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TECHNICAL ASSESSMENT REPORT "EMERGENCY CONSOLIDATION OF THE NORTHERN WALL PORTION OF THE CASTLE OF LEZHA"



ATELIER 4
ARCHITECTURE • ENGINEERING • CONSULTING



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1. GENERAL

1.1 INTRODUCTION

The castle rises on top of a hill 186 meters high, east of the city. The castle is of Illyrian origin. In 1440 it underwent a reconstruction by the Venetians, while in 1522, after the Ottoman conquest it was also rebuilt by them.

The building is a cultural monument, category I, announced by Order of the Ministry of Education and Culture with No. 1886, dated 10.06.1973.

The most interesting objects to visit are the ruins of Ottoman buildings inside the castle, the mosque, the tower on the southeast wall with a Roman arch and the Illyrian tower on the south wall. Lezha Castle is a cultural monument. From it you can see a very beautiful view of the Lezha plain and the Adriatic Sea.

The castle built on the hill has a strategic position that controls the Drini valley up to St. John's Bay in the Adriatic Sea. The castle belongs to the genus of fortifications and as a typology belongs to the buildings fortified with stone masonry and fortified shelters.

1.2 PURPOSE

Lezha Castle is one of the castles with a relatively large area and the situation is a bit complex due to the large construction volume

The main purpose of the interventions is, its constructive consolidation and architectural conservation. Through these interventions it is foreseen to preserve the unique values that the castle has.

1.3 METHODOLOGICAL APPROACH

Since the architectural object of the intervention is the subject of a Cultural Monument, in accordance with Law 27/2018 "On Cultural Heritage and Museums", the entire project follows the instructions of the Ministry of Culture aimed at ensuring, protecting and architectural conservation, based on adequate activity cognitive.

The methodological approach adopted for the architectural and restoration project and for the various interventions of structural consolidation of the Monument, takes into account the criterion of minimal interventions, accepted both at the national level and at the international level (eg IÇROM, ICOMOS)



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The first phase is the identification of degradation phenomena, continuing further with the selection of the most suitable interventions for their elimination.

Regarding the restoration of the surfaces, the main forms of degradation will be identified, through a survey and sketching of all forms of chemical-physical deterioration and the selection of the most suitable interventions to allow their removal without eliminating the effect of time that should continue to be clearly visible in the recovered object, this should be considered as the priority objective to then continue with the preservation of the physical, structural and formal configuration of the monument as a prerequisite for improving its functional and relational aspects with its surrounding context.

Since the object is located in a plain area with unstable geological formation, the most frequent forms of degradation are closely related to the problem of increasing humidity and lowering of the object. This is also noticed by the fact that part of the walls of the castle are located underground. A phenomenon that has occurred over the years as a result of the geological formation of the area where the monument is located. For this, it will be envisaged to design a drainage system as efficient as possible to remove rainwater in cases where there is flooding in the area.

After the recent earthquake of November 26, 2019, damage or destruction of certain parts of the monument was also noticed, for which, after the diagnosis of the materials, structure and careful surveys, the preparation of restoration and reconstruction plans is underway, where necessary, mainly using original materials.

2. HISTORICAL ANALYSIS

2.1 HISTORY

Lezha Castle, which has traces of constructions of different periods coming from antiquity to the Middle Ages is one of the most important archaeological centers of the country. Its fortification system with numerous gates is distinguished for the highly advanced techniques of the time.

Archaeological records and restoration works on the fortification walls of the city, give in an argumentative way the beginnings of civic life (IV century BC) and the continuity of life in this center until the Middle Ages.

The oldest period of the settlement according to archeological traces and its connection with the Acropolis as a prehistoric Illyrian settlement (beginning of the Iron Age) and which can be called as a precursor phase of the fortification system of the ancient city of Lis is earlier than



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the century. .IV per

In the century. of IV p.e.r The oak is surrounded by strong walls with stone blocks. In the 1st century BC, on its southern side, reconstruction works were carried out, which are documented by the finding of some blocks with inscriptions that speak of this reconstruction of it.

Later in the century. XI-XII in the part of the acropolis of the city is built the medieval castle of Lezha (Elission) which is related to the fortification works to withstand the invasions from the north with the creation of the first Slavic states (IX-X centuries).

In 1393 the Castle of Lezha falls into the hands of the trading Republic of Venice. Various archeological works have discovered 10 gates that served to connect the inner territory of the fortification with the external environment. For the important archeological values, the perfect wall techniques and the very history of this center, the restoration works that started in 1968, have identified more than 70% of the walls, turning Lisi into a visitable center. Systematic study and documentary work, as well as many years of restoration work, have created a somewhat stabilized state of archaeological ruins.

2.2 RESTORATION INTERVENTIONS DURING DIFFERENT PERIODS OF TIME

By the materials provided by the archive, we note that the Castle of Lezha has undergone numerous conservation and restoration interventions over the years which are included in the final purpose of working with this important monument, the restoration and complete conservation of the Castle of Lezha.

Lezha Castle has undergone various interventions in the following time periods:

Year 1976

Verification of the condition of the medieval wall of the castle of Lezha and the protective measures to be taken: (intervention of 1976)

1. Anchor with two steel towers-buttress, to the right of the collapse, which is inclined on the



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outside about 7°, according to the relevant design.

2. Clean the ground in front of the soil and the wall, breaking the latter into transportable masses.
3. Consolidate the internal constructions and the collapse sides between the buttress walls.
4. Attempt to pull the tower in place with argano, after cleaning it from the inside.
5. Take measures for falls on other walls and keep the situation under constant control.

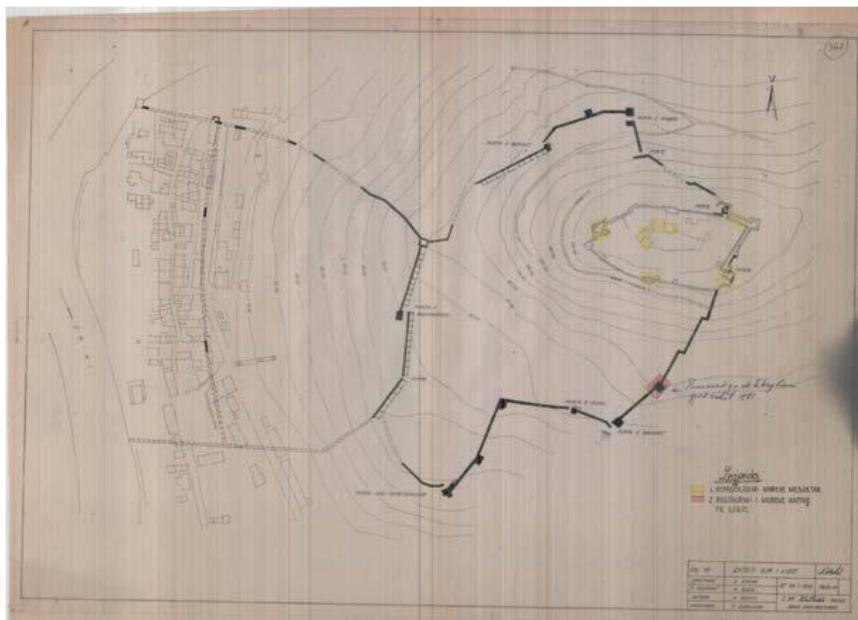


Fig. 1: 1976 Project

Year 1977

Conservation and restoration interventions in the perimeter walls and interventions for the maintenance of the castle during 1977:

Round Tower Sector

- the need to demolish slippery soils and demolish collapsed wall blocks.
- accommodation of stones near the collapsed wall
- to settle the fallen soils and stones on the inner side of the northern wall of the castle.

These works aim to eliminate the pressure caused by the wall surrounding the medieval castle and are necessary to avoid further collapse of the medieval walls.



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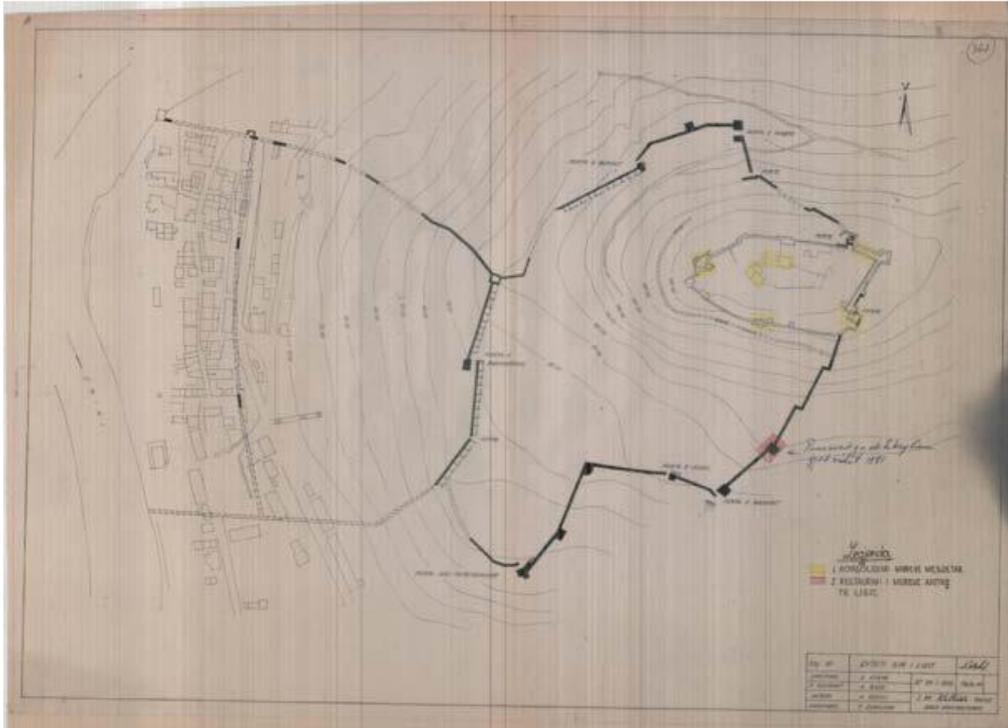


Fig. 2 : 1976 Project

Year 1978

Conservation and restoration intervention in the walls of the fence as well as the necessary measures to be taken for the restoration of the walls of the medieval castle and the premises preserved inside it during 1978.

Sector I.

- Restoration of collapsed stone blocks which have not been moved from the crash site. This part of the wall to be restored, thus completing the complete restoration of the northeast wall.

Sector II.

- on both sides of the wall there are blocks of stones that fall from the wall, which for the most part cover each other or are covered by vegetation and small stones sliding from the castle hill.



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- restoration of the wall and tower to the height that will allow the material to be found at the crash site.

Medieval tower sector.

- the condition of the surrounding walls of the medieval castle of Lezha requires that measures be taken to consolidate their upper part as well as the perimeter walls of the premises that are preserved inside the castle.



Fig. 3: 1978 Project

Year 1980

Conservation and restoration intervention after the damage ascertained by the earthquake of April 15, 1979. The works that are foreseen to be carried out during 1980 are as follows:

Section (1)

-Complete restoration of the round tower and the perimeter wall connected to its eastern side

-At the end of these works, the reconstruction of the outer face of the tower wall and the surrounding wall of the city will begin.

Section (2)

-Restoration of the wall between the Small Gate and the Gaviar Gate

-Setting of fallen stones near the wall.

Section (3)



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-For the restoration of the collapsed tract in the northern wall, there is a need to land the soil that has covered the blocks of collapsed stones and to remove the blocks that have been moved from the place.

Reconstruction of the wall will be done after it has been cleared of slippery soils in the core of the wall.

Year 1982

During year 1982 in Lezha will be performed a series of works with character of restoration, consolidation and maintenance as in the walls of the city of Lis, the medieval castle and the recently discovered monuments.

Restoration works will focus on the ancient city walls and specifically the East tower, the semi-circular tower near the water reservoir as well as the southern part of the inner city wall.

During 1982, it is thought that consolidation works will be carried out on the damaged walls of the medieval castle, thus avoiding the danger of their collapse.

Year 1984

During 1984, a series of works will be carried out on the surrounding walls of the medieval Castle as well as in the premises inside it. The restoration of the ancient walls will continue in the sectors which are defined in the planimetry attached to this report:

Medieval castle:

The works in general have the character of repairing and consolidating the surrounding walls and the premises inside it as well as cleaning works in the territory inside the castle.

The surrounding walls of the ancient city of Lissus

Sector "A" For the restoration of the wall between the Gaviar Gate and the South-East tower it is necessary to pull the stone blocks which have been rolled away from the wall and to place the fallen stones near the wall.

Sector "B" From the round tower to the Southwest Gate. In this sector, the wall line will be cleaned of dirt and small stones, then the fallen stones will be raised and the fallen stones will be approached at a distance..

Year 1986

During 1986, the following conservation, restoration and cleaning works were carried out:

On the surrounding walls of the ancient city

Continuation of the restoration of the wall from the round tower to the south-west entrance.



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This sector also includes the extraction and release from the soil of the square tower covered by the extraction of soil during the construction of the water depot in 1971.

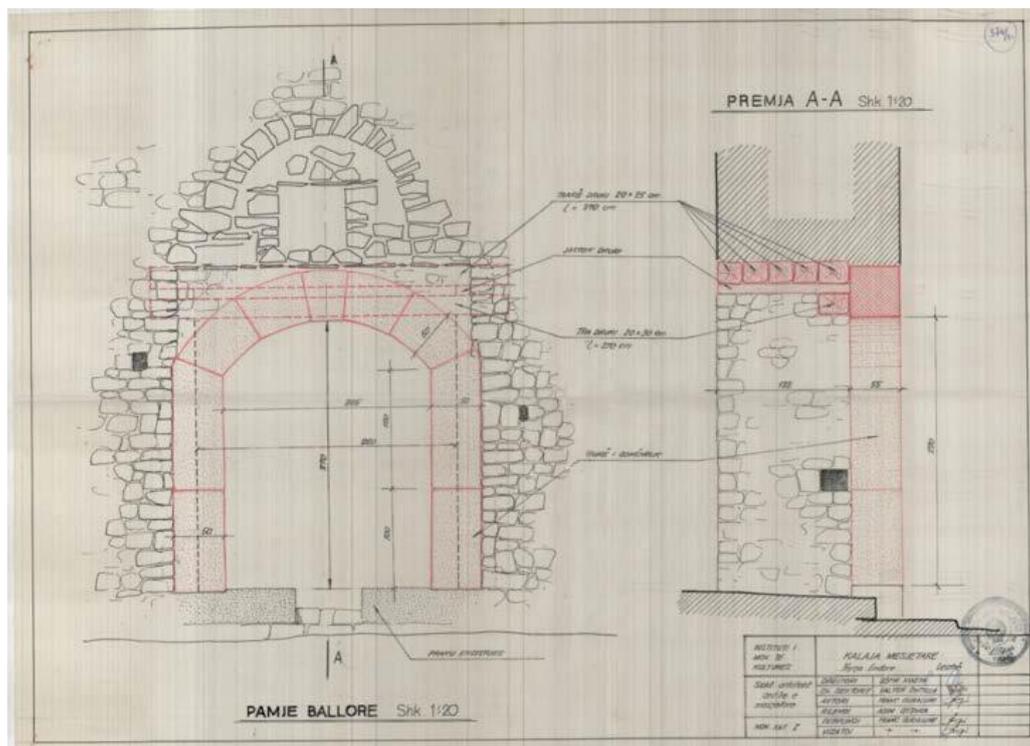


Fig. 4: Drawings from the restoration project of 1986

Year 1989

The restoration works carried out during 1989 in the medieval castle and the surrounding walls of the ancient city of Lissus are described as follows:

In continuation of the restoration works in the medieval castle of Lezha during 1989, a series of works will be carried out on the surrounding walls, at the entrances and in the premises inside it.

Restoration of antique walls in various sectors will also continue.



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Year 1999

In 1999, landscape works were carried out in the castle in the area around the Memorial after the removal of the illegal constructions as follows:

- Cleaning and consolidation of the medieval western wall along its entire length.
- Consolidation and cleaning works of the southern entrance complex, including the cobblestones of the road.
- Reconstruction of the well for the removal of water coming from the upper part of the city.
- Patrol of the existing canal along the entire length of the western wall.
- Construction of wells for water collection and disposal

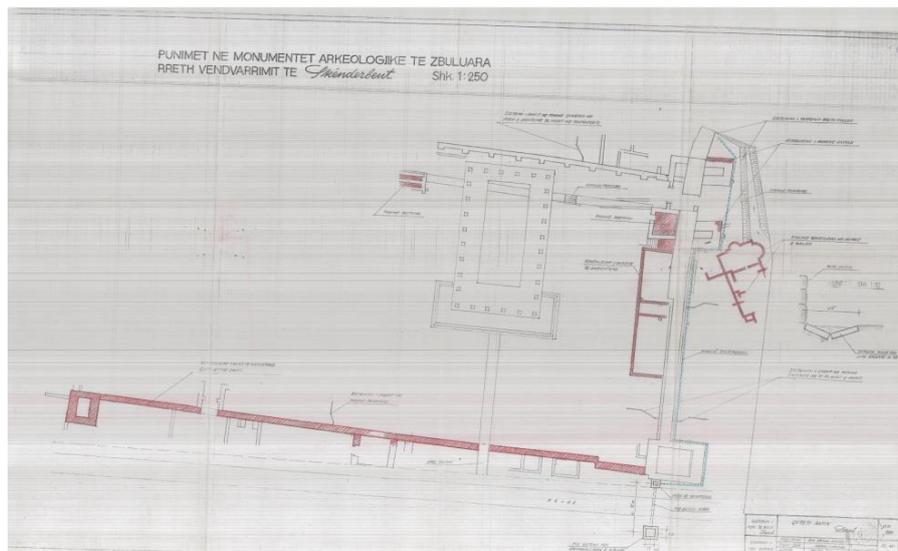


Fig. 6 Drawings from the restoration project of 1999

Year 2002-2003

In the project of 2002-2003 for the restoration works in the fortification walls of Lezha, the following goals are aimed at achieving:

- Avoiding deterioration and collapse of walls with blocks and lime mortar.
- To perform anastylosis works on the fence walls in the sectors where there is authentic material.



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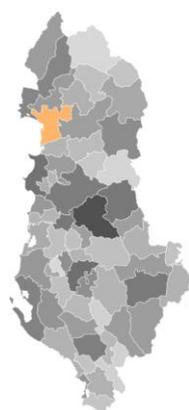


- To carry out restoration and reinforcement works on the walls of the medieval castle, without damaging their general configuration.
- To functionally solve the way of traffic of visitors, building for this purpose pedestrian roads in the territory that includes the ancient city.

3. ANALYSIS OF THE URBAN SITUATION

3.1 GEOGRAPHICAL POSITION OF THE LEZHA CASTLE

Lezha Castle is located in the Municipality of Lezha, at a distance of 500 m from the city center, in the northeastern part. The castle is part of the extensive archaeological complex of the old town of Lisus. It is located at a distance of 53 km from Tirana and 34 km from the northern main city Shkodra.



Administrative map of Albania
Harta administrative e Shqipërisë



Lezha Castle
Bashkia Lezhë



Fig. 7: Geographical position of Lezha Castlehouses.

The phases of the earliest constructions have the ancient typology, with large stones built on dry land and placed in polygonal and trapezoidal. The later stage different from antiquity is the medieval one where the constructions of the Byzantine, Venetian and finally Ottoman period are introduced. The constructions of this period are with small stones well fugged and have elements such as arches, alcoves, buttresses, cannon turrets and weapons.



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The medieval castle was built on the Hellenistic walls that were located on the site. It is generally The Hellenistic walls are mostly positioned in the eastern and northern area of the castle, on the outside. Being retaining walls they are always subject to destruction as a result of ground pushing. This is best seen in the northern area, where the polygonal wall has always had problems and damage, documented from time to time in various restoration projects and inspections.



Fig. 8 Hellenistic period walls



Fig. 9 Medieval period walls



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4. CURRENT CONDITION

After the earthquake of 26.11.2019, the castle suffered a partial collapse of the stone masonry and antique blocks. There is also a loss of verticality of the stone wall in its northern part. The structural elements have suffered significant damage.

-Northern Wall

This area presents the biggest structural problems. In zone V-2 (refer to the graphic sheets) it is noticed that in the north wall near the circular tower with polygonal stones, there is a deep crack in the entire height of the wall and its inclination. This has also led to the inclination of the tower over the circular tower. This area has always been problematic, for this reason the square tower has been fortified with metal cables by an old intervention carried out by the staff of the Institute of Monuments. In addition to the wall near the quadrangular tower, landslides and terrain, occasional collapses of the V-3 polygonal wall are also observed.



Fig. 10:North Area



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Fig. 11: Existing condition of the walls in the northern area





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Fig. 12 Structural cracks in the walls



Fig. 13 Damage to the bottom of the stone masonry

5. MATERIAL DEGRADATIONS

The degradations of the materials include:

- Damage to stone masonry
- Vertical, horizontal or diagonal cracks in the walls
- Inadequate filling with mortar - cement of the grouting of the walls
- Uncontrolled growth of plants and biological debris
- Light cracks
- Lack of binding material
- Destabilization of the heads of the walls
- Masonry areas with cavities or missing stones



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6. INTERVENTION ANALYSIS

6.1 ASSESSMENT OF NEEDS

- I. Conservation of the historical object (A monument of the first category)
- II. Consolidation of the northern wall without affecting the surrounding walls
- III. Improvement of existing infrastructure for better access
- IV. Contemporary signage
- V. Program, maintenance plan and risk management

6.2 RESTORATION AND CONSERVATION INTERVENTIONS

The main intervention in the castle is the consolidation of its northern wall. Before carrying out these interventions and after the existing situation was identified, two archaeological surveys were carried out:

- *ARCHAEOLOGICAL SURVEYS*

Based on the results of the conducted archaeological surveys, it was concluded that the impact of conservation works on the archaeological potential of the archaeological park will be completely negligible and completely easily avoidable. These surveys enabled the documentation of deposits that were not of archaeological interest. Both surveys have been backfilled so as not to change anything in the static balance of the monument until the moment of conservation intervention, and their excavation depth has been marked by limiting backfilling with geotextiles. In this way, the exact identification of the contours of the surveys will be very easy for the conservation team.

The information obtained from the archaeological survey will be used in the design of the project for the restoration of the northern wall of the Lezha Castle.

Some of the interventions that will be made are:

- *SITE PREPARATION*

These works consist of excavating, transporting, removing, placing and impacting all materials encountered within the boundaries of the work, including the construction of drainage, support, and excavation for ditches and channels necessary for the construction of the work site in accordance with the purpose of the work. All excavation shall be defined as, unclassified excavation, excavation, removal of unsuitable materials, rock excavation, borrow or burial. Removal of Unsuitable Material shall consist of removing soil and/or mixing soil with organic materials identified in the Scheduled Contract or as directed by the Engineer, which would be detrimental to the roadway or embankment if left in situ. its existing. Rock excavations.



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Excavated rock consists of igneous, metamorphic, and sedimentary rock that cannot be excavated without blasting or using a backhoe, including all boulders or other loose rock.

- *STRUCTURAL*

The intervention that will be carried out on the retaining wall consists of three stages. The first phase begins with the excavation of a part of the soil located below the retaining wall, this will be done to lighten the wall a bit and not cause negative effects. After the first phase process is completed, we move on to the realization of the second phase, which will be the anchoring of the iron rods in the plane perpendicular to the wall, since it is the plane most at risk of collapsing. Also, the angle should be as vertical as possible to enable the exercise of vertical force. At the end of the first two phases, soil reinforcement will be done at the base of the foundation with grouting. The end parts of the wall which are damaged will be replaced with a new wall which will have the same materials. After the completion of the intervention phases, periodic checks should be carried out, which monitor soil movements/slides.

- *DRAINAGE*

The drainage system aims to rehabilitate and improve the existing drainage system of the Castle in order to collect, direct, self-flow away the surface rainwater that falls on the internal territory and infiltrates into the subsoil of the part of the wall that is being restored. in the Castle of Lezha in order to remove him outside its perimeter.

In the northern wall of the Castle, its drainage system (it is assumed) was built in a similar way to all the drainage systems of other parts of the castle, which are relatively functional even today. These systems work on the basis of the principle of disciplining surface water and water that infiltrates underground, through simple systems of drainage channels outside the walls of the fortress, in the holes that can be seen in its existing undamaged walls.

- *ARCHITECTURAL*

As a result of the works that will be carried out, it is necessary to restrict the movement of visitors to the walls of the castle until the completion of the works, as this causes their partial damage. The castle has 3 important gates: Eastern, from which access is made to the interior of the castle, Western and Northern. The area next to the gate near the north wall shows the detachment and fall of the Hellenistic stones, which are the basis of the masonry. Their fall has caused cracks in the entire height of the masonry connected with mortar.

Once the consolidation of the northern wall is done, it will be proposed to restrict the movement of visitors. Today, visitors are allowed to climb the walls of the Castle, but the area is dangerous. There will also be an information board with aluminum material written with a laser, where the investments made by the relevant company are clearly read. This is done not



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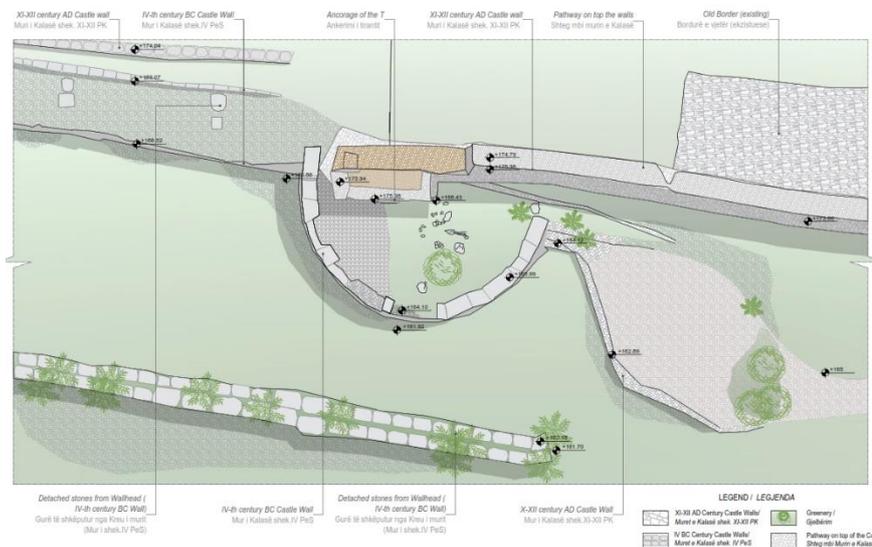


only for the preservation of human life, but also of the monument.



7. FINAL OUTLOOK

After the stages of intervention foreseen in the northern wall of the Castle, an inspection plan will be carried out regarding the walls (IV century BC and XI-XII century BC). When the inspection of the condition of the walls is carried out, the areas where there is degradation should be noted and it is important to distinguish the areas that have the potential to be problematic in the future. By having this type of approach with controls at Kala, we act quickly and reduce costs in time for repairs.





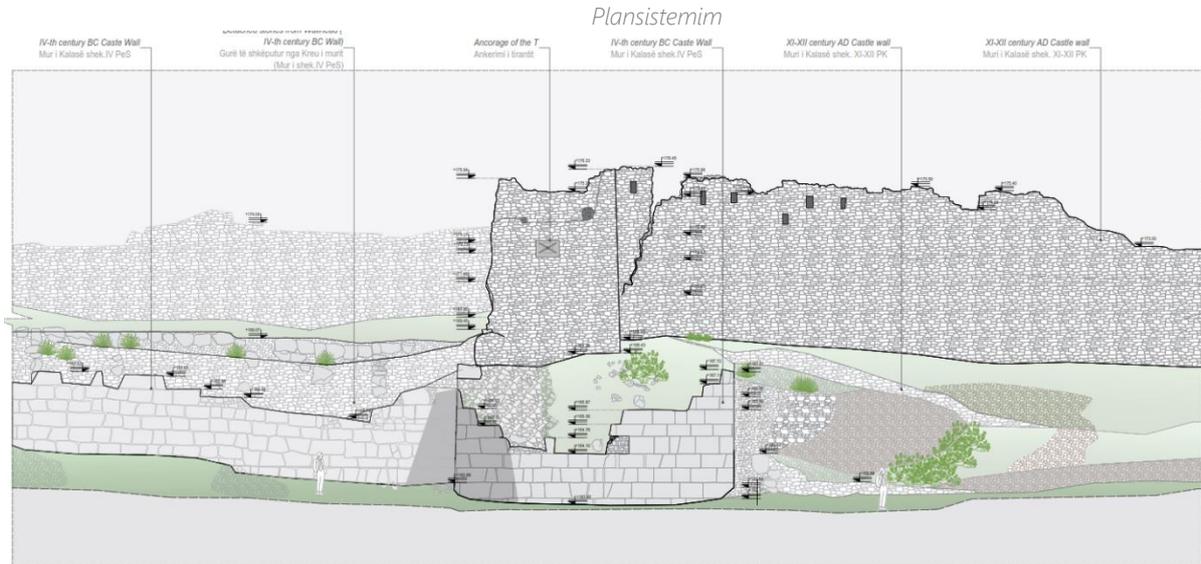
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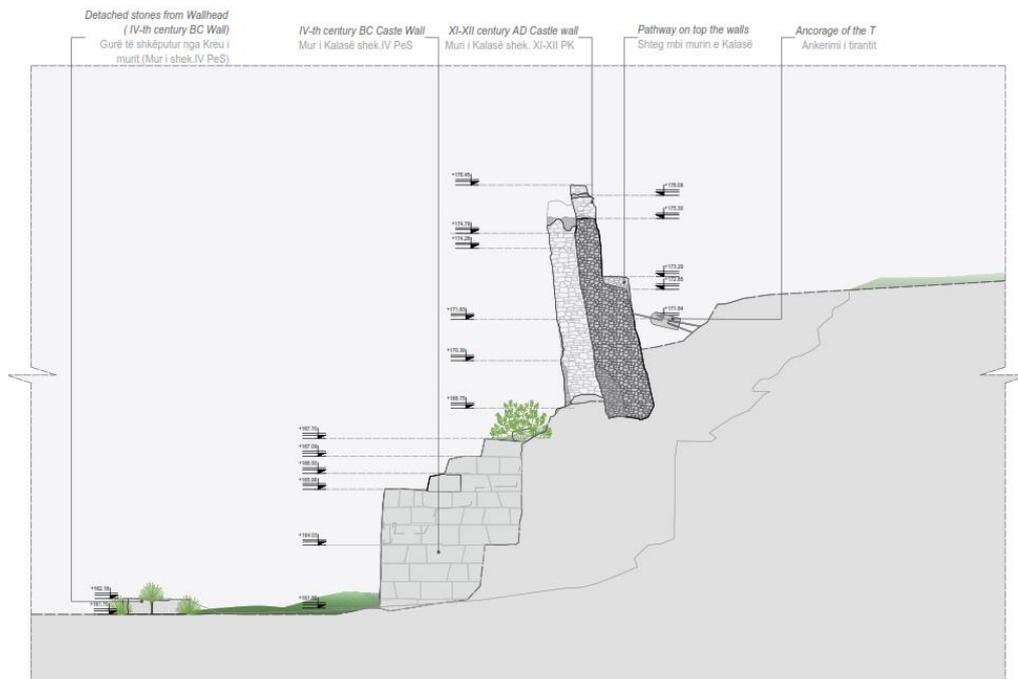
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View 1



LEGJENDA / LEGJENDA

- XI-XII AD Century Castle Wall / Muret e Kalasë shek. XI-XII PK
- IV BC Century Castle Wall / Muret e Kalasë shek. IV PeS
- Greenery / Gjelbërim
- Pathway on top of the Castle Wall / Shteg mbi Murin e Kalasë
- Section of the Stone wall / Mur Gurë në Preqe

View 4