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Research Article

REFLECTION OF THE BAUHAUS MOVEMENT ON LANDSCAPE APPLICATION: CASE STUDY OF ÇANAKKALE/HAMIDIYE NEIGHBORHOOD PARK

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ABSTRACT. This project involves the application of the design principles of the Bauhaus art movement on a project area of urban open green spaces of a developing area at the neighborhood level. The study aims to design a neighborhood park with a modernist approach that includes aesthetics, function, and sustainability, taking into account the development potential of the region. This project began with the definition of the purpose and scope, and then a site analysis was created using literature reviews and municipal data. After the end of the analysis process, the design plan was determined by considering the development potential of the region. Subsequently, the design process was initiated following the fundamental principles of the Bauhaus art movement. Functionality and sustainability are emphasized in the design. Complex circulation and design decisions were avoided and the principle of "less is more" was taken as a basis. Considering the climatic structure of the region, a planting plan was made. Innovative landscape elements have been designed under the basic principles of the Bauhaus art movement. The design process was finalized with a comprehensive report summarizing the findings, results, and recommendations, along with presentation sheets. As a result of the project, it became evident how Bauhaus art and design principles can be effectively integrated into a modern landscape project. The use of both natural and industrial materials in the park's design has offered its visitors the chance to establish a connection with the environment. At the same time, the park's reliance on the principles of ecological sustainability has contributed to its goals of protecting nature and raising environmental awareness.

Keywords: *sustainable landscape architecture, industrial design, Bauhaus neighborhood park, open green spaces, landscape design*

INTRODUCTION

Bauhaus is a design school founded by Walter Gropius in Germany after World War II. The purpose of its establishment is to completely break away from the past and replace the designs of the Victorian (Victorian-era design) period. The best artists and designers of the period were teaching at the school. With the closure of the school in 1933, most of the teachers went to America and became influential there [1].

According to the Bauhaus school, modernism: "simple, cool and geometric" influence is equal in print, product, and interior designs. According to this;

b. Correct use of materials (truth to materials)

Allowing the use of the original of each material. For example, not using plastic materials that look like wood, chrome, fabric, or leather. Particleboard disguised as oak, oilcloth embossed with gold-toned metal, flocked wallpapers were not used.

c. Less Is More

This idea relates to the previous ones. The engineering principle of "economy" was taken and turned into an aesthetic principle. The economy, which means cost-effectiveness in engineering, has turned into visually efficient design. A good design depends on how the

building works. The ornamentation, symbolism, and posture of the buildings were removed, and the design principles remained as texture and color, weight, proportion, and silhouette [1].

Bauhaus principles are reflected in exterior designs as well as in art and construction. For example, the sculptor Isamu Noguchi, who was asked to represent Asia at UNESCO, filled an empty courtyard with a modernist garden, a "sculpture" with social overtones. [Fig. 1].

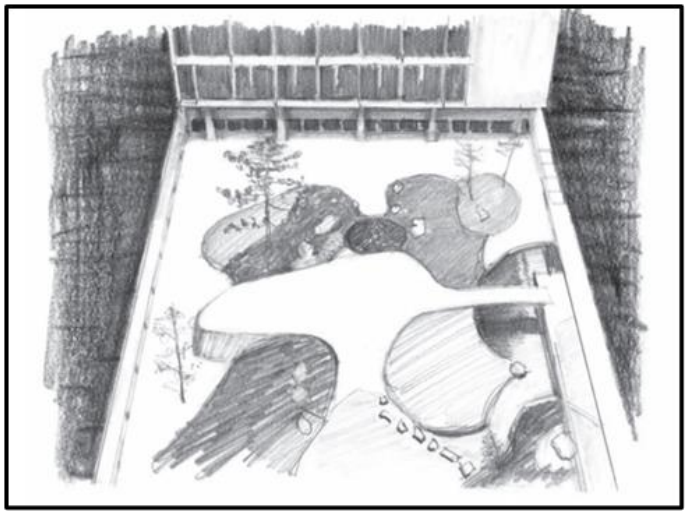

Fig. 1. *Isamu Noguchi courtyard design [1].*

The principles and vision of the Bauhaus still have a strong influence on modern design and architecture. In this study, it was tried to integrate the basic principles of the Bauhaus art movement into a modern landscape architecture project.

Bauhaus movement; While emphasizing the principles of simplicity, functionality, and social community use, it attaches equal importance to aesthetic and ecological values. With this study, it was tried to create a neighborhood park that encourages people to connect with nature and each other, taking into account not only artistic and aesthetic but also social and environmental elements.

This park will reflect the modernist design principles of the Bauhaus; It is aimed to be a space where form follows function, the natural and industrial properties of materials are highlighted, and the use of color, shape, and space is minimalist and impressive. The design of the park has been considered to enable people to have an aesthetic experience and meet their physical and psychological needs while interacting with the park.

The Bauhaus movement aimed to create a society in which art and life were combined. In this project, an approach to the design of a neighborhood park that would realize this vision is proposed. The design of the park is based on the social and aesthetic principles of the Bauhaus and is intended to combine these principles with ecological sustainability and community use.

MATERIALS AND METHOD

Materials

Climate, topography, natural and cultural structure, environmental uses, and visual materials related to the Hamidiye neighborhood in which the project area is located were used as materials.

The study area is located within the borders of Çanakkale province, Kepez district, Hamidiye neighborhood. (Fig. 2)

Fig. 2. *Location of the Project area [URL-1].*

The general character of Çanakkale reflects the characteristics of the Mediterranean climate. The lowest temperature is in February with -4.2 C and the highest temperature is in August with +35.8 C. The average annual rainfall varies between 662.8 m3 (Gökçeada) and 854.9 m3 (Ayvacık). The average humidity is 72.6% and it is windy most of the year.
According to 2022 data, the population of Hamidiye District, where the study area is located, is 10,061 people (4,881 people are women, 5,180 people are men). The demographic structure of the neighborhood consists of university students and their families. The housing and mass housing developed around the New State Hospital (Mehmet Akif Ersoy State Hospital) determines the urban growth direction of Çanakkale.

Method

In this project, the Bauhaus philosophy has been examined in terms of the discipline of landscape architecture, and design principles, functions, and space utilization have been formulated. Simple geometric shapes and a color palette consisting of primary colors have been used in the project. The functionality of the equipment elements used in the project area has been taken into consideration. Spaces for people of all age groups have been created by paying attention to the relationship between space and the user.

Bauhaus Design Principles

1. Geometric shapes: Bauhaus focuses on simple, streamlined designs and simple geometric shapes.
2. Simple Color Layouts (Plans): The design style is minimal and focuses on simplicity. The design uses simple colors such as white, gray, and beige, as well as basic colors such as red, yellow, or blue.
3. Innovation: The Bauhaus encouraged the use of new materials and technologies. In terms of landscape architecture, this may mean, for example, the use of sustainable materials and water-saving technologies.
4. Industrial Material: Industrial materials are one of the basic principles of Bauhaus. This movement has accepted the use of industrial materials such as iron, glass, and concrete as a form of artistic expression and frequently used these materials in works of art. This

principle advocates the integration of art and design into daily life and the creative use of industrial production by using industrial materials together, aesthetically and functionally.

5. Minimalism (Less Is More): According to the principles of the Bauhaus, unnecessary ornaments and complexity should also be avoided in landscape design. Instead, simple, clean lines and plain forms are preferred.
6. Functionality: This principle, one of the most fundamental principles of the Bauhaus, means that the design of a landscape must be directly related to its ability to perform its function. For example, the design of a park should be such that people can comfortably walk, rest, and play.

Design Processes

Literature Review: First of all a literature review was conducted on the Bauhaus art movement and modern landscape architecture. It was made to understand the basic principles of the Bauhaus, the effects of this movement on architecture and landscape architecture, and the current trends of modern landscape design.

Creation of Site Analysis: Information gathering was conducted about the physical characteristics of the area where the neighborhood park will be designed, including climate conditions, vegetation, and user needs. This aimed to analyze the existing situation.

Design Process: In the design process of the park, an approach based on Bauhaus principles was adopted. This includes principles such as form following function, rejection of unnecessary embellishments and details, and the use of new materials and technologies.

Modeling and Visualization: Digital modeling and rendering techniques were used to visualize the design of the park. This is crucial for a better understanding of ideas and solutions during the design process. AutoCAD 2022, Adobe Illustrator, Adobe Photoshop, SketchUp 2022, and Lumion 2021 programs were used in the visualization of the project.

Site Analysis

There is a two-lane road to the north and west of the project area. In the project area, the wind predominantly influences from the northwest and southwest. Nearby environment analysis is shown in Figure 3. The project area is 5200 m².

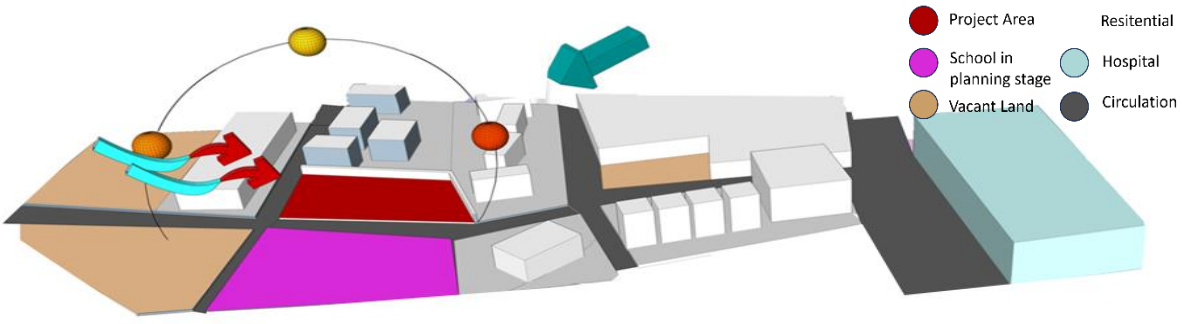

Fig. 3. *Site Analysis Diagram (Created by İlayda Arslan Sketchup 2022 and Photoshop 2021)*

Bubble Diagram

The needs list was formulated considering the region's cultural fabric and environmental uses. It was implemented in the area, taking into account factors such as topography and environmental aspects. (Fig. 4)

Need List

1. Accessible Roads
2. Kids Playground
3. Outdoor Fitness Area
4. Kiosk
5. Dry Fountain
6. Basketball Court
7. Amphitheater
8. Lighting
9. Sitting Units

Fig. 4. *Bubble Diagram (Created by İlayda Arslan using Adobe Photoshop)*

According to this bubble diagram, the areas;

Name	**Area**
Kiosk - Square	350 m²
Dry Fountain	190 m²
Kids Playground	100 m²
Outdoor Fitness Area	100 m²
Basketball Court	165m²
Amphitheater	240 m²
Xeriscape	15 m²

Preparation of the Site Plan

At this stage of the project Site Plan was created by using bubble diagram. (Fig.5 and Fig. 6)

The site plan includes all hard landscape elements such as flooring details, slope solutions, existing elevations, stairs and ramps, floor coverings, and structures.

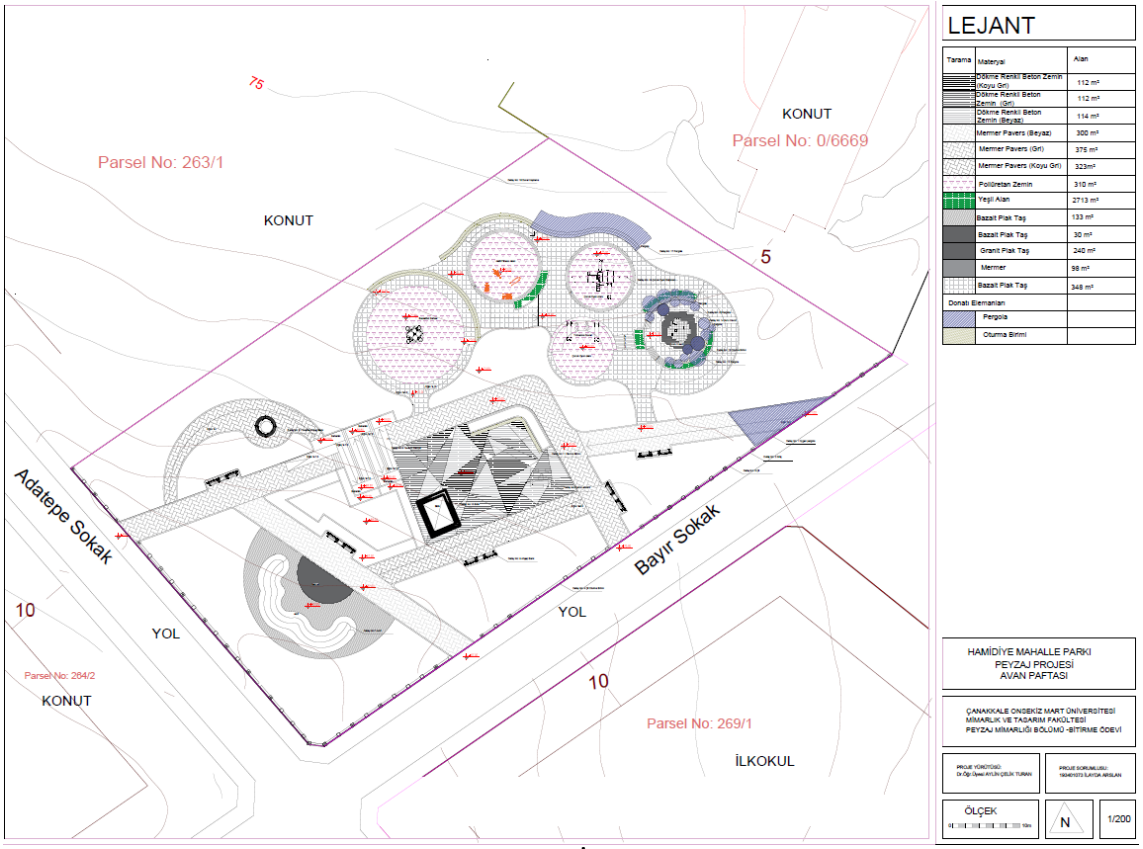

Fig. 5. *Site Plan (Created by İlayda Arslan usign Autocad 2022)*

Fig. 6. *Site Plan Render (Rendered by İlayda Arslan using Lumion 2021 Student)*

Project Details

In the upper part of the project, an area was created using the circular forms of the Bauhaus art movement. This area includes a basketball court, two children's playgrounds, a fitness area with equipment, and a dry pool. (Fig. 7) There are seating units around all areas, and children's playgrounds are located away from vehicle traffic and are visible from everywhere.

Polyurethane flooring is used in the flooring of children's playgrounds, basketball courts, and fitness areas. Polyurethane flooring is an impact-resistant, soft, flexible, and durable material. For this reason, it minimizes injuries caused by falling and offers a safe solution in children's playgrounds and sports areas.

Special designs within the children's play areas are intended to stimulate their curiosity and enhance their motor skills. These elements incorporate vivid colors reminiscent of Bauhaus aesthetics into the decorative elements. Adjacent to the children's play areas, there exists a dedicated sports area for adults. This space is encompassed by an organically shaped seating unit. The basketball court, featuring four hoops, allows multiple groups to engage in basketball simultaneously. The seating units utilized throughout the park serve the function of spectator stands around this court, enhancing the overall experience. The dry fountain located next to the children's play and sports areas is designed with geometric shapes and surrounded by pergola-covered seating units, allowing visitors to enjoy the calming properties of water. Renders are shown in Fig. 7.

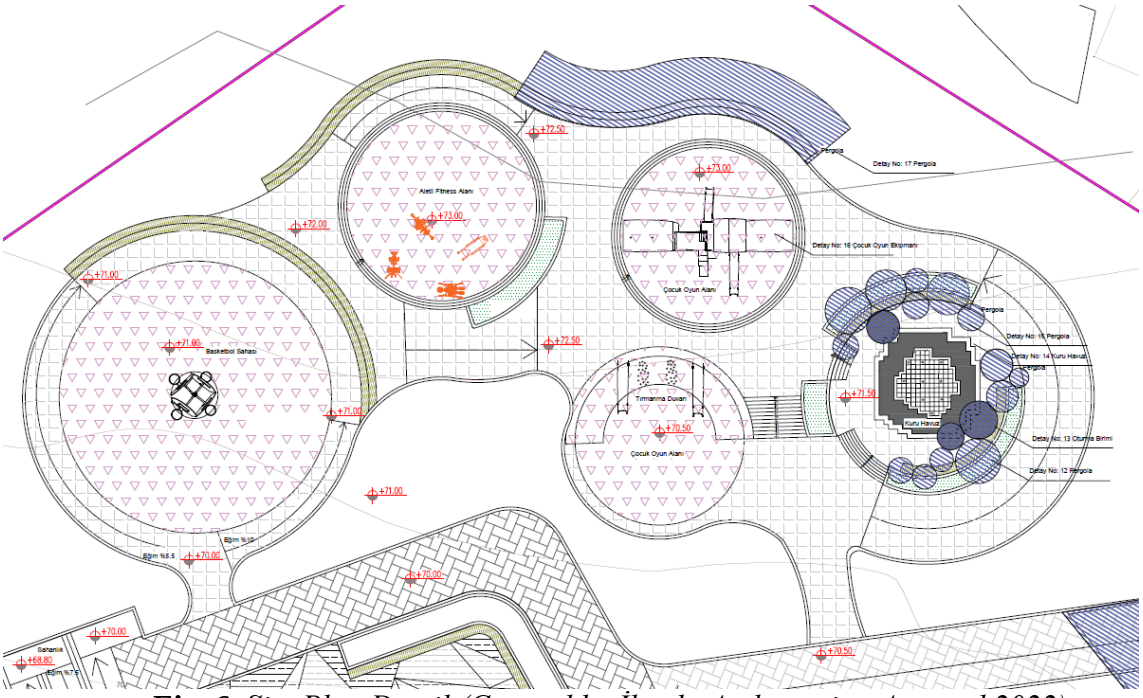

Fig. 6. *Site Plan Detail (Created by İlayda Arslan usign Autocad 2022)*

No	Name	Image
1	Basketball Court	
2	Outdoor Fitness Area	

3	Kids Playground 1	
4	Kids Playground 2	
5	Dry Fountain	

Fig. 7. *Renders (Rendered by İlayda Arslan using Lumion 2021 Student)*

Colored cast concrete floor was used in the floor covering square. By employing this material, it has become possible to create various patterns at a lower cost. The square encompasses a kiosk inspired by the Bauhaus style, a specially designed maze for children, and a seating area. Strategically positioned at the heart of the park, it provides a vantage point for easy supervision of the children's play areas. The ramp was designed alongside the stairs to make the park accessible to everyone.

The kiosk positioned within the area has created a space where the staff of the elementary school and parents can spend time and make purchases. (Fig. 8) Renders are shown in Fig. 9.

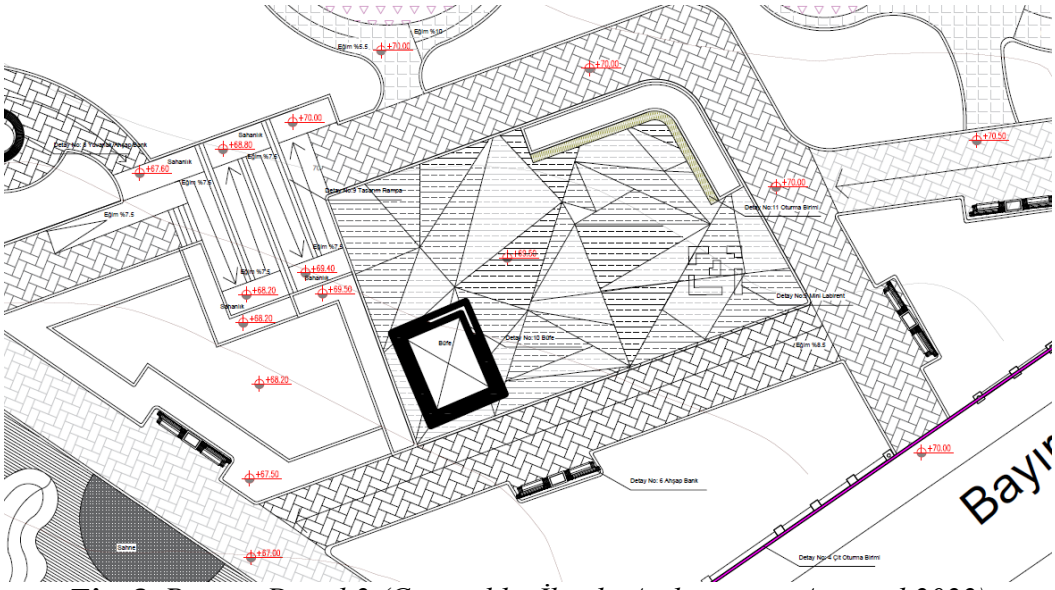

Fig. 8. *Project Detail 2 (Created by İlayda Arslan using Autocad 2022)*

No	Name	Image
1	Square	
2	Kiosk	 
3	Sitting Unit	

4	Maze	
5	Ramp	

Fig. 9. *Renders (Rendered by İlayda Arslan using Lumion 2021 Student)*

Marble pavers have been used for the flooring in the project. The use of marble pavers in the outdoor walkways of this park project aligns with the Bauhaus design principles, which equally prioritize aesthetic and functional values. Marble is a material known for both its natural beauty and durability. Additionally, in modern design, especially within the Bauhaus movement, it signifies the combination of industrial and natural materials. (Fig. 10)

The amphitheater was designed with organic lines, adhering to Bauhaus principles of innovation. Its design aimed to provide a space for people to relax and also serve as an area for various activities of the primary school. Additionally, in line with Bauhaus' principle of innovation, a bench was created that serves as both seating and a bicycle rack. Renders are shown in Fig. 11.

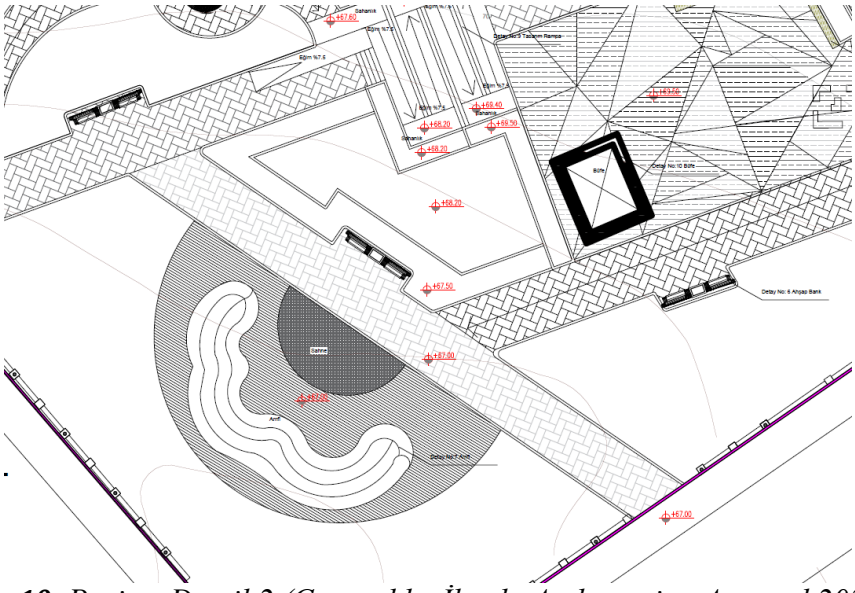

Fig.10. *Project Detail 2 (Created by İlayda Arslan using Autocad 2022)*

No	Name	Image
1	Amphitheater	
2	Bench with bike rack	

Fig. 11. *Renders (Rendered by İlayda Arslan using Lumion 2021 Student)*

Marble pavers have been used for the flooring in the project. The use of marble pavers in the outdoor walkways of this park project aligns with the Bauhaus design principles, which equally prioritize aesthetic and functional values. Marble is a material known for both its natural beauty and durability. Additionally, in modern design, especially within the Bauhaus movement, it signifies the combination of industrial and natural materials. (Fig. 10) Renders are shown in Fig. 11.

Other Details

The outer area of the project has been designed to harmonize with the identity of the park. Considering the impact of the primary school on the street, fence seating units have been designed. Additionally, a Bauhaus-aligned bus stop and pedestrian crossing were included. To better convey the design principles of the park to people, the entrance and a photo corner were designed. (Fig. 12)

No	Name	Image
1	Main Entrance	
2	**Bench Fence**	
3	**Crosswalk**	
4	**Buss Stop**	

4	**Photo Spot**	

Fig.12. *Renders (Rendered by İlayda Arslan using Lumion 2021 Student)*

Planting Plan

At this stage of the project, a planting plan has been established. When creating the planting plan, the ecological, economic, and social conditions of the region were examined, and plants
highly adaptable to the Çanakkale climate with low maintenance costs were selected. (Fig.13)

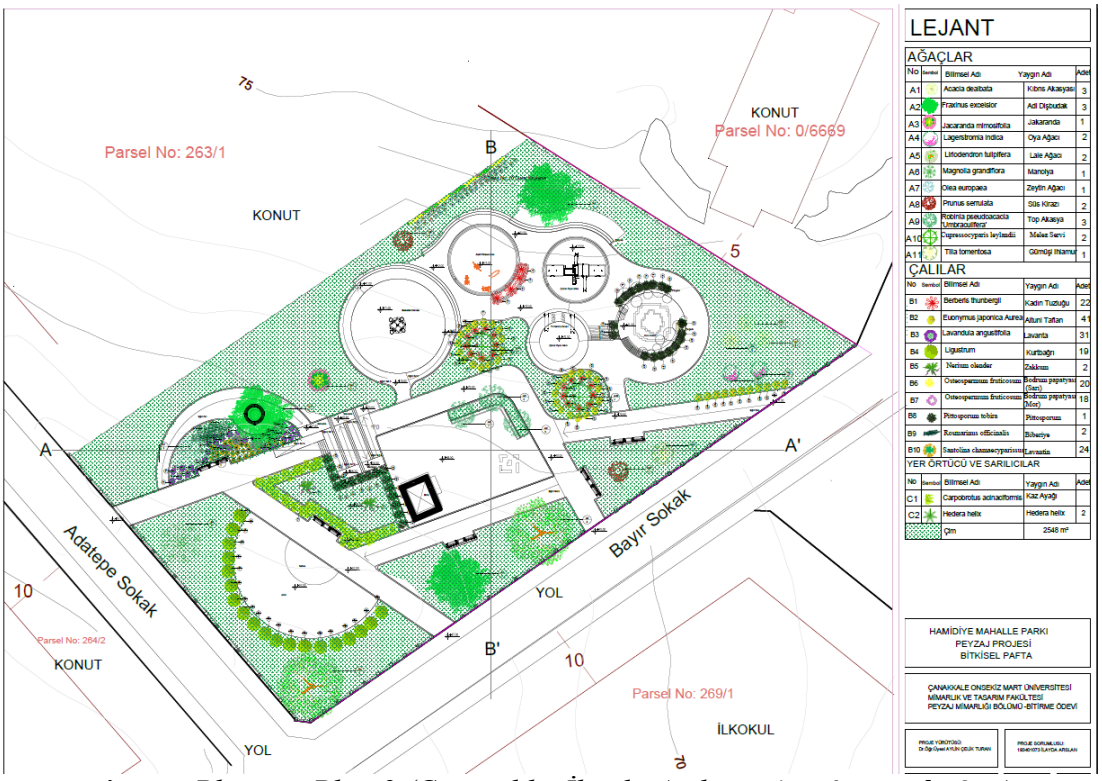

Fig. 13. *Planting Plan 2 (Created by İlayda Arslan using Autocad 2022)*

In the project, plants with different textures and forms such as evergreen and deciduous trees, shrubs, and seasonal plants were used together. This diversity creates visual interest and vitality but also ensures that the appearance of the park is constantly renewed with seasonal changes. This aesthetic value is in line with the artistic principles of the Bauhaus and enriches users' interactions with the park.

Plant list

Trees		
No	Name	Number
1	Acacia dealbata	3
2	Fraxinus excelsior	3
3	Jacaranda mimosifolia	1
4	Lagerstromia indica	2
5	Liriodendron tulipifera	2
6	Magnolia grandiflora	1
7	Olea europaea	1
8	Prunus serrulara	2
9	Robinia pseudoacacia ‘Umbraculifera’	3
10	Cupressocyparis leylandii	2
11	Tilia tomentosa	1
Shrubs		
1	Berberis Thunbergii	22
2	Euonymus japonica aurea	41
3	Lavandula Angustifolia	31
4	Ligistrum ovalifolium	19
5	Nerium olender	2
6	Osteospermum fruticosum (Purple)	20
7	Osteospermum fruticosum (Yellow)	18
8	Pittosporum tobira	1
9	Rosmarinus officinalis	2
10	Santolina chamaecyparissus	24
Groundcover		
1	Carpobrotus edulis	
2	Hedera Helix	2
3	Ophiopogon japonicum	2550 m²

Preparation of Lighting Plan

The lighting plan holds great significance for the safety of the project area. A design has been developed and integrated into the plan to always ensure the safety of the project area by considering the areas illuminated by the lights. (Fig.14)

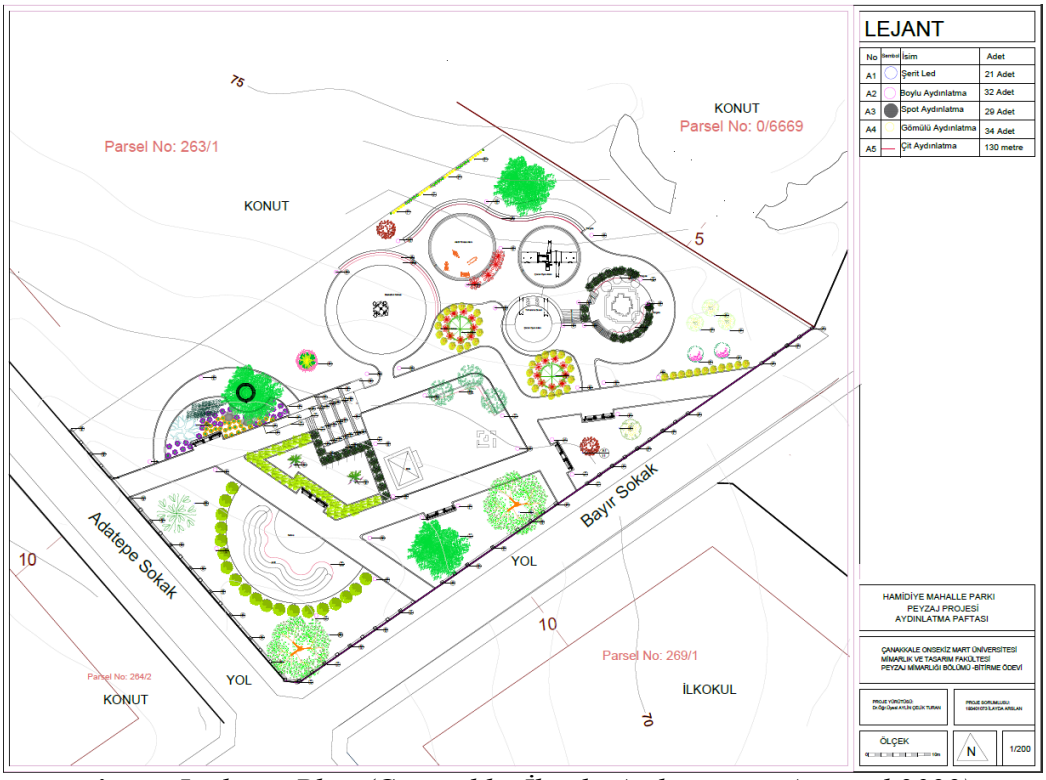

Fig.14. *Lighting Plan (Created by İlayda Arslan using Autocad 2022)*

Preparation of Dimensioning Plan

The dimensioning plan was created for the implementation phase of the project. (Fig. 15)

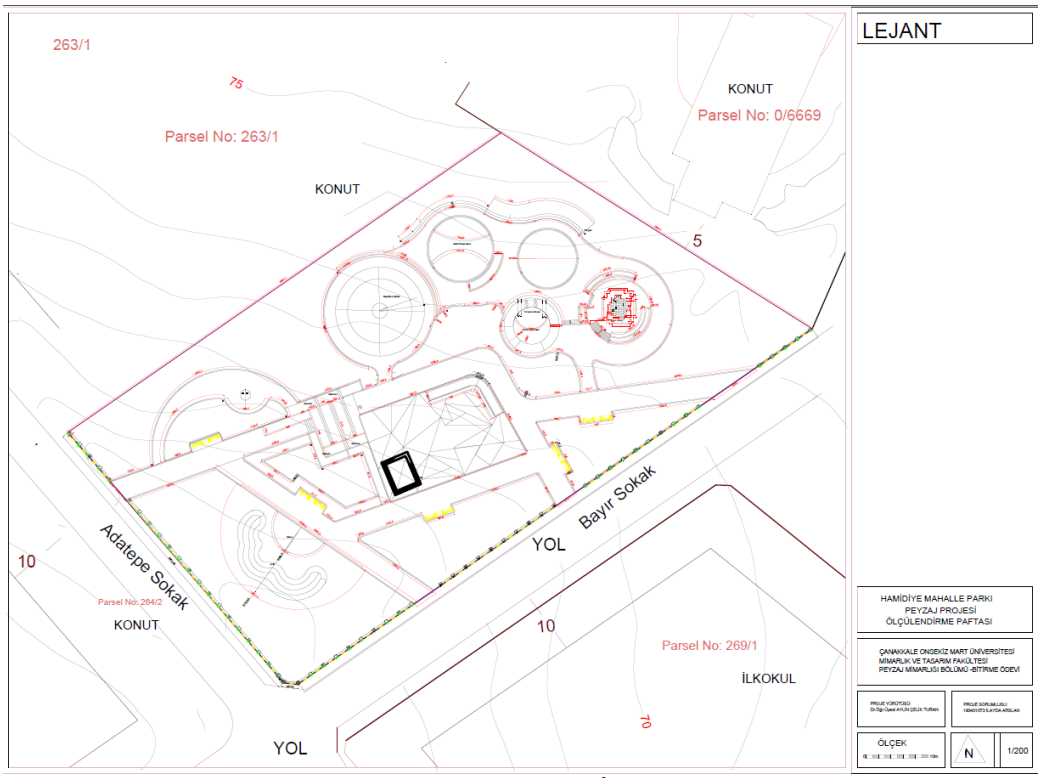

Fig.15. *Dimensioning Plan (Created by İlayda Arslan usign Autocad 2022)*

Sections

Sections A-A' and B-B' of the project were taken at this stage. (Fig. 16)

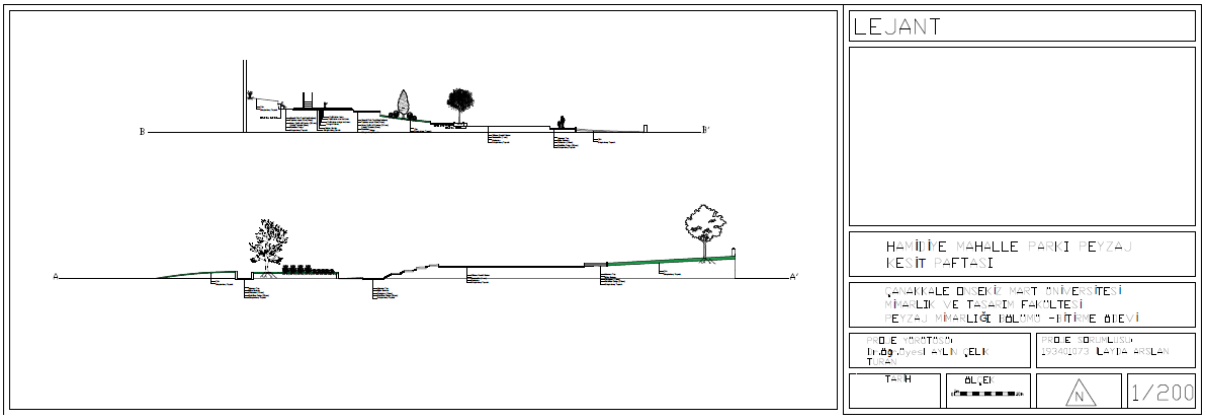

Fig. 16. *Sections (Created by İlayda Arslan using Autocad 2022)*

CONCLUSION

This graduation project sheds light on the applicability of Bauhaus principles in modern landscape architecture, especially in community-oriented projects like a neighborhood park, highlighting new opportunities and avenues for progress.

Primarily, the integration of pedestrian pathways is crucial for the sustainability, pedestrian safety, and usability of the park. Thus, the project proposes the addition of pedestrian walkways.

Furthermore, regular maintenance of plants and the park in general is essential for preserving its aesthetic and ecological value in the long term. Consistent upkeep supports healthy plant growth and contributes to the park's ecological sustainability. Therefore, complete care of plant life and general park maintenance is recommended.

Moreover, consistent monitoring and evaluation of user satisfaction are necessary. Collecting user feedback and integrating it into design and management strategies is vital.

REFERENCES

[1] Smock, W., The Bauhaus Ideal Then&Now An Illustrated Guide to Modern Design, Academy Chicago Publishers, 2004.
[2] URL-1 https://earth.google.com/
[3] S. M. Metev and V. P. Veiko, Laser Assisted Microtechnology, 2nd ed., R. M. Osgood, Jr., Ed. Berlin, Germany: Springer-Verlag, 1998.
[4] S. M. Metev and V. P. Veiko, Laser Assisted Microtechnology, 2nd ed., R. M. Osgood, Jr., Ed. Berlin, Germany: Springer-Verlag, 1998.
[5] J. Breckling, Ed., The Analysis of Directional Time Series: Applications to Wind Speed and Direction, ser. Lecture Notes in Statistics. Berlin, Germany: Springer, 1989, vol. 61.
[6] S. Zhang, C. Zhu, J. K. O. Sin, and P. K. T. Mok, “A novel ultrathin elevated channel low-temperature poly-Si TFT,” IEEE Electron Device Lett., vol. 20, pp. 569–571, Nov. 1999.
[7] M. Wegmuller, J. P. von der Weid, P. Oberson, and N. Gisin, “High resolution fiber distributed measurements with coherent OFDR,” in Proc. ECOC’00, 2000, paper 11.3.4, p. 109.
[8] R. E. Sorace, V. S. Reinhardt, and S. A. Vaughn, “High-speed digital-to-RF converter,” U.S. Patent 5 668 842, Sept. 16, 1997.
[9] (2002) The IEEE website. [Online]. Available: http://www.ieee.org/
[10] M. Shell. (2002) IEEEtran homepage on CTAN. [Online]. Available: http://www.ctan.org/tex-archive/macros/latex/contrib/supported/IEEEtran/

[11] FLEXChip Signal Processor (MC68175/D), Motorola, 1996.
[12] "PDCA12-70 data sheet," Opto Speed SA, Mezzovico, Switzerland.
[13] Karnik, "Performance of TCP congestion control with rate feedback: TCP/ABR and rate adaptive TCP/IP," M. Eng. thesis, Indian Institute of Science, Bangalore, India, Jan. 1999.
[14] J. Padhye, V. Firoiu, and D. Towsley, "A stochastic model of TCP Reno congestion avoidance and control," Univ. of Massachusetts, Amherst, MA, CMPSCI Tech. Rep. 99-02, 1999.
[15] Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specification, IEEE Std. 802.11, 1997.