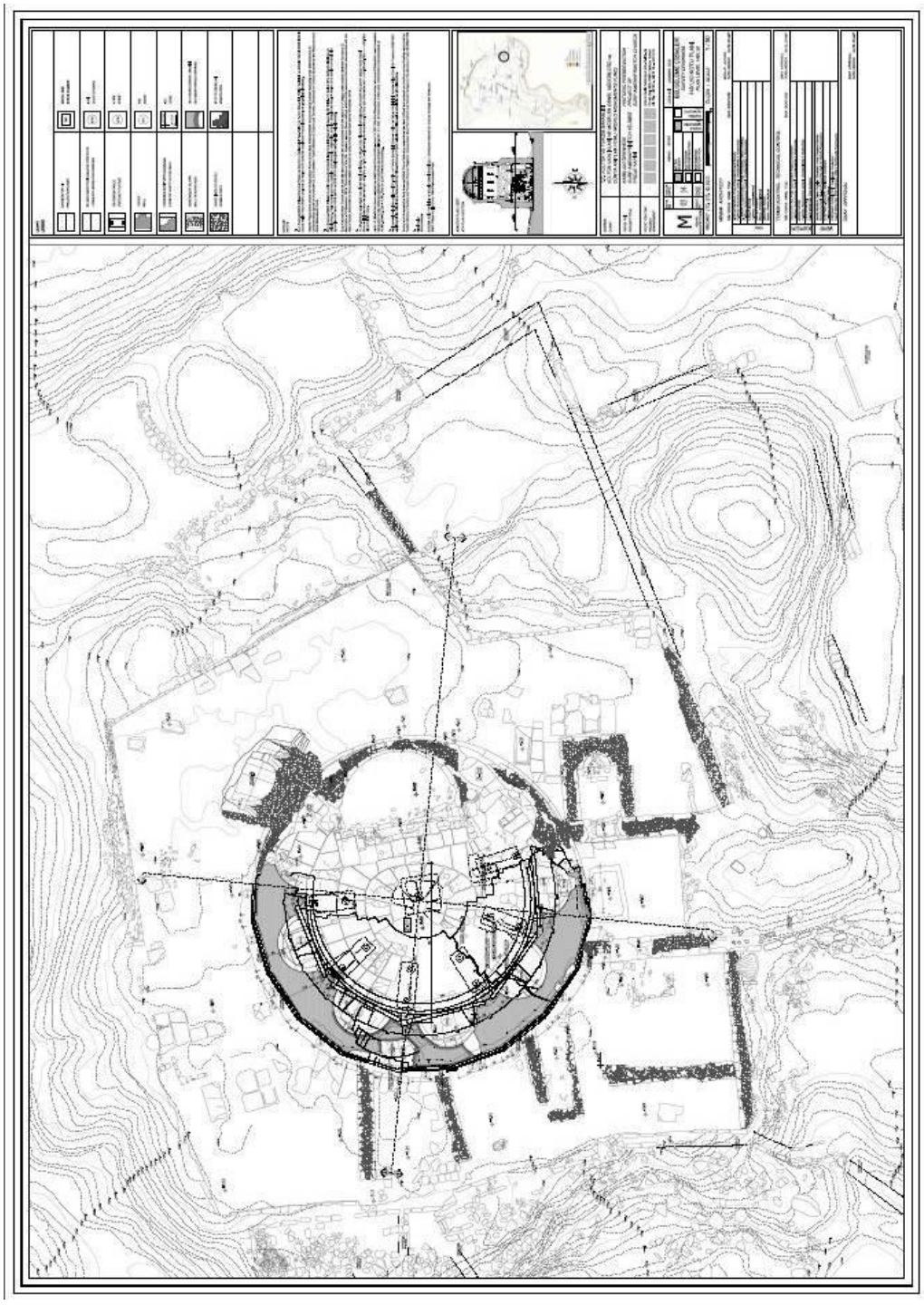

Figure 46. Plan at level +1495 meters, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

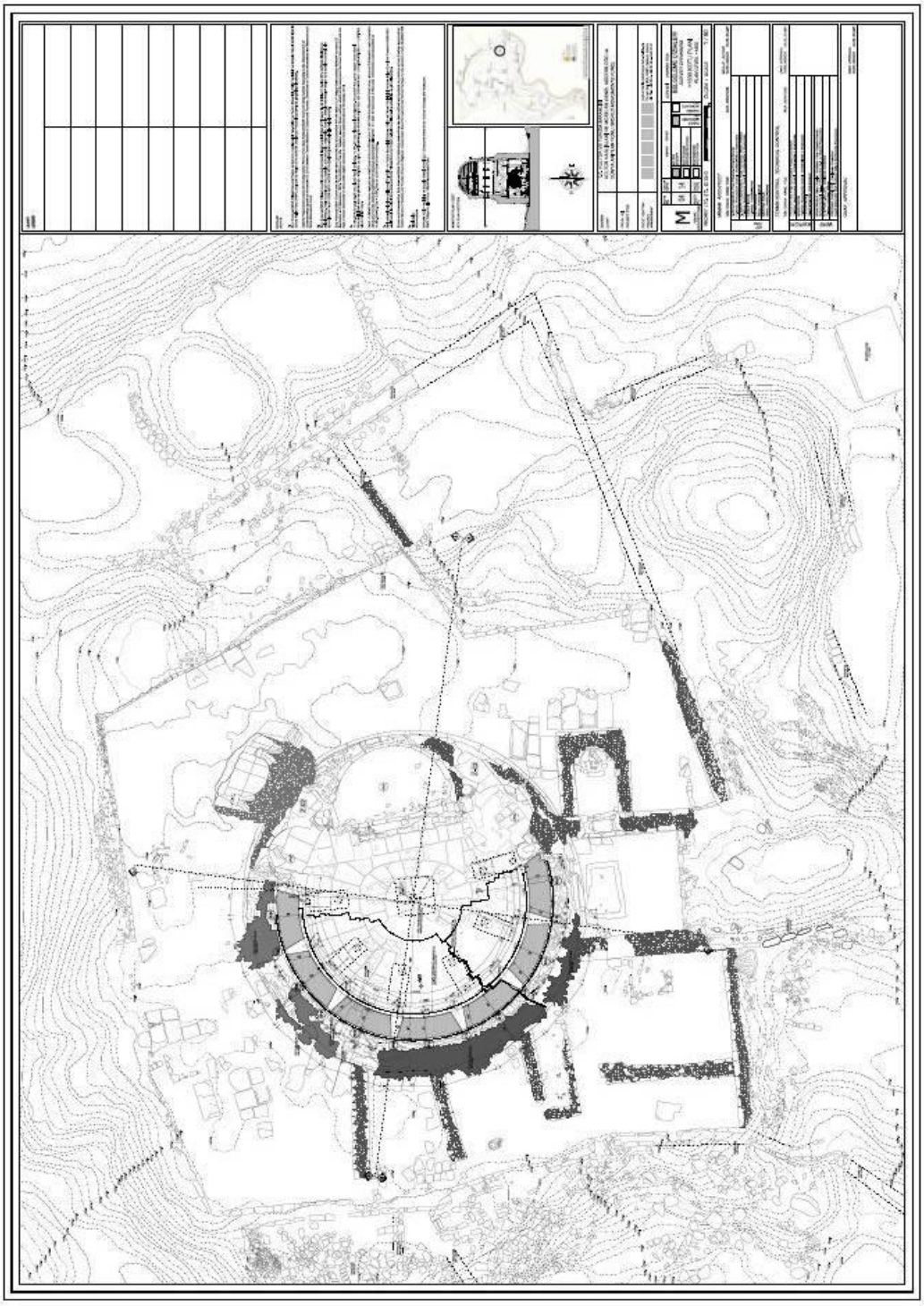

Figure 47. Plan at level +1500 meters, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

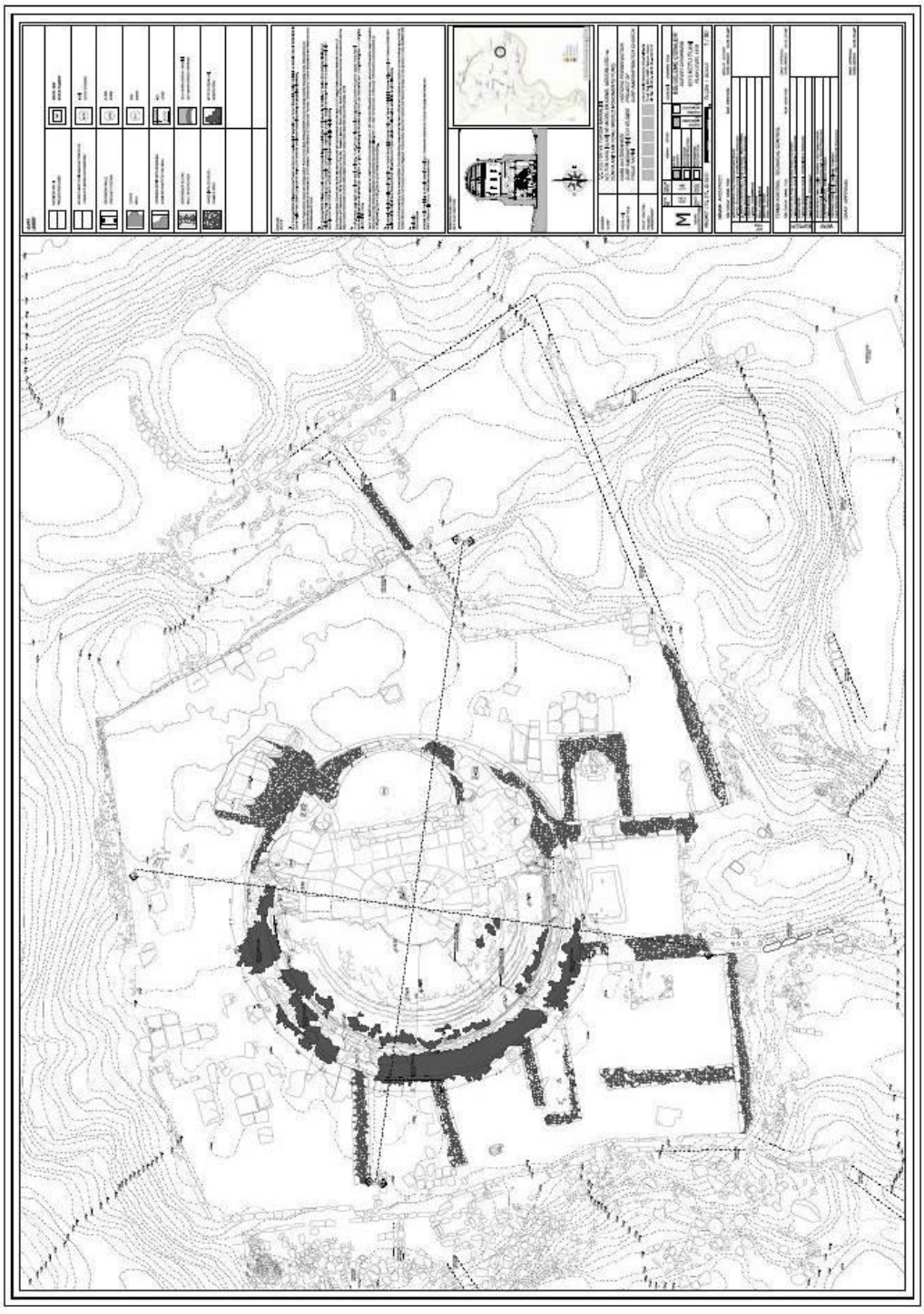

Figure 48. Plan at level +1510 meters, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

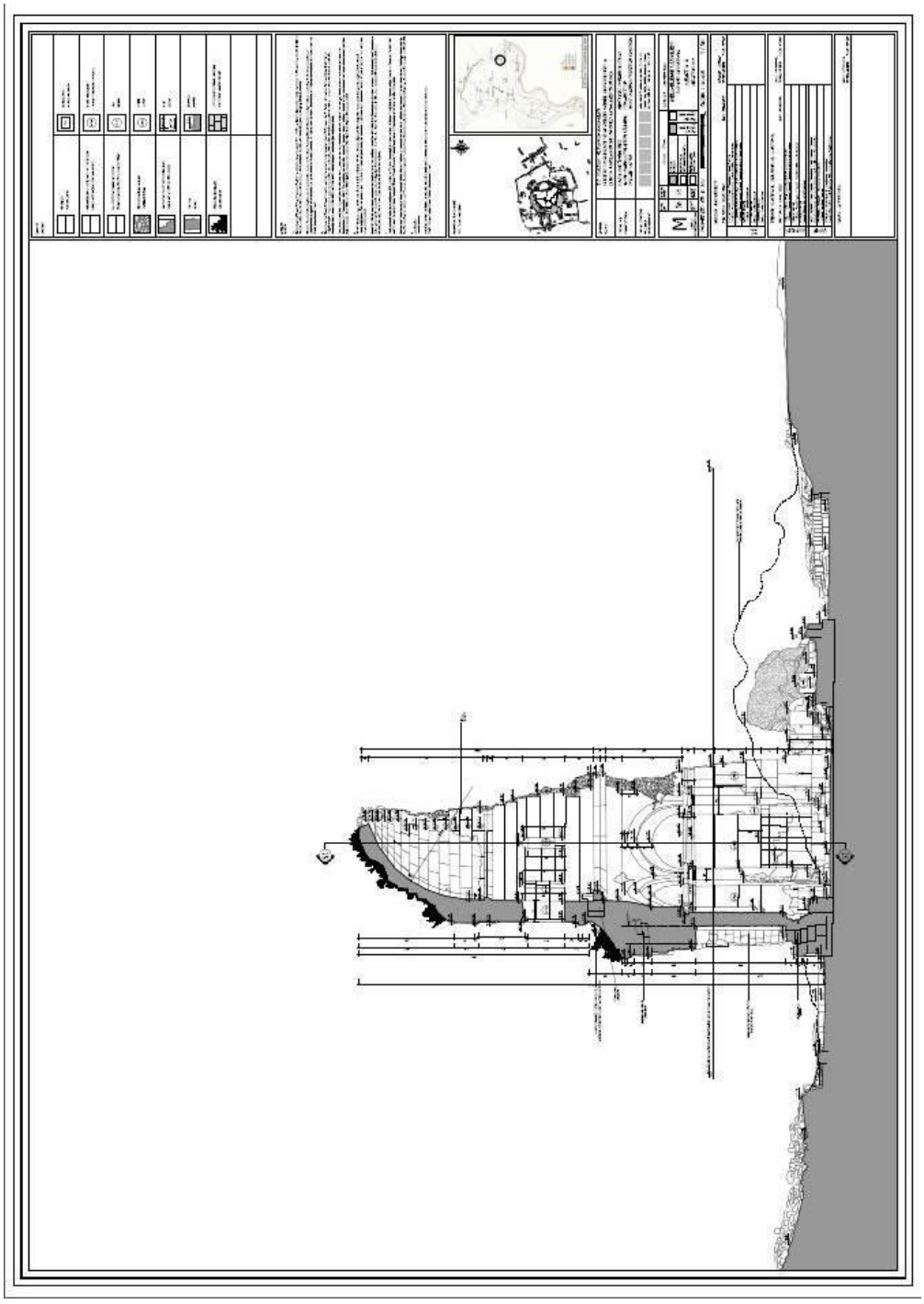

Figure 49. Section A-A, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

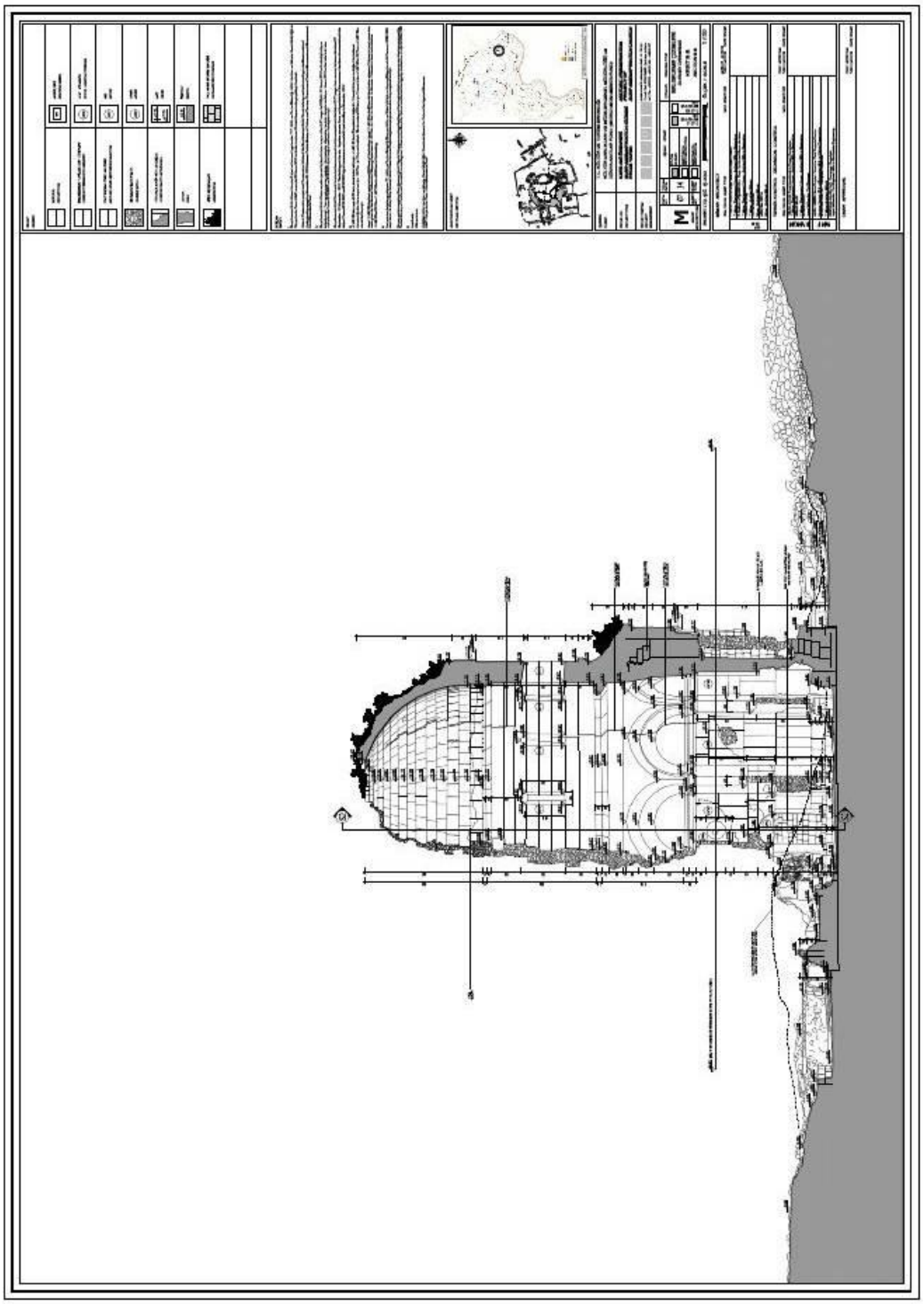

Figure 50. Section B-B, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

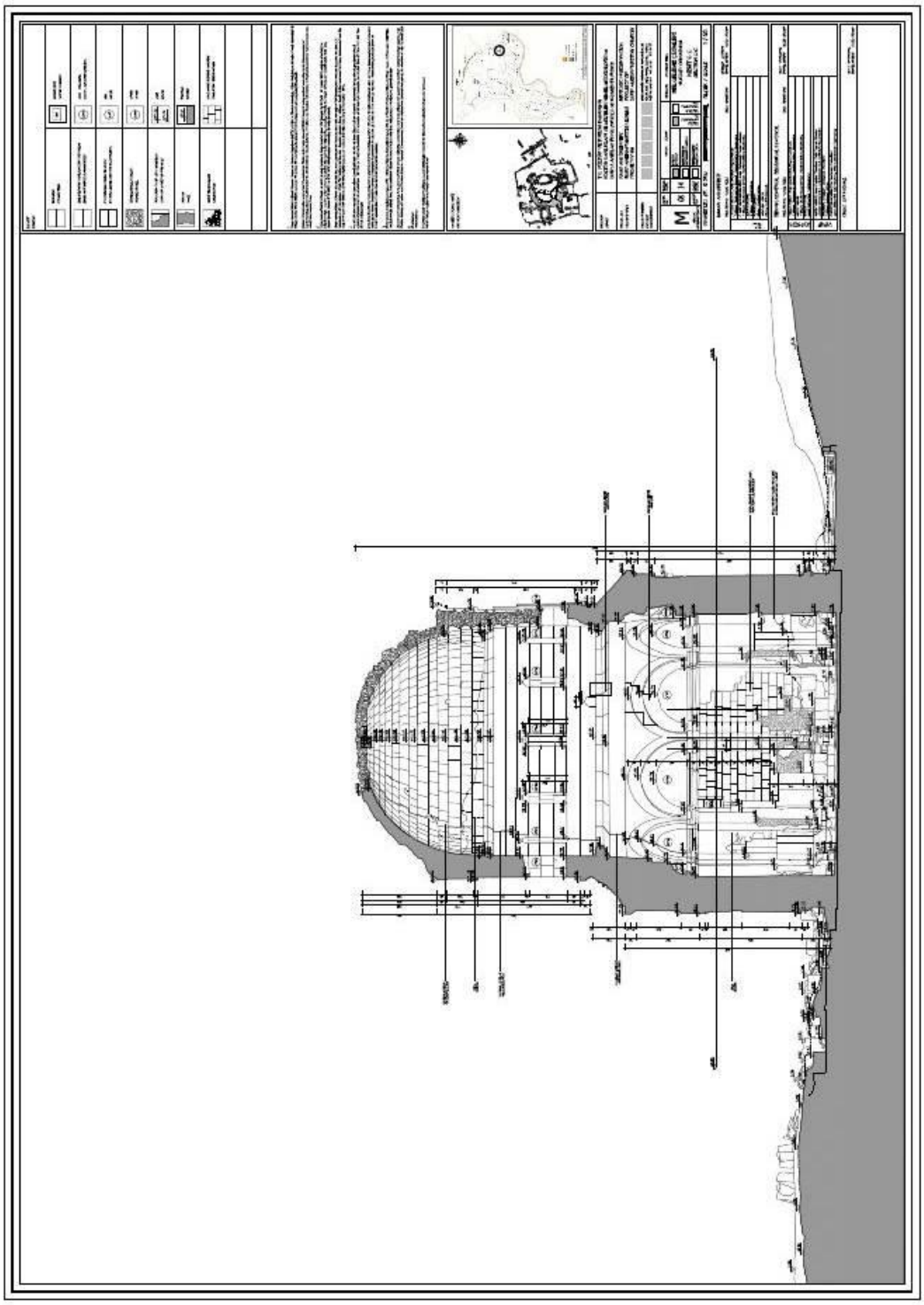

Figure 51. Section C-C, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

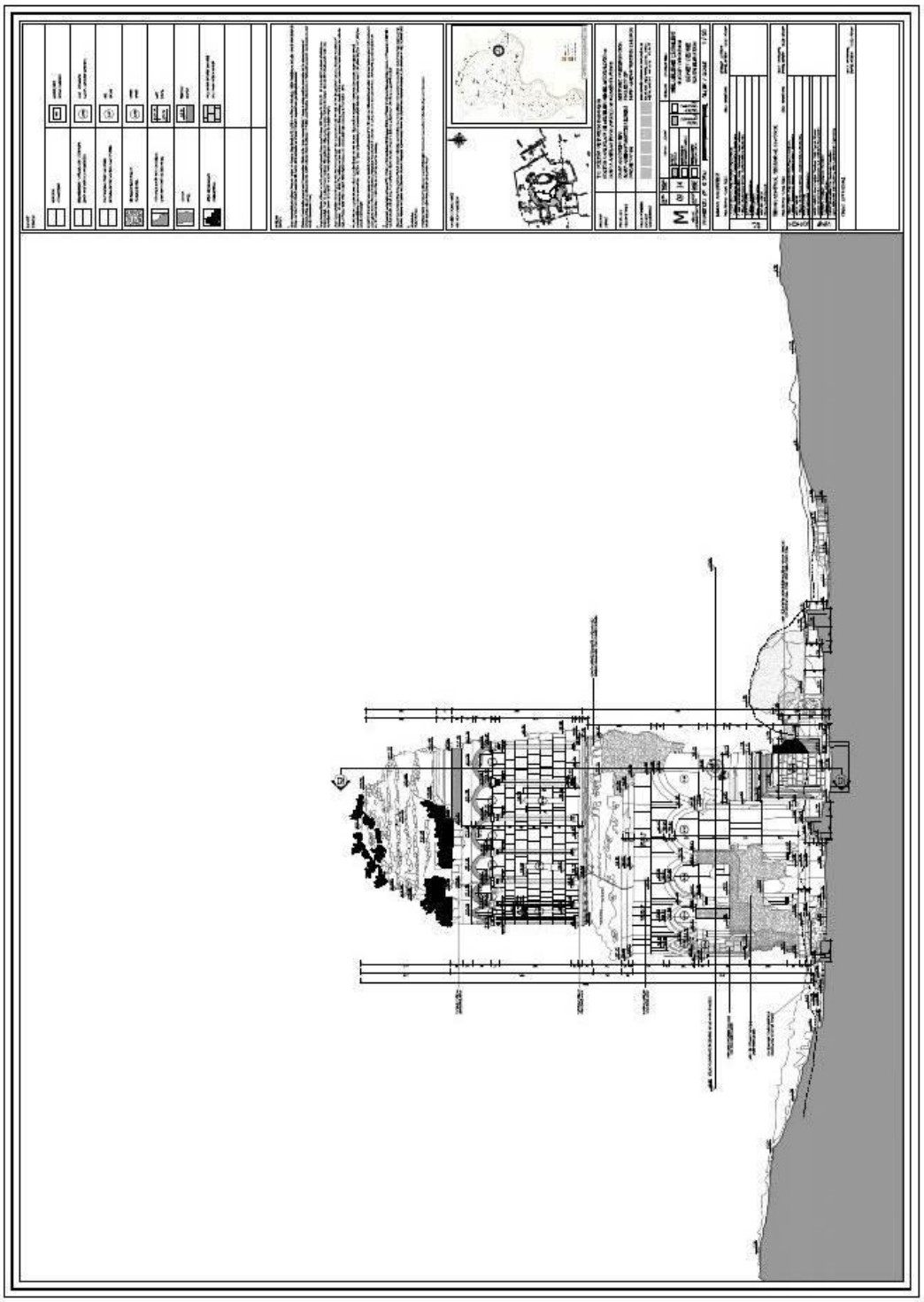

Figure 52. South Elevation, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

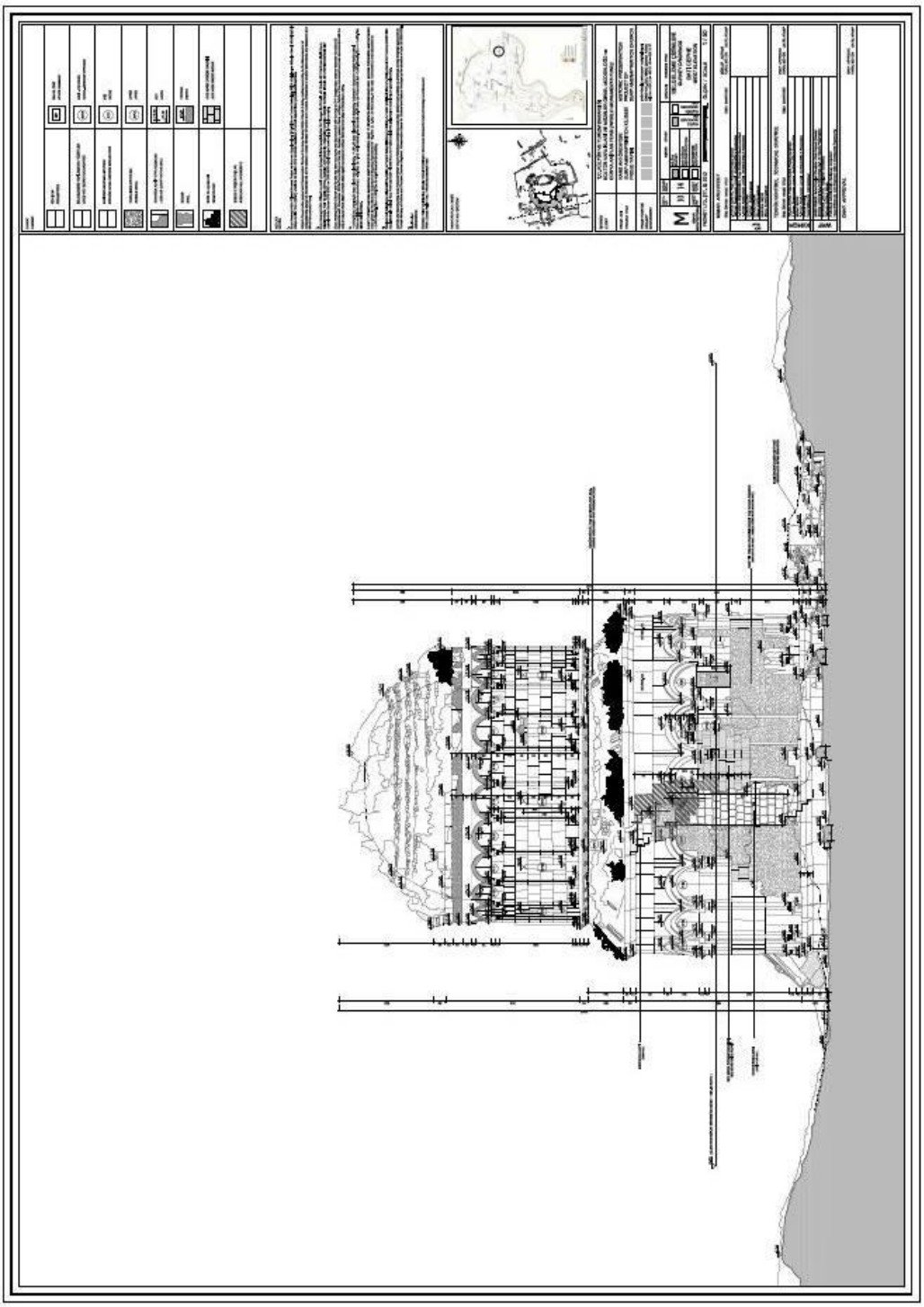

Figure 53. West Elevation, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

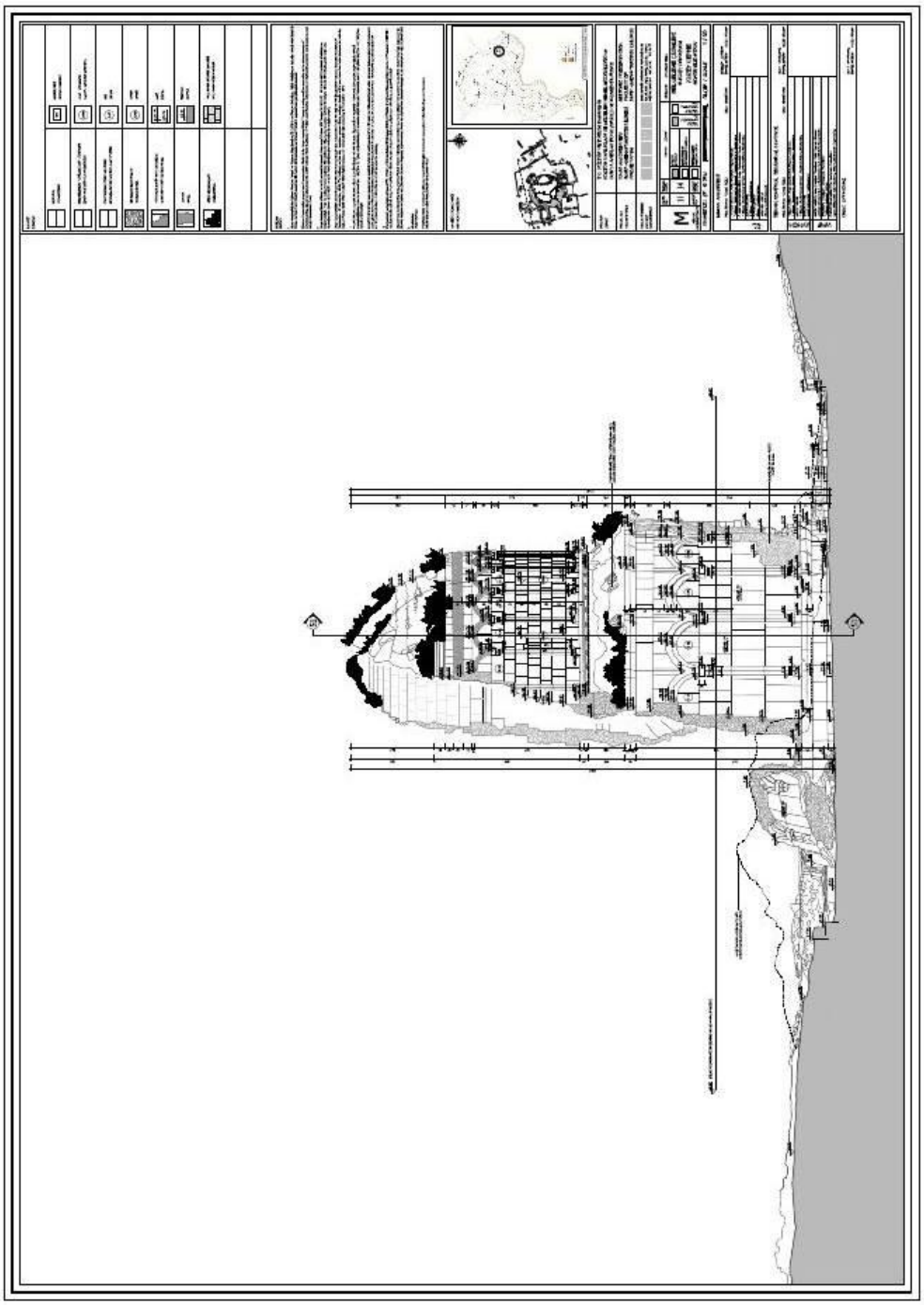

Figure 54. North Elevation, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

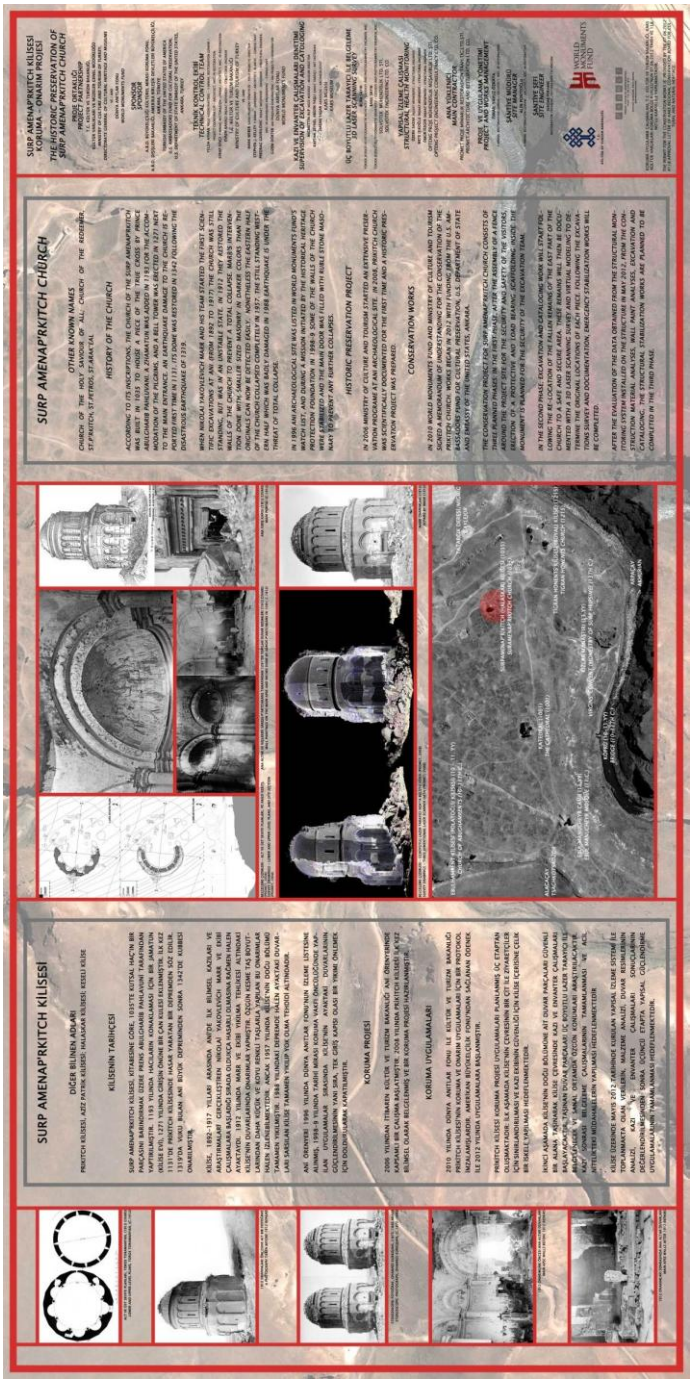

Figure 55. Information sign installed at the entrance of the church, Historic Preservation Project of Surb Amena P'rkich Church, Promet Proje Ltd.Şti. 2012

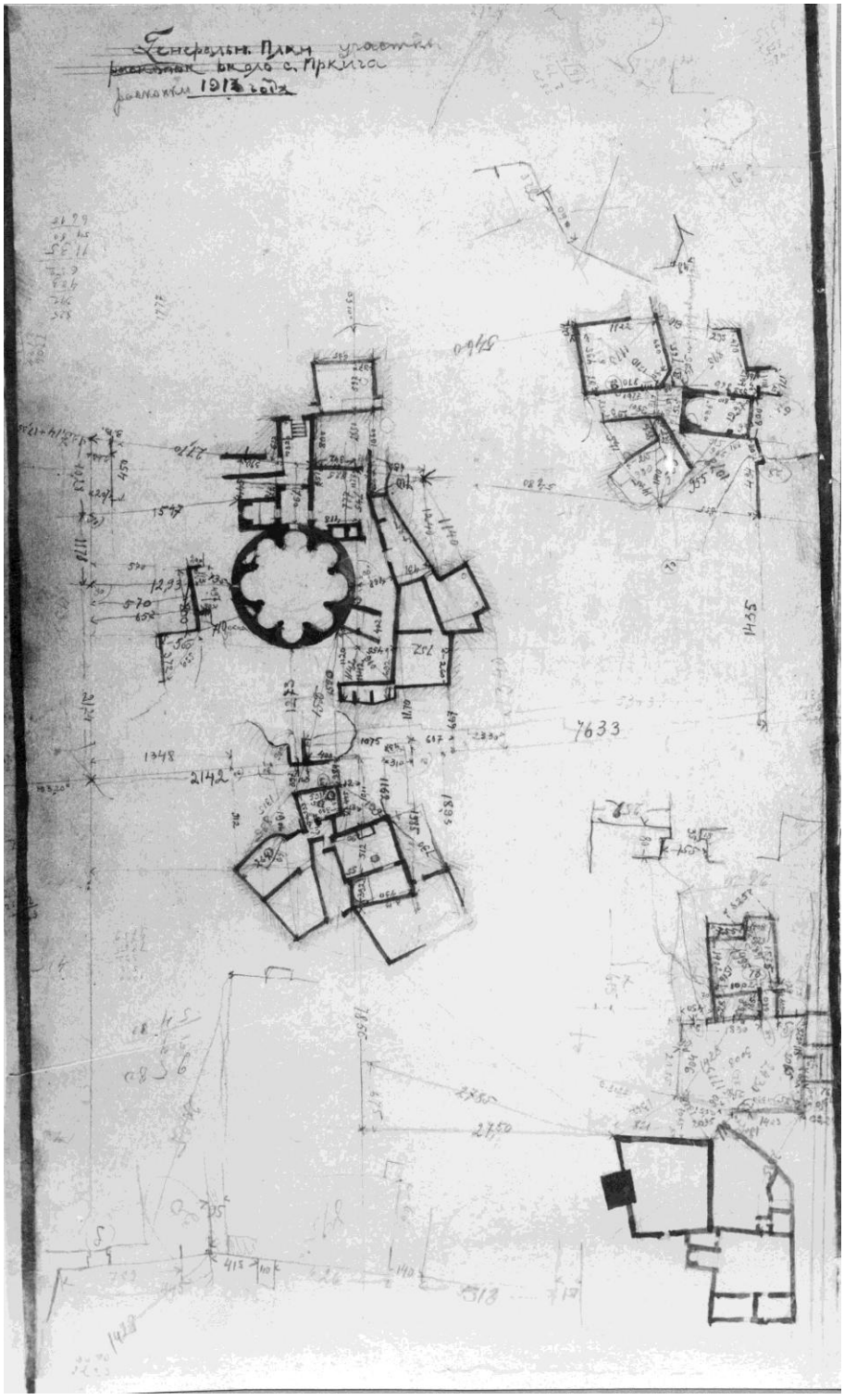

Figure 56. Documentation Sketches of church and surrounding, 1913, kept at Institute of Material Culture of Russian Academy of sciences Archive

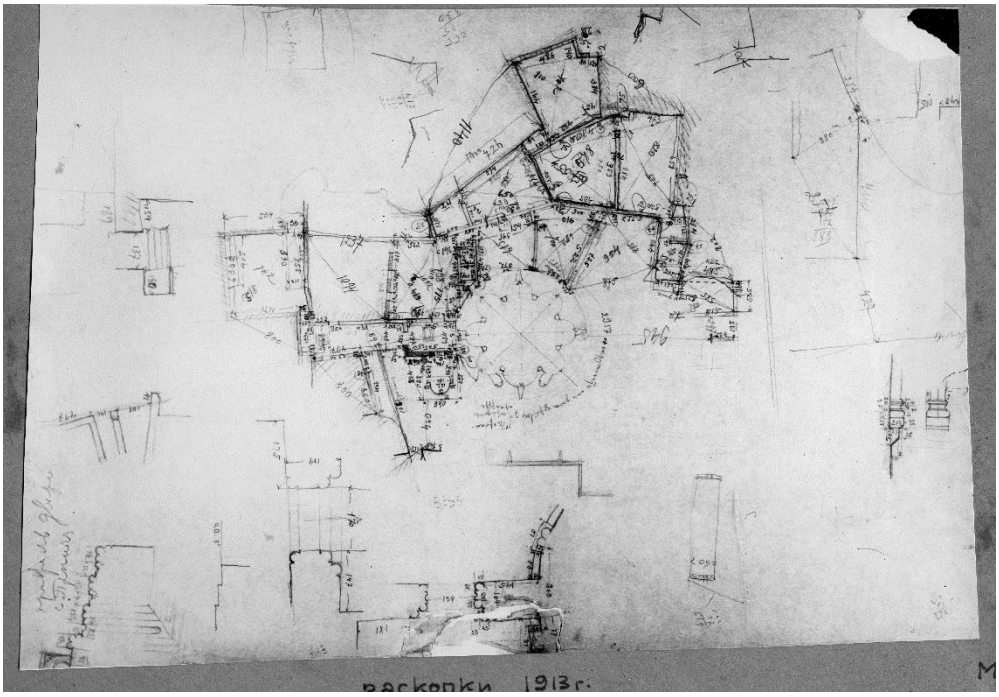

Figure 57. Documentation Sketches of church, Bell tower and surrounding guest houses (Documented profile of the entrance door and other facade details are visible), 1913, kept at Institute of Material Culture of Russian Academy of sciences Archive

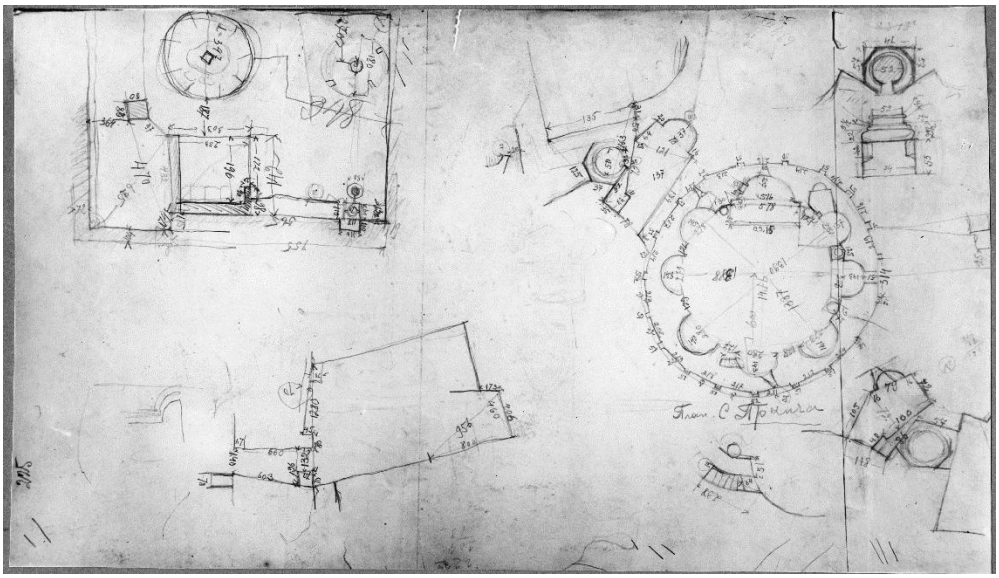

Figure 58. Documentation Sketches of church, 1913, kept at Institute of Material Culture of Russian Academy of sciences Archive

CHAPTER 4

STORIES AND MOVIES

4.1. Storytelling and Narrative

Destruction of architectural belongings does not only cause in their disappearance physically but also from memories. In addition of apparent need of preservation and conservation, the demand for ‘tellable history’ of them is the important aspect of this preservation process. This tellable history is in fact the story of the heritage. This story was the starter and motivation of digital storytelling where multimedia helps the story to be more imaginable. This is where the process of transmitting information that was discussed in second chapter comes up.

The process of storytelling is in the demand of being as dense as possible so the transformation of the information could be short and joyful without the risk of losing concentration of audience. A good story that holds a story line can be told by visual, audible or symbolic way where the visual is well preferred for children and symbols for adults. The audio is the moral aspect of process besides being used for telling this narrative. The narrator is usually inside or outside of the tale but it could also be only a reflector (in a part or close to where story happened) of it. These techniques have not changed much in time while they are the very basic but affective tools of transferring information to the audience. They fruit with some techniques of attracting audience to a story and holding their concentration for a longer time. Controlling balance of positive and negative parts of story could be supplied by having good and bad characters in the story. The faith that victory of

‘good on bad’ brings to the audience makes them to be patient and wait for the moment (Ferko, 2013).[42]

This may also apply for the positive and negative incidents that have happened during the specific period of the history of the heritage that is the subject of story.

Branigan who is pioneer in defining the cinematic narrative, emphasizes the importance of aligning two different sign systems Verbal and Visual as they would be lacking alone. He believes that visual representation would not do it any “more explicit, detailed, consistent, objective, certain, present, or precise than representing them in words”. (Branigan, 1992)

The experience of watching visual data shapes the imagination that gets to be created by hearing or reading words and limits the cognition of audience. While the relation of narrative and cognitive of a human is based on “epistemological boundary”, audience understands the narrative not detail by detail but in a general way by “large-scale hierarchical patterns which represent a particular story as an abstract grouping of knowledge based on an underlying schema”. (Branigan, 1992)

Branigan defines the schematic constructions of a visual narrative (i.e. Film) to be typically guided by eight functions:

1) Introduction of setting and characters;
2) Explanation of a state of affairs;
3) Initiating event;
4) Emotional response or statement of a goal by the protagonist;
5) Complicating emotions;
6) Outcome;
7) Reactions to outcome
8) Narrative

[42] Ferko, A, 2013, ‘The logic of Storytelling'. Oral presentation presented at the *South-east European Virtual Heritage School: Digital Storytelling for Virtual Museums*, Sarajevo, Bosnia Herzegovina

4.2. Virtual storytelling notably Videos

The process of telling the story comes to a complication when applied in interactive ways. Both virtual presentation (noticeably a film) and an interactive presentation hold all 8 factors mentioned but the interactive way allows the user to try (experience) the experiments of the designer (author) in favorable steps. Both ways when applied to architectural belongings no matter whom/what the narrator is, the main character that is in the demand of accentuation is the heritage itself and outcome of the movie needs to be the significance of heritage (that needs to be conserved).

In between examples that were studied which varied from the short animation or films or the mixture of both, they had the common aim of remarking the importance and worth of the heritage that was studied. The examples could be categorized in 4 groups:

1) Totally ruined structures that do not exist anymore
2) Partially ruined and in demand of interpretation
3) Partially ruined but in good condition (self-compare)
4) Additions to the conserved heritage

The story line that shapes only based on documents and information survived in first group would guide audience with the information from past. The second group would help the audience to understand the parts that may be understandable for the professionals but still a simple guiding would shape the imagination and how the heritage was once. In the case of third group audience has the chance of understanding what is already readable and extra information would affect the idea of worth and importance and partially help them to percept the intangible values of it. Last group of presentation about the additional part or any reconstruction for the buildings are mostly informing type of videos about the projects that may occur in the future.

Third group (that applies for the study case chosen) included examples of videos prepared for the churches; *Gagikashen* (Church of Saint Gregory) and Hovvi Church both located at Ani prepared by *Research on Armenian Architecture Organization* [43] published in their official YouTube channel. The examples had happened in the similar historical period of the city and they were also unique types of Armenian Church architecture both in design and technique of construction beside their position in the city which carried special value. Study on the courses of stories that were prepared for these examples exposed a very smooth, fluent narrative routine. The examples were both a 7 minute short movies very suitable to the human attention span.[44] These short movies are in Armenian language with English subtitle and are done with the technique of mixing audio and on-site recorded videos, photos, 3d model's photo renders and motions and graphical maps and sections.

Expansion of the minutes and seconds in the movie resulted in understanding how amount of time has been separated for which topics. These 7 minutes analysis are given in table 2. (*Numbers Inside parentheses are the parts that have been divided throughout the film.)

[43] Research on Armenian Architecture Organization. Available from: < http://www.raa-am.com/> Viewed on [January 2014].

[44] .Human attention span is believed to be 10 minutes available from: < http://www.brainrules.net/attention/?scene=1>

Table 2.Categorizing & Expansion of 7 Minute Film, Prepared by Author

	Titles/End Titles	Geographical Aspects and Location	History of the Church and Etymology of the Name	Designer/Builder and Construction date	Reasons of construction and its functions	Architectural-constructional character and features	Researches and Preservative activities	Comparison with similar examples architecturally	Current situation
Gagikashen[45]	40 sec	20 secs	20 secs	32 secs	15 secs	113 (38 +42+33)* secs	145 (85+60)secs	30 secs	30(17+13)secs
Hovvi[46]	40 secs	20 secs	80(45+35) secs	25 secs	25 secs	145secs	25 secs	10 secs	50 secs

Superposing Branigan's eight functions and the courses of these examples results in:

1. From the very first seconds the story declares that the main character (Central Character (Das, 2007)) of this narrative would be the building/buildings itself where the reflecting narrator(Voice Over) is not

[45] . Research on Armenian Architecture Organization., Gagikashen church Of Saint Gregory o Available from: < http://www.youtube.com/watch?v=PCuAC6icRiw>, Viewed on [June 2014].

[46] Research on Armenian Architecture Organization, Hovvi church, Available from: < http://www.youtube.com/watch?v=jUnuDZ8tMfw>, Viewed on [January 2014].

introduced and it only helps the audience to hear the information that is designed to be transmitted. Any other character would be secondary characters that would work in demand of the central character.

2. The state of affair is a smooth journey starting with the audience meeting the building and recognizing it as a physical belonging. The viewer will be guided to the intangible aspects of buildings where he/she would not be able to feel without being informed.
3. The aim of describing the historical part and incidents happened in and surrounding of heritage is not only informing viewer but also creating the common sense between audience and the memory of once lived life there.
4. As the leader character is the building, there are always interventions of human being. The research, restoration, preservation interventions and even the events that have socially happened there is being mentioned as the other guides for the story.
5. The emotions get complicated when after the perfect condition of heritage it gets to be damaged due to various reasons. The current condition of heritage may also raise responsible emotions. The background music assists this task.
6. The outcome of the movie is to emphasize the heritage itself and the demand of preservation.
7. The least expectation for the outcome is to inform a big part of community that may relate to it or only have affection in that heritage. The onsite presentation of this type of films would stop mis-understandings and bound the visitor with the heritage which is obviously in use of better conservation.
8. The narrator is usually a reflector which is out of this story and only the describer. This narrator may have the status of a researcher or academician as it suggests the sense of more reliable information audience get. Other favorite type of narrator is a character that is a part of this history and lives in the period of it.

4.3. Narrating Surp Amena P'rkich

Surp Amena P'rkich church fits in the third group due to its preserved condition. Church still holds most of its details and architectural aspects and a wise eye would quickly visualize the initial state of it, still the demand for limiting this visualization exists. According to observations, it takes 10 minutes walking from the *Aslanli* gate (which is the main entrance for tourists and visitors) to the church which this time delays due to pauses-sightseeing and when they reach the building they are physically tired and existing fences limit their reach to building. The information sign placed at the boarder of fences informs audience about the history and architectural aspects of the building. The pity part is the stories visitors fake while visiting P'rkich church without reading information sign or having any preliminary ideas about the story of it. Beyond all the mis-understandings and mis-interpretations that happen while visiting the site, the physical condition of church makes it hazardous to approach and to be inside the church. The amount of soil that has covered the corridors that was the reaching routes to the church and other small buildings that is believed to be lodgings near the church obstructs effortless understandings.

Every building at Ani has very unique story and in between them the architectural features and the very important construction reason of P'rkich is hidden from public mind and memory. Generally the building lies in five phases when:

1) Building was constructed 1036 A.D and the relic was brought there kept until end of 14th century
2) Bell tower and zhamatun and later hostages were added between1100-1400
3) Marr's team intervened and strengthened some parts of church and documented surrounding of the church but filled them again 1890s
4) Half collapse of church due to thunderstorm and firelight 1957
5) Current situation and conservation- preservation project and studies

The decision for P'rkich was to prepare a short film to be presented both on-site and away from the site in social media and in potential places. The short video is the mixture of visual data and audio. The narrator would be a reflector one in English with subtitles.

The images and some video records of Ani and Church itself were recorded in summer of 2013 by HDR camera .On site studies were done in order to understand the structure of church for the later modeling phase. The 3d model of church was prepared in *Autocad2013* and *3dsmax* software from Autodesk programs[47] by the information thrived from the laser scanned data and the conservation project where the documentation of church exists. Those data themselves were used during the film. Prepared 3d model was used for the reconstruction of building and 3d explanation of the church which eases the process of perception. The model could be used as image renders and motioned type of it (animation). Modeling phase took 56 hours of work and the result is a documented 3d Model (in compare to an ideal model) and the rendering and animation process was done in *Lumion 3d*[48] rendering software. Materials of the model were prepared from the authentic photos of building and the rendering process for the animation using personal computer took 24 hours.

The storyline of P'rkich was prepared according to the formwork that had shaped earlier in **4.2.**

It is prepared as:

- Starting Title: 5 seconds
- Location of Ani and Surp Amena P'rkich within Ani : 50 seconds
- Reason and date of construction: Words on the inscription on the wall of church and the holy relic: 50 seconds
- The uniqueness of plan and its interior and comparison with circle planned churches: 20 seconds

[47] Autocad2013 and 3dsmax, Autodesk, Inc., available from : < http://www.autodesk.com/>

[48] Autocad2013 and 3dsmax, Autodesk, Inc., available from : < http://lumion3d.com/>

- History of the church and phases of construction till end of 14th century: 90 seconds
- Travelers and Marr's team idea on the church and their activities: 80seconds
- Thunderstorm and collapse of the church: 10 seconds
- Current preservative activities starting from 2006 and importance of conservation: 100 seconds
- Facilities of visiting the church 20
- End Title: 15 seconds

The total of 450 seconds (7, 5 minutes) of the film covers the whole information that has been gathered from Armenian, English and Russian sources.

The process of movie making which includes shaping frames and joining them and editing their transition forms and mixing audible data has been achieved in Adobe Premier Pro CC program made by Adobe.[49] The audio recording process was prepared in Voice Record application for IOS [50] and image preparations were happened in Adobe Photoshop CC software[51]. The whole took estimated 24 hours of work.

Beside the technical decisions the scripting of this film shaped on the limitations that were mentioned previously at **4.2.**

In continue the parts of script with the aim they are carrying would be mentioned orderly:

Location and Context:

The identity of a heritage is not separate from its context. The realization of this bond would transmit the values that context owns directly to the building/s within

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[49] Adobe Premier Pro CC, Adobe, Inc. Available from : https://www.adobe.com/products/premiere.html

[50] Voice Record Pro Application. Available from : < https://itunes.apple.com/us/app/voice-record-pro/id546983235?mt=8 >

[51] Adobe Photoshop CC, Adobe, Inc. Available from : < http://www.adobe.com/tr/products/photoshop.html >

that context and this heritage would be sensed within all the socio-political, historical and economical incidents. The lack of information about the social atmosphere of the time (and authors decision on not mentioning political aspects of time and today) is obvious in Surp Amena P'rkich's case. But its location within Ani and the value that it earns from this has been mentioned strongly.

> "*Church Surp Amena P'rkich is situated in the eastern edge of the plateau of Ani the medieval capital of ancient Armenia .This archeological city is situated in the northeast of Turkey in the Kars province. It is 40 kilometers to the east from Kars city until the borders of Turkey-Armenia are reached. The borders are defined by a river called Akhurian (Armenian) or Arpaçay (Turkish) and it is the limits of Ani archaeological site to the east. The site is placed on top of a plateau limited by cliff valleys from three sides. P'rkich is placed nearly 300 meters to the north-east of Cathedral the most important building within this city and in the eastern borders of city looking at Mığmığ Deresi (Gayladzor valley) very close to one of the gates of the city opening to this valley.*"

Reason and date of construction:

The time value of the heritage is basically understandable from its construction date and the survival of it if it is ruined. This date not only carries the duration of its strength but it also emphasizes the construction technology and design mentality of time and how the building is the sample of its times brilliant and wise man crafts. In P'rkich the designer so called Architect is unknown but the builder and its reason is the peak point of its story.

> *"Different inscriptions on and around the church suggest priceless information about it. The very interesting and amazing reason of structure of this church is mentioned as:*
> *'In the year 1035 A.D, I, Ablgharip Marzpan took and edict on behalf of Smbat Shahanshah to the emperor of the Greek, Micheal, at*

Constantinople, and with great effort and great expense, I brought a particle of the Holy Cross and, when come, I completed this temple and erected the sign of light as a crown of this spouse of Christ…'

This precious part of relic is reported by inscriptions to be kept in the church until 14th century when in earthquake of 1319 the dome was damaged.

The relic brought visitors to the church which lasted in construction of hostages close to church for guest only 5 years later". (According to an inscription)

Designer of the building and its architectural aspects:

The physical part of the building which is categorized as tangible value of it grows in its innovation of design and its details as the design phase and in its great craftsmanship. The Architect which majorly was involved in process of construction is the leader of this valuable process and the better results are the higher abilities of it. In P'rkich case the architect is not mentioned so it may point out the general prominent architecture of time. Although this church is very unique in its numerical property.

"The Architect of P'rkich is unknown but a priest called Trdat and his wife has repaired some parts of this church later at 1193 that has been mistaken with the famous Armenian Architect Trdat as the designer of the building previously.

Structurally 19 facets of building surrounds a circle of about 15 meter diameter in plan and 8 apses shaped toward same center in the interior but the 8th apse is nearly twice bigger. The fact of owning 19 facets is unique in medieval Armenian architecture typology as structural methods resulted in even-numbered facets. The only entrance door is situated at south and a hidden staircase was made inside western wall connecting ground level to the mid part of the church. Two very narrow chapels are placed in both sides of the

large apse. Half domes on the apses continue till the fully circular drum connecting them to the upper dome. 12 windows in a thinner wall are attaching the downer parts to a semicircular dome .The height of now standing part is nearly 22 meter and the original is guessed to be 25 meters.

Interior frescos showing figures of Apostles 'while reading or praying' have been painted by artist Sargis Parshik in 1193 on the half domes inside the church (still visible with naked eyes in the preserved part of the church). The painter himself is visible in his drawings asking for the mercy of God.

Other inscriptions mention the addition of a bell tower at 1271 and a zhamatun some years later than that. (Today only ruins left).

After the damage of the church, a new dome was built under the supervision of the mayor of the city Grigor at 1342."

History of research on the building:

Not only the written documents that inform about the heritage in a wide range, visual data such as engravings, paintings or photos are very practical in deriving information about the condition of heritage at the time. Talking about this case, P'rkichs initial sketches belong to later centuries when the city of Ani is already abandoned.

"Not any documents are left from travelers visiting Ani before 19th century. The engraving of Brossett is the oldest document showing the state of building in 1860 where the dome and some parts of lower levels were already damaged. Lynch had mentioned his concerns about church collapse in his notes after his visit form site at 1894.Only some years later Arshak Fetvajian Watercolor painted the church with its details proving Lynch's concerns.

When Nikolai Marr was excavating the site at 1913, church's unstable condition urged them for some interventions and

documentation of it. The team filled blank parts of western and eastern walls with a differentiable material. The initial sketches of the church's plan and its surrounding are now being kept at the (Saint Petersburg's) Institute of Material Culture of Russian Academy of sciences Archive which give very important information about the church and its context in the city. The surrounding of the church and parts that Marr's team has excavated and probably later filled in are obvious in sketches.

P'rkich was also documented and measured by Toros Toramanyan the famous architect who has studied Ani which was published in his book and is now base of the ongoing study about the church under the directorate of World Monuments Fund and Ministry of Culture of Turkey."

Conservation-preservation activities:

The main aim of this film is emphasizing the urge of preservation for heritage. The effort of informing them is in aim of interacting them with the process of conservation from basic steps of understanding this process to encouraging or even associating in conserving activities. While doing this the sense of " what will change if I do something?!" must be diminished .That may be possible by growing hope in audience that something is being/can be done through showing ongoing preservation projects or any activity that works for the benefit of heritage.

In P'rkich's case an in-depth conservation project has started in the year 2008 under the supervision of WMF.

"*The church faced its tragic incident when firelight crashed it into two parts and the eastern part collapsed at the afternoon of summer 1957.*

At year 1998-9 the main door was filled with rubble stone masonry and some interventions were done on walls by the historical heritage protection foundation to help the stabilization of the left half of building.

The church was scanned and documented and 'Historic Preservation Project' was prepared for P'rkich in 2008 under the supervision of WMF and Turkish Ministry of Culture. Later the fallen part was excavated and the survived pieces were numbered and carried to sheltered spaces to be protected. Those parts were also scanned and partially identified.

Since 2012 some conservative interventions haves been done on building.

Wall paint analyses were also done on the interior frescos.

After architectural and structural surveys the emergency stabilizing works started. Normal settlement of building and its reaction to natural forces notably wind is being monitored by professional group at Ankara. This process will continue until the church is in a long-term stabilized condition and controls will continue until demanded.

While fixing the problems of the church visits to it is limited to fences that avoid visitors to get any possible harm from crashes of buildings. An information table has been designed in two languages for the visitors to get quick overview on the heritage they are watching from some more steps away."

Ending the Script:

The last sentences used are valuable as the mind of audience is already prepared for getting the message the inscription wishes to transmit.in this case the main aim was to exaggerate the identity of the church and its significance intercultural and internationally. Also the audience should have already understood the precious value of its survived part structurally and architecturally that carries all its intangible values.

"Even though the half church has survived for almost 1000 years, it may not gain its original function or form anymore but it is going to live with its visitors for the next generations as a glorious world heritage."

Prepared short film and the 3D model is attached on a Compact Disc which is found in Appendix (2).

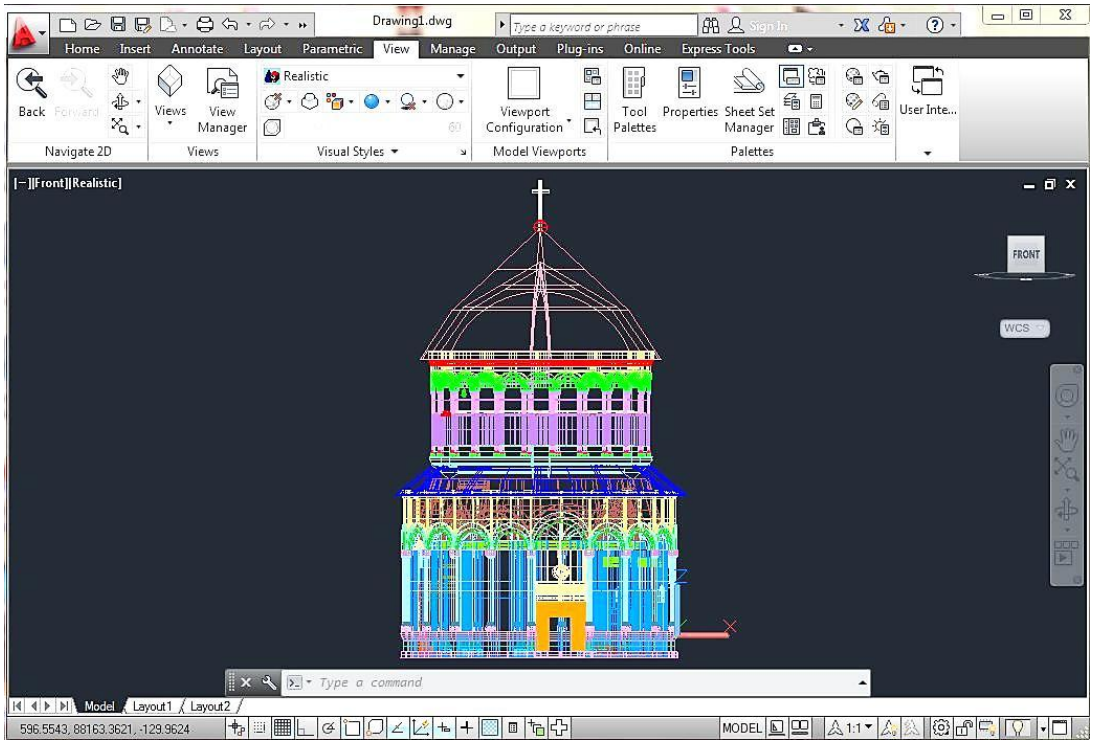

Figure 59. Snapshot from the modeling phase of Surp Amena P'rkich Church

Figure 60. Snapshot from the short film (animation part) prepared for Surp Amena P'rkich

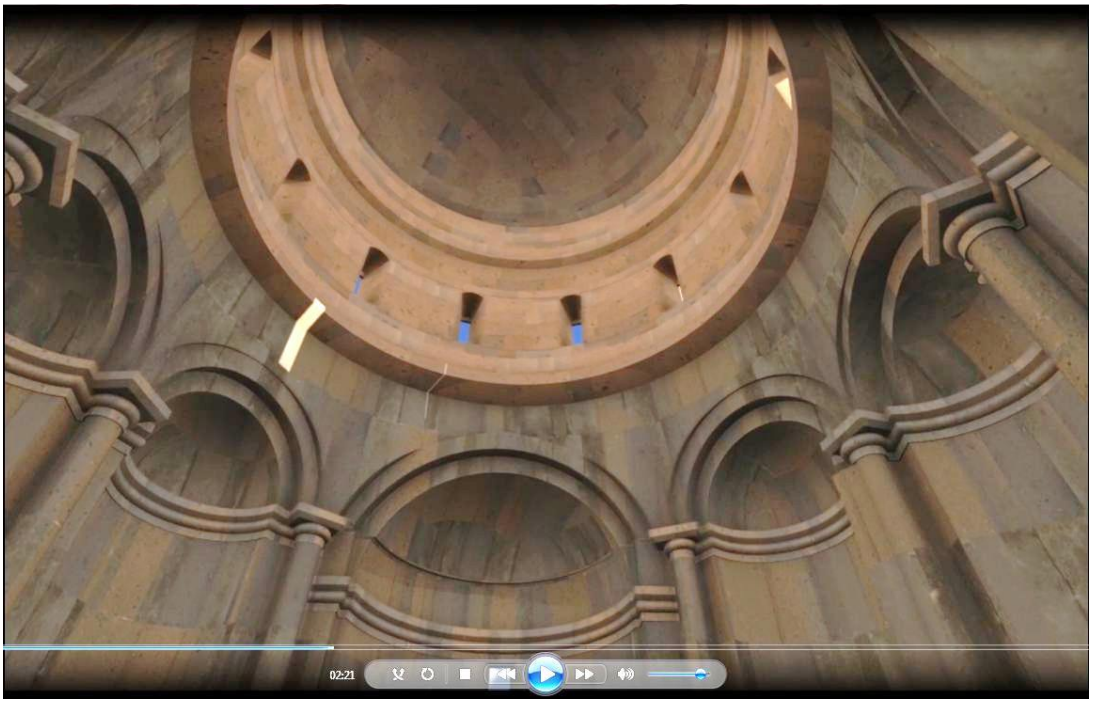

Figure 61. Snapshot from the short film (animation part) prepared for Surp Amena P'rkich

CHAPTER 5

CONCLUSION

5.1. Thesis Statement

In this document I tried to gather the different methods of presentation notably virtual and digital type of them that develop the possibilities of presenting the heritage and their importance to wider range of groups of people away from site .This possibility is not only informative but has the potential of emphasizing the significance of that heritage and clarifying the worth of it for anyone which results in conservation by formation of a preservative conscious in people.

The film type of this virtual presentation is the very common type in between all methods and has the easy but still effective way of being presented. This possibility makes the film very valuable .The creation and presenting techniques of it are available and user-friendly. This type that educates while entertaining could be presented to most of age groups. On the other hands the material for preparing them is already produced inside preservation projects and the other needed materials are usually reachable and easy to access. The experiment during this research proved that a graduated architect can easily analyses and prepare a short movie that even tough lower in quality but is still informative. Lack of this kind of visually interacting films is obviously felt and the basic steps that should be followed for preparing it is tried to be defined.

5.2. What was done?

Beside studying the up to date techniques of presentation and categorizing them, different examples of film type of presentation that was mostly found on internet was analyzed.

The fact that a heritage is not only precious only based on its tangible values showed that the intangible values of it must be told in an attracting way. Therefore the methods of turning the pieces of history to an informative, still inviting story were studied. The cinematic way of storytelling was superposed with the courses that shaped that examples which were analyzed and exposed and in the end produced a general formwork. This formwork helps in recognizing the characters in the story, how the heritage could be emphasized and leave a lasting trace in the conscious of audience. It also helps the audience to relate themselves to the building by experiencing different emotions.

The process of transmitting information and inviting the audience to watch and enjoy the interpretation process about the study case was done by a 7 minute movie that was prepared by various tools and techniques with the help of the data that was gathered both from the building itself and from the literature scanning.

During the process of making the film there were two major steps:

1) How could the building be presented in the clearest way?
2) What are the peak points in the history of building and how could it be presented so that audience can relate to it?

The words and images complete each other and cannot be replaced. As the building is a 3d physical object, best way of presenting and understandings it is 3d models. The potentials of each image and data thrived from 3dlaser scans if available should be used.

A building is always understandable and valuable within its context so the presentation process when away from site should also give information about the site and the location of that heritage. This important aspect also carries intangible values of places directly to the building and in result to the mind of audience.

The history is sometimes complicated and difficult to understand. Due to limits that 10 minute interval creates, information should be clear and if possible use hints rather than full explanations.

The Story of a building would not mature with the lack of its social life as the audience is the human and the building would connect without people with human

life of it. This shortage was obvious in my study case due to very little information found about social life of Ani at the time.

The prepared short film has the main aim of informing public and that may happen with very basic quality and quantity of data that applies to public standards and any higher quality of those would be advantage for attraction of audience or précising the information mentioned.

The major steps that should be followed to handle a heritage with its history and with material already prepared and prepare a short film that could be both entertaining and educating was studied and explained. Still without any group job from different mediums the resulted film will lack a proficiency in different aspects.

The resulted film should be examined both onsite and on the social media and the reflections to it could be detected afterward.

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APPENDICES

A. **Inscription on the Walls of Surp Amena P'rkich**

I.A.Orbelli was an academician specializing in medieval history that joint N.Marr's team at Ani. In his book *'Corpus Inscriptionum Armenicarum' (or Divan Hay Vimagrut'yan)* which was prepared in 1920's but not published until 1966 in Yerevan, he has prepared inscriptions from buildings at Ani and their translation with comments on them. In the following figures the inscriptions of P'rkich church and their translations are available. They are the source to basic information about the church.

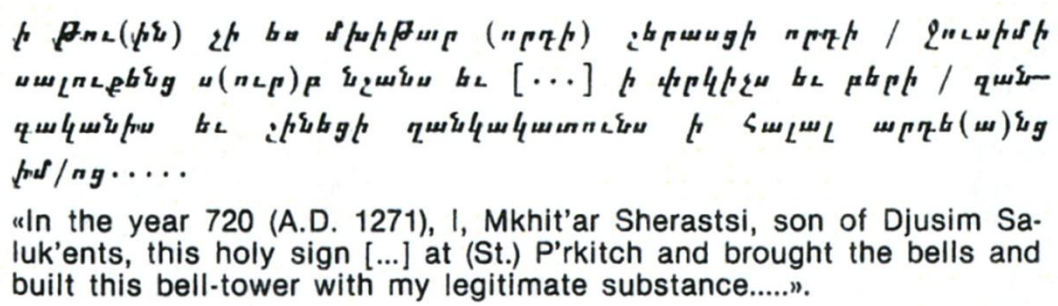
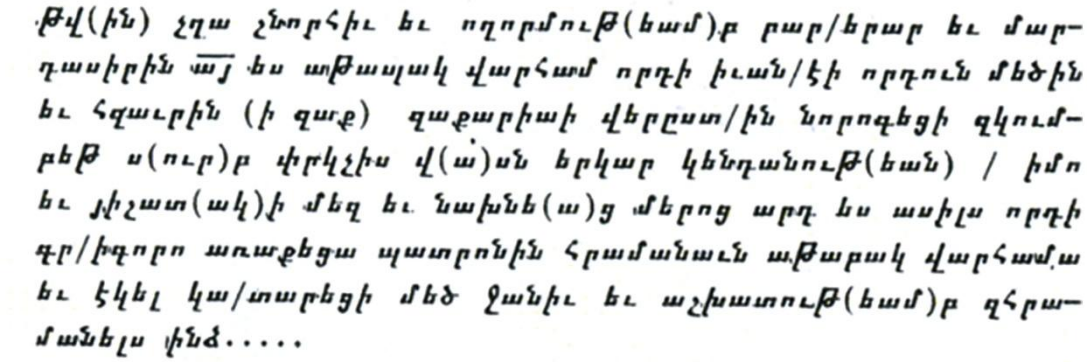


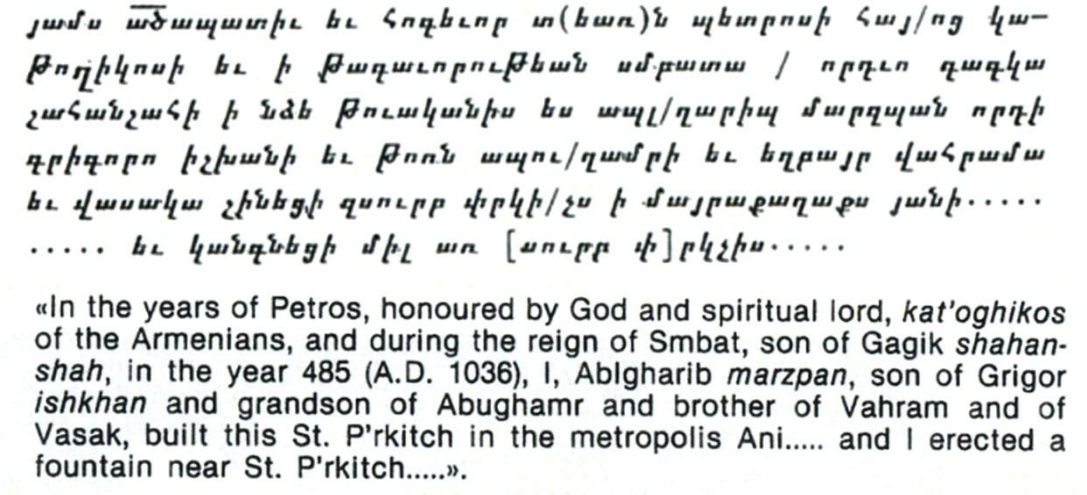
Figure 62. Inscription on the exterior of Surp Amena P'rkich, in the 2nd arcade west of the entrance



թվ(ին) չղա չնորհիւ եւ ողորմութ(եամ)ք բար/երար եւ մարդասիրին ես աթաբակ վարհամ որդի իւան/էի որդուն մեծին եւ հզաւրին (ի զաք) զաքարիաի վերըստ/ին նորոգեցի զկումբեթ ս(ուր)բ փրկչիս վ(ա)ան երկար կենդանութ(եան) / իմո եւ յիշատ(ակ)ի մեզ եւ նախնե(ա)ց մերոց արդ ես ասիլ որդի գր/իգորո առաքեցա պատրոնին հրամանաւն աթաբակ վարհամա եւ էկել կա/տարեցի մեծ ջանիւ եւ աշխատութ(եամ)ք զհրամանելս ինձ.....

«In the year 791 (A.D. 1342), by the grace and mercy of God, the benefactor and friend of men, I, *at'abek* Vahram, son of Ivane, son of the great and strong Zak'aria, again restored the dome of this St. P'rkitch, for my long life and in memory for us and for our ancestors. I, therefore, Asil, son of Grigor, was sent with the order of the *patron at'abek* Vahram and, when come, I did, with great effort and fatigue, what had been ordered of me.....».

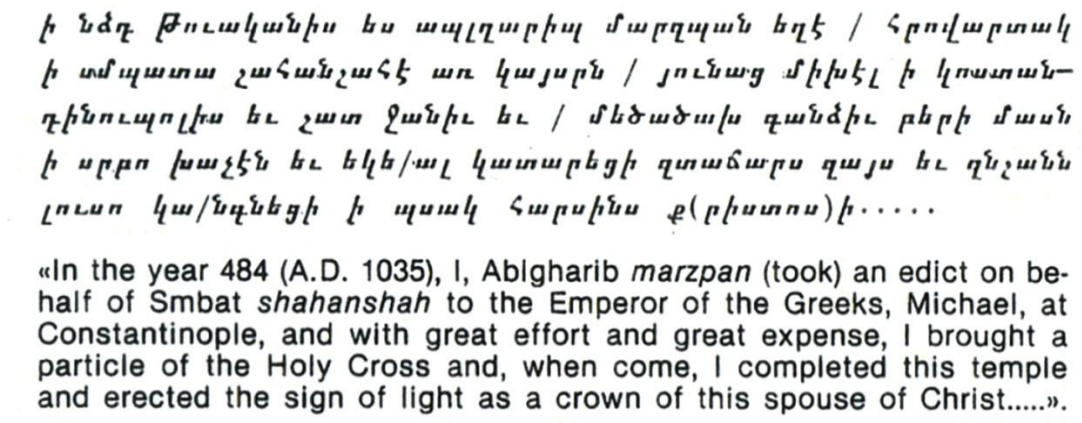
Figure 63. Inscription on the exterior of Surp Amena P'rkich, in the 3rd arcade west of the entrance



յամս ածապատիւ եւ հոգեւոր տ(եառ)ն պետրոսի հայ/ոց կաթողիկոսի եւ ի քաղաւորութեան սմբատա / որդւո գագկա շահանշահի ի նձե թուականիս ես ապլ/ղարիպ մարզպան որդի գրիգորո իշխանի եւ թոռն ապու/ղամրի եւ եղբայր վահրամա եւ վասակա չինեցի զսուրբ փրկի/չս ի մայրաքաղաքս յանի.....
..... եւ կանգնեցի միլ առ [սուրբ փ]րկչիս.....

«In the years of Petros, honoured by God and spiritual lord, *kat'oghikos* of the Armenians, and during the reign of Smbat, son of Gagik *shahanshah*, in the year 485 (A.D. 1036), I, Ablgharib *marzpan*, son of Grigor *ishkhan* and grandson of Abughamr and brother of Vahram and of Vasak, built this St. P'rkitch in the metropolis Ani..... and I erected a fountain near St. P'rkitch.....».

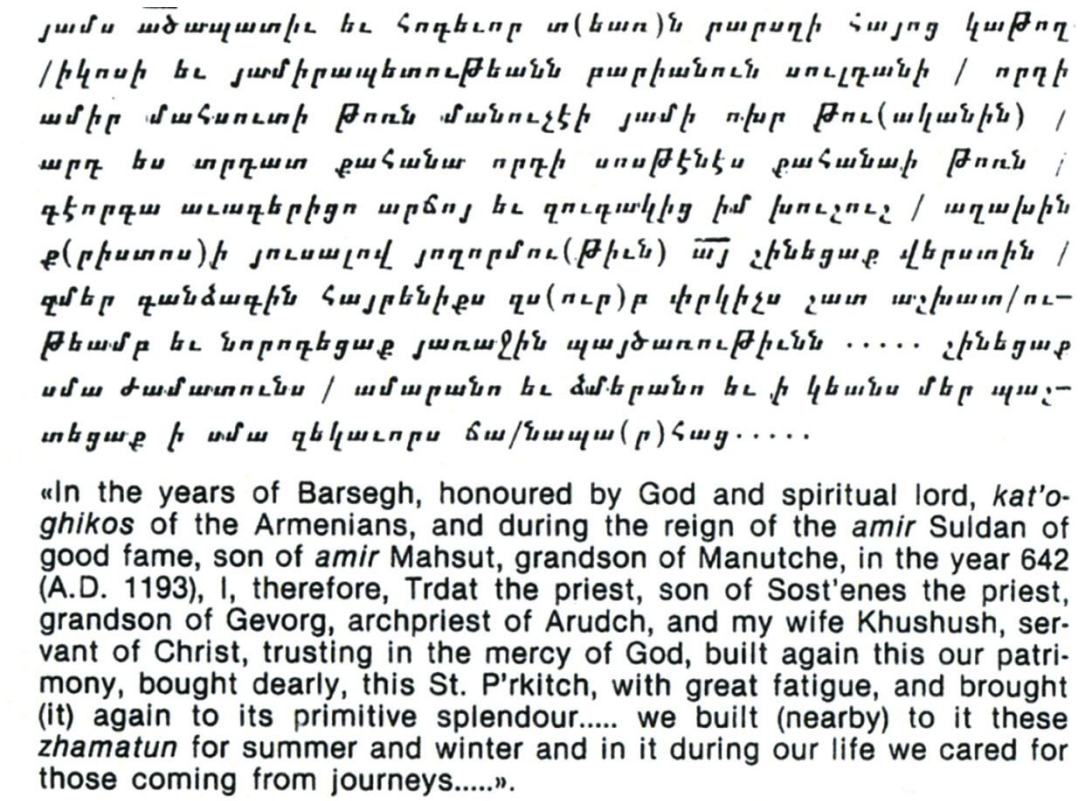
Figure 64. Inscription on the exterior of Surp Amena P'rkich, in the 5th arcade west of the entrance



ի նձդ Թուականիս ես ապլղարիսլ մարզպան եղէ / հրովարտակ
ի ամպատա չահանշահէ առ կայսրն / յունաց միխէլ ի կոստան-
դինուպոլիս եւ չատ ջանիւ եւ / մեծածախ գանձիւ բերի մասն
ի սրբո խաչէն եւ եկե/ալ կատարեցի զտաճարս զայս եւ զնչանն
լուսո կա/նգնեցի ի պսակ հարսինս ք(րիստոս)ի.....

«In the year 484 (A.D. 1035), I, Ablgharib *marzpan* (took) an edict on behalf of Smbat *shahanshah* to the Emperor of the Greeks, Michael, at Constantinople, and with great effort and great expense, I brought a particle of the Holy Cross and, when come, I completed this temple and erected the sign of light as a crown of this spouse of Christ.....».

Figure 65. Inscription on the exterior of Surp Amena P'rkich, in the 8th arcade west of the entrance



յամս ա̅ծ̅ապատիւ եւ հոգեւոր տ(եառ)ն բարսղի հայոց կաթող
/իկոսի եւ յամիրապետութեանն բարիանուն սուլդանի / որդի
ամիր մահսուտի Թոռն մանուչէի յամի ոխր Թու(ականին) /
արդ ես տրդատ քահանա որդի սոսթէնէս քահանաի Թոռն /
գէորգա աւագերիցո արճոյ եւ զուգակից իմ խուչուչ / աղախին
ք(րիստոս)ի յուսալով յողորմու(թիւն) ա̅ի̅ չինեցաք վերսւին /
զմեր գանձագին հայրենիքս զս(ուր)բ փրկիչս չատ աչխատու-
թեամբ եւ նորոգեցաք յառաջին պայծառութիւնն ..... չինեցաք
սմա ժամատունս / ամարանո եւ ձմերանո եւ ի կեանս մեր պաշ-
տեցաք ի սմա զնկաւորս ճա/նապա(ր)հաց.....

«In the years of Barsegh, honoured by God and spiritual lord, *kat'oghikos* of the Armenians, and during the reign of the *amir* Suldan of good fame, son of *amir* Mahsut, grandson of Manutche, in the year 642 (A.D. 1193), I, therefore, Trdat the priest, son of Sost'enes the priest, grandson of Gevorg, archpriest of Arudch, and my wife Khushush, servant of Christ, trusting in the mercy of God, built again this our patrimony, bought dearly, this St. P'rkitch, with great fatigue, and brought (it) again to its primitive splendour..... we built (nearby) to it these *zhamatun* for summer and winter and in it during our life we cared for those coming from journeys.....».

Figure 66. Inscription on the exterior of Surp Amena P'rkich, in the 12th arcade west of the entrance

B. .Prepared Short Film

Prepared short film in the format of MP4 and prepared 3D model in the format of DWG for the Animation section is attached in a compact disk given below.