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PROTECTION OF NATURAL LANDSCAPES OF A CITY AND THEIR USE AS RECREATIONAL AND PUBLIC SPACES (BASED ON THE EXAMPLE OF ZNESINNIA REGIONAL LANDSCAPE PARK (UKRAINE))

OCHRONA NATURALNYCH KRAJOBRAZÓW MIASTA I ICH WPŁYW NA ROZWÓJ MIEJSC REKREACYJNYCH I PUBLICZNYCH (W OPARCIU O PRZYKŁAD REGIONALNEGO PARKU KRAJOBRAZOWEGO „ZNIESIENIE” (UKRAINA))

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ABSTRACT

Negative trends in the interorganization of functioning of the modern city and its natural foundation are outlined in the article. The issue of the protection of natural areas in the densely built structure of the city and intensification of the application of public spaces of the city, its parks and natural areas are reviewed as well. The object of study is the regional natural park "Znesinnia" in the city of Lviv, as the largest integral natural and territorial complex, around which the city develops intensively and delegates the functions of the missing public spaces to natural landscapes.

Key words: natural landscape, zoning by the types of allowable load, restricted park areas, public space.

STRESZCZENIE

W artykule określono negatywne tendencje związane z wzajemną organizacją i funkcjonowaniem obszarów zurbanizowanych i naturalnych w nowoczesnym mieście. Rozpatrywane są także możliwości ochrony przestrzeni naturalnych w mocno zurbanizowanych

częściach miasta oraz analizowana intensyfikacja wykorzystania przestrzeni publicznych, parków i obszarów przyrodniczych. Głównym tematem opracowania jest park „Znesinnia” we Lwowie jako największy kompleks przyrodniczy, wokół którego intensywnie rozwija się miasto i następuje przenikanie funkcji przestrzeni publicznych do naturalnego krajobrazu.

Słowa kluczowe: krajobraz naturalny, strefowanie, strefy funkcjonalne parku, przestrzenie publiczne.

1. INTRODUCTION

For the last decades changes in economic and business activity in Ukraine have intensified urbanization processes. The number of population in cities has increased, new buildings are being constructed on city territories, and new activities have appeared within a city. As a result, the load on a city land in general and on the natural landscape in particular has increased. The reason for this is that a densely built city begins to transfer some functions to figuratively free, landscape areas. The threat of degradation of green areas in the structure of the cities evokes the need for restrictions in activities and establishing allowable load on different types of landscapes.

2. RESEARCH SCOPE AND METHODS

The problem of natural landscapes' protection in the structure of a city was outlined by the scientists decades ago (Bogdanowski 1998 [6], Łukasiewicz in 1982 [8], Sołowiej 1987 [9]). Their works, especially with respect to research methodology, are still relevant today. Methodology of zoning according to the level of protection and the character of its use is the basic method in research of objects. Based on it there was program plan of fortifications' elaborated for Krakiv (Program of Plan of Protection of the Historical-Landscape Complex of the Fortress Krakow) [6]. It established the boundaries of zones of different protection levels and boundaries of landscapes offered for different exposures of defense systems.

Such zoning technique was also used in the project described in this article. In order to avoid the threat of housing development and degradation of Znesinnia Regional Landscape Park in Lviv in 2014 Project of organization of Znesinnia Regional Landscape Park's territory, protection of reconstruction and recreational use of its natural complexes and objects was developed [3]. Based on the example of the project of this park's protection the problems of protecting natural areas in the structure of dense city building have been considered. Also, the possibility of expanding the functions of natural landscapes as spaces of public communicating is outlined.

3. RESULTS AND DISCUSSION

Znesinnia Regional Landscape Park is a nature reserve object which on the scale of conservation of natural carcass is a key element in the spatial structure of Lviv. The characteristic feature of the park is layering (Fig. 1). This is conditioned by the geological structure of Lviv. The city is located at the junction of five landscape areas. The maximum elevation difference on the territory of the park reaches 139 m. The uniqueness of this natural landscape is that on the relatively small area of 312 hectares under conditions of dense urban housing development, the park preserved natural grouping of different types. Znesinnia phitlandscape includes vegetation of hills, rock, forest and meadow vegetation.

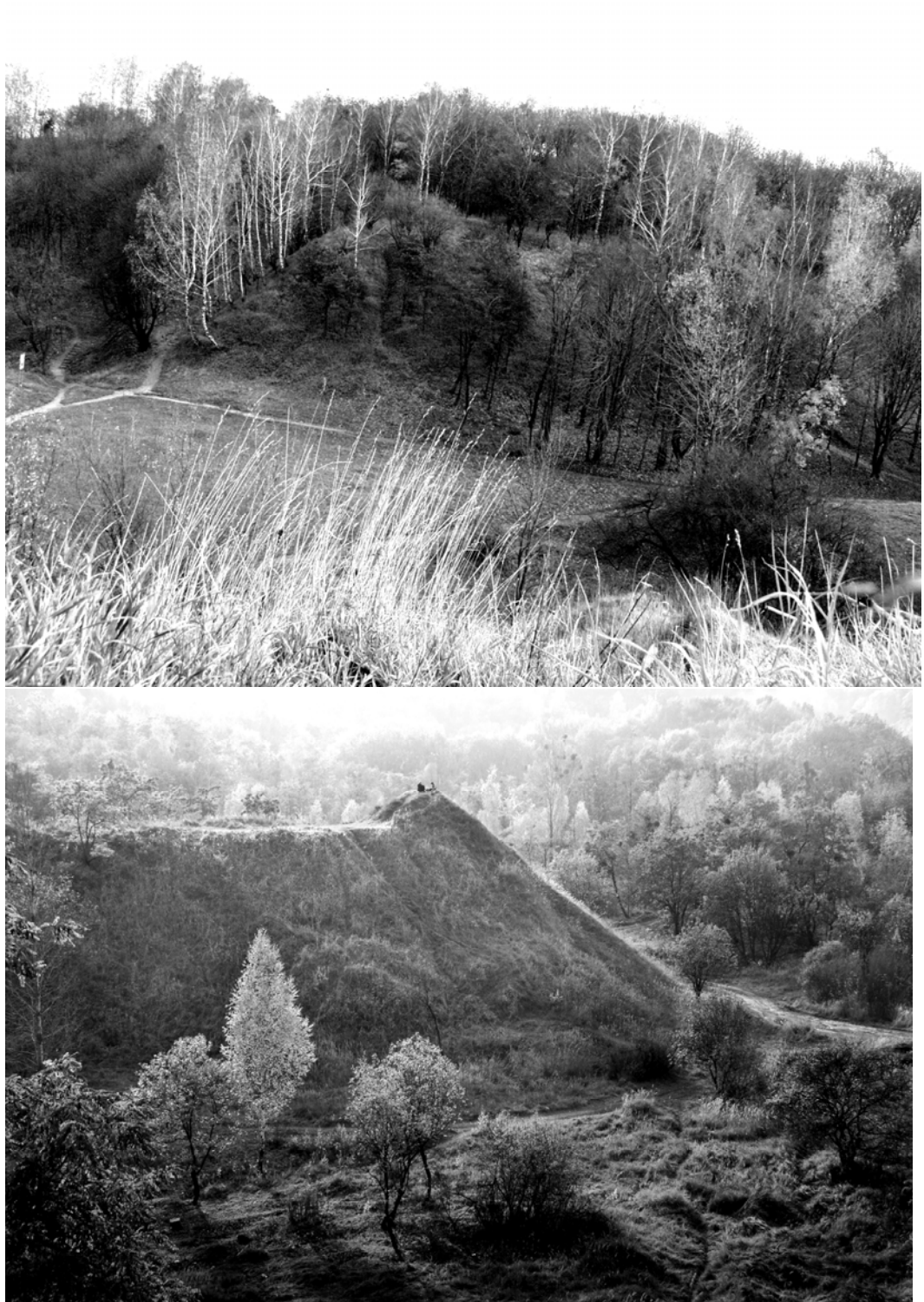


Fig. 1. Landscape scenes of Znesinnia Park (photo by S.Tupis)

Ryc. 1. Krajobraz parku "Znesinnia" (foto S.Tupis)

By definition of the Polish scientist Ya.Bohdanovsky "landscapes that have preserved the natural characteristics and memorial-cultural characteristics belong to the landscapes of regional importance" [5]. Thus, the typical structure of the terrain, geological features, archaeological and historical monuments on the territory of the natural and historical

landscape reserve give the right to call Znesinnia as an integral natural complex of regional importance.



Fig 2. Streets of residential development of the end of .XIX c.- beg. XX c. on the territory of Znesinnia (photo by S.Tupis)

Ryc. 2. Ulica w dzielnicy mieszkaniowej na terenie parku "Znesinnia" (koniec XIX w.- początek XX w.) (foto S.Tupis)

Today, the division of Znesinnia park's territory is the following: green areas - 120 ha; Museum of Folk Architecture and Rural Life - 50 hectares; low-rise residential development with household plots - 49 ha; dirty, degraded, illegally occupied land - 50 hectares. [3]. On the park's territory there are the Museum of Folk Architecture and Rural Life and memorial cemetery.

This area is the only one that fixates the starts of housing development in Lviv, and to this day retains architectural, historical and natural landscape features of the territory of VII – XVII c. with valuable inclusions of later period [10].

Znesinnia Park is located inside a large densely built city and constantly undergoes intense human influence. Residential development restricts park on the south side (Fig. 2), on the north a large industrial area of Lviv is located. Even on the park's territory there are traces of industrial use. Here there is a degraded area of the former sand pit.

The value of Znesinnia Regional Landscape Park on the one side and potential threats to this landscape complex determined the necessity in the establishment of allowable functions in the park and normative load on its territory.

The goal of the elaborated project is the development of the area as a space for preserving geo-biocenoses by forming the protected zone and restricted park zones for the most valuable areas of the park. Also, the aim lies in well-balanced use of natural area as a recreational space and a space for public communication. This primarily refers to the inhabitants of nearby residential streets. However, since Znesinnia Park has the status of regional and citywide importance, the project took into account the need of the city in the transfer of certain functions from the historical city core to the territory of the park within the boundaries of the protected zone of the park. Integration of landscape plans with the plans of territorial development is being developed. And one of the examples of such integration will be the creation of complex schemes of protection and use of natural resources on the border of natural landscapes and city development.

The first stage of work was the outlining threats to Znesinnia regional landscape park and problems of its conservation.

The biggest threat to Znesinnia is a further development of the city. Since according to the current general plan of Lviv mixed-use development of lands adjacent to the park areas is planned. Without establishing land use regulations building on its separate parts can start. The same situation, namely inappropriateness of natural landscapes' use in Poland in 1989 – 2008, was noted by the researcher B.Bozhetka. [7] Indicative in this respect is the example of Berlin, where under the conditions of an increase of housing development area by 15.4% for the past 30 years the area of urban parks remained unchanged [2].

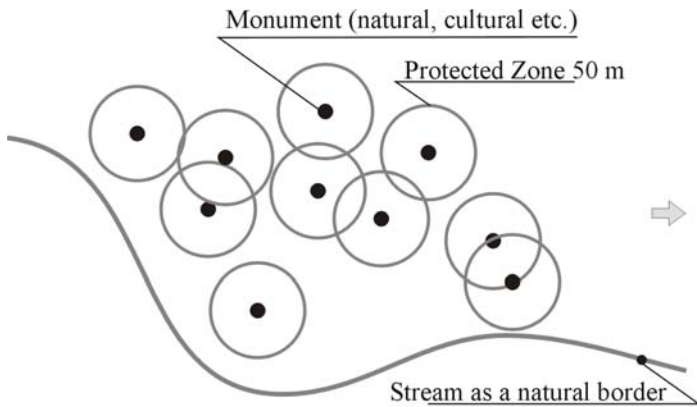
The next threat to the natural landscape of Lviv is its boundary with industrial objects. Within Znesinnia Park industrial objects occupy 20 hectares [3].

One more threat to Lviv landscapes and Znesinnia in particular, is the proximity to the projected transport routes. In the city general plan the highways are planned that have to pass through or close to the following parks: Stryjskyj Park - a monument of garden and park art, Zalizna Voda Park, Ukraine Park, Pogulianka Park, Botanical Garden of Lviv State University, Lychakiv Cemetery Memorial Park and Znesinnia Regional Landscape Park [1].

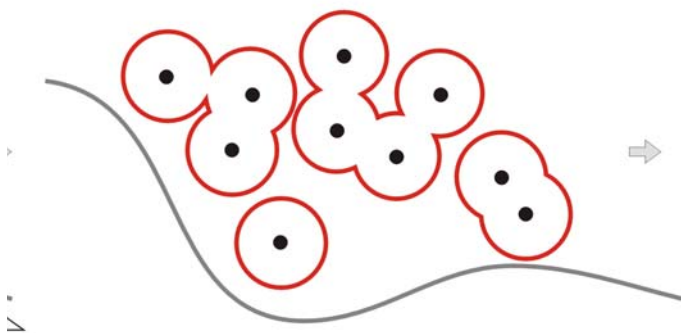
Establishing regulations for protected and restricted zones of natural landscape of the city will prevent from simplified interpretation of them as reserve areas for housing development. For this purpose a draft for one of the most valuable natural landscapes of the city – Znesinnia – has been elaborated.

The methodology of work lies in dividing Znesinnia Park's territory according to the allowable load types into areas, which are called restricted zones. The following restricted

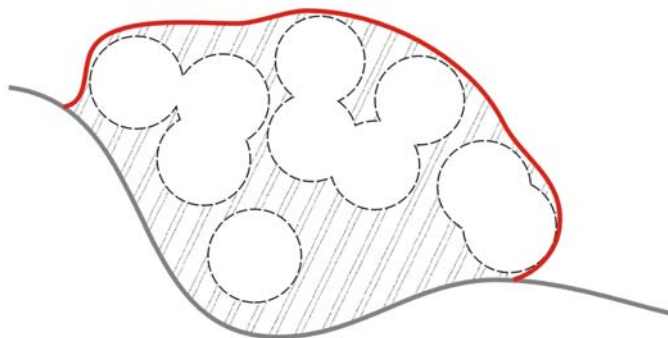
zones have been outlined: conservation area, an area of regulated recreation, stationary recreation area, and utility area. The boundaries of the areas are established by the Law of Ukraine On Protection of Cultural Heritage and on the basis of the state construction standards in the field of urban planning.



A. Protected zones of monument



B. Unificatin of protected zones of monuments that overlap each other



C. Comprehensive protected zone boundary of which is coordinated with the natural and urban planning restrictions

Fig. 3. The model of establishing boundaries of the comprehensive protected zone of monuments' group (elaboratons of authors)
 Ryc. 3. Model ustalania granic kompleksowej strefy chronionej grupy zabytków (opracowania autorów)

The highest level of protection of an object is installed within the conservation area. The boundary of the conservation area in most cases is laid along the boundary of the memorial. For example, the Khomets Mountain is a botanical memorial and vegetation growing on the slopes of the Mountain is recognized as unique in the region. The habitat of plants is mapped and forms the boundary of the memorial and conservation area. The same concerns the cultural monuments. For example, the church of St. Elias has the established protected zone as a monument of architecture. Another example is a route laid in the VII century through Znesinnia which can be traced on the territory even today. Its tracing on the project plan is also included to the conservation area.

According to the Law of Ukraine On Protection of Cultural Heritage [4] "If several monuments are at a short distance from each other so that their separate protected zones are adjacent to each other or even overlap, it is necessary to define a single comprehensive protected zone." Operating principle of this provision is presented as a model in Fig. 3. Under this provision, in the project scaled-up protected and conservation areas of the park have been formed (Fig. 4).

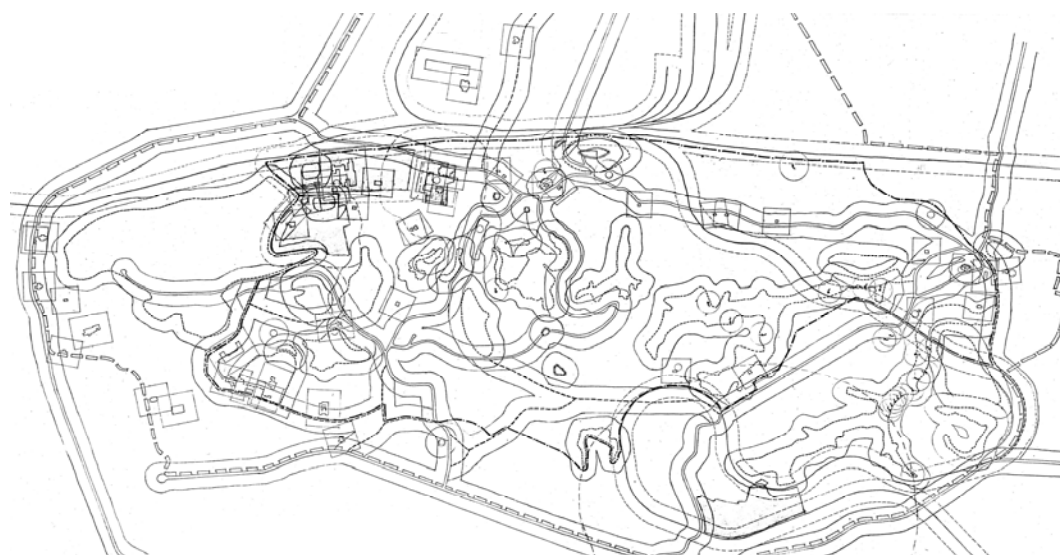


Fig 4 Restricted zones of the monuments of Znesinnia Park [3]
Ryc. 4. Ograniczone strefy zabytków Parku „Znesinnia” [3]

Conservation Area in Znesinnia Regional Landscape Park according to the project has been set for the most valuable monuments (Fig. 5):

- Geomorphological monuments- Lion’s Mountain, Stefan’s Mountain, Baba’s Mountain
- botanical memorial – Khomets Mountain
- hydrological and geomorphological monuments - Valley of Homets Stream and Deep Stream;
- geological monument – Debra.

The territory of 37.7 hectares which is 12.1% of the park area is taken for conservation area [3]

The next, after the conservation area, the **regulated recreation area** is established. It plays the role of the protected zone of the monument. Its scale is at least 50 meters [4]. The boundaries of regulated recreation area are adjusted in accordance with the available natural and urban planning restrictions. Accordingly, the boundary of the area may pass through the streets, rivers, hills etc. [4].

According to the elaborated project (Fig. 6), regulated recreation area includes the territories of the Northern slopes, the central part of the park and the upper terrace of Snake's Mountain.

The function of the regulated recreation area is mainly environment-oriented. Within its boundaries only thematic hiking paths and sightseeing tours are laid. For example, historically embedded Imperial Path is preserved. Allowable load per unit of area is up to 10 people / ha. Regulated recreation area covers an area of 109.4 hectares, which is 35.1% of Znesinnia's territory.

Stationary Recreation is an area where it is permissible to build infrastructure objects of landscape and recreational areas. The area of stationary recreation works as a buffer zone between the protection site and areas of active farming. The border of stationary recreation area passes along the existing housing development and includes the least valuable parts of the park. For example, areas within the passage of utility systems.

Stationary recreation area for Znesinnia has been determined according to the principle of daily pressure on the ecosystem. In this area building of Znesinnia Visitor Center and the formation of recreational gardens with ecologically cognitive function, open museum of geology, archeology and nature is planned. The above facilities will expand the functional part of the park and shape the places for public communication of citizens to replace the overloaded public space of the central part of the city. Traditional public space of the historical core of Lviv is heavily commercialized today and acquires the features of theatrical space oriented at a tourist. No space for communication is left for the citizens. Natural landscapes in the structure of the city, such as Znesinnia, can partially take over the functions of public non-commercial space. In addition, the stationary recreation area includes separate areas in the structure of the historic residential development of Mytropolyt Lypkivskyi Street, Zaklynskyh, Staroznesenska, Ak.Krypyakevycha Street, Chernencha Mountain. This subsystem also includes the territories of stationary rest, provisioned by the program of recreation infrastructure development: hotel complex on Staroznesenska Street and the sports complex in the small quarry with outdoor terraces and gardens. Allowable load on the unit of area is 100 people / ha. For park even massive but occasional load is permissible. Even now, in Znesinnia several times a year various music festivals, art events and the Easter celebrations are held.

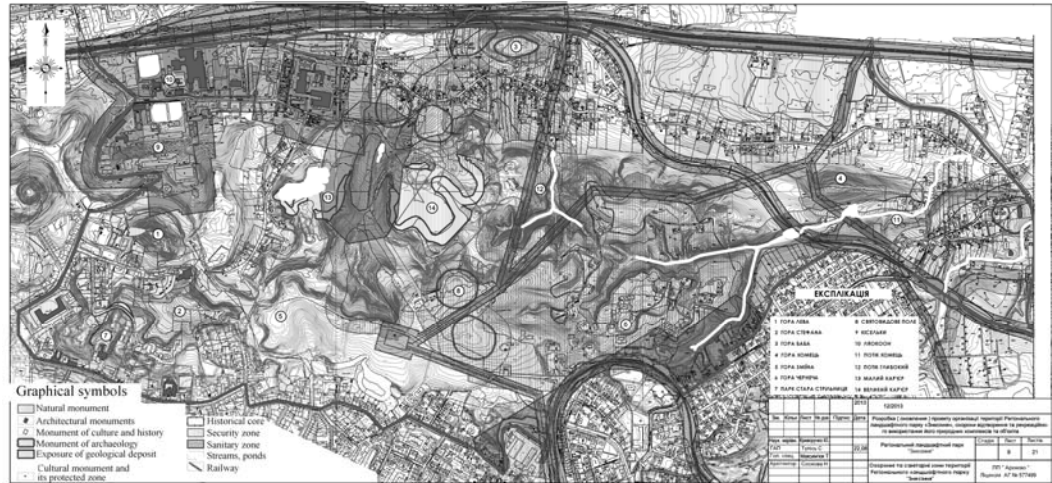
The total area of the stationary recreation area is 15,7 ha, which constitutes 5 % of Znesinnia's territory.

The next area is the **utility zone**. It includes the territories on which the objects with non-characteristic for park functions are located - housing, industry, educational institutions, which are already in the park. The border of the utility zone is set in accordance with the boundaries of land utilization of owners.

The utility zone of Znesinnia covers the existing residential and industrial housing development. Also, the utility zone includes the Museum of Architecture and Rural Life. Allowable load per unit of area is 100 people / ha. The total area of the utility zone is 149.3 ha.

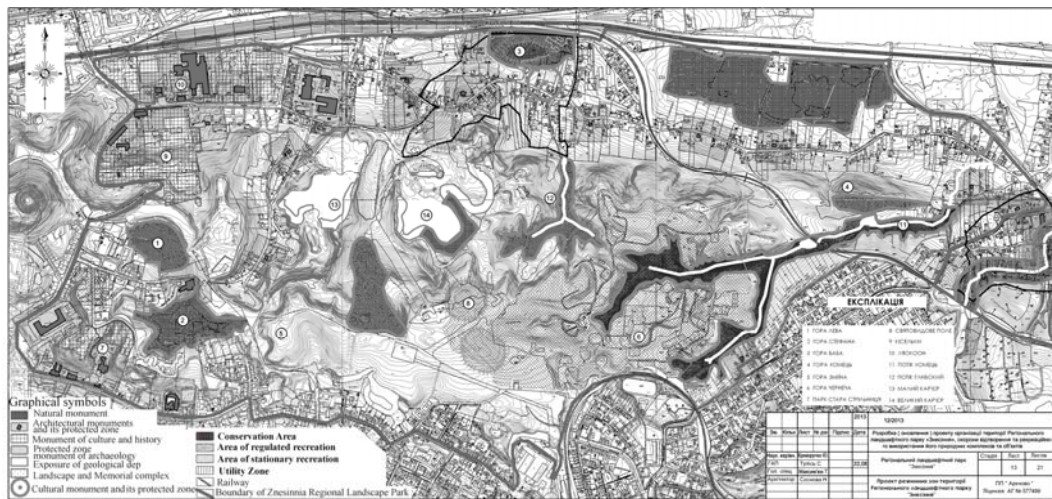
4. CONCLUSIONS

Establishing conservation regime, zoning of natural landscapes by the allowable load types and types of use allows avoiding simplified interpretations of the landscape as green or reserve areas in the structure of the city. Natural landscapes localized in the structure of the city, in case of fulfilling all the requirements for their use and load, can perform as usual recreational functions and serve as public spaces with advanced functions of communicating and attractiveness.



Ryc. 5. Planowane korygowanie granice stref zabytkowych Parku „Znesinnia” zgodnie z ograniczeniami naturalnymi i miejskimi [3]

Fig. 5. Correcting boundaries of the restricted zones of the monuments of Znesinnia Park in accordance with the natural and urban planning restrictions [3]



Ryc. 6. Projekt utworzenia stref ze wskazaną funkcją i obciążeniem w Regionalnym Parku Krajobrazowym „Zniesienia” [3]

Fig. 6. Project of establishing restricted zones with the indicated function and the load on Znesinnia Regional Landscape Park [3]

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