



CLUJ-NAPOCA CHILDREN'S HOSPITAL  
COMPETITION BRIEF

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## 1. GENERAL INFORMATION

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### 1.1. THE PURPOSE OF THE COMPETITION

The purpose of this competition is to select, in order to award the design contract, the best solution for an Emergency Clinical Children's Hospital, located in the southeast of Cluj-Napoca, at the border of Gheorgheni and Borhanci.

Cluj-Napoca Emergency Clinical Children's Hospital will function as an independent structure, with regional addressability, being the first public hospital in the Transylvania area to offer integrated medical services in the field of paediatrics. Through this approach, the Contracting Authority aims to develop a centre for medical services and research in the field of paediatrics, which also plays the role of an urban catalyst in an area undergoing urbanization.

### 1.2. THE CONTRACTING AUTHORITY OF THE COMPETITION

The Contracting Authority of the competition is the Cluj County Council, the owner of the land.

### 1.3. THE NEED FOR INVESTMENT

The Cluj-Napoca Emergency Clinical Children's Hospital is the public health unit that provides prophylactic and curative medical care for children regionally. Through collaboration with the Iuliu Hațieganu University of Medicine and Pharmacy, the hospital also covers the teaching and scientific activity related to the field of paediatrics.

Currently, the Emergency Clinical Children's Hospital Cluj-Napoca has a total capacity of 506 beds of continuous hospitalization<sup>1</sup>. The hospital operates in a pavilion system, in eight different locations, in Cluj-Napoca. This modus operandi of the hospital raises two sets of problems:

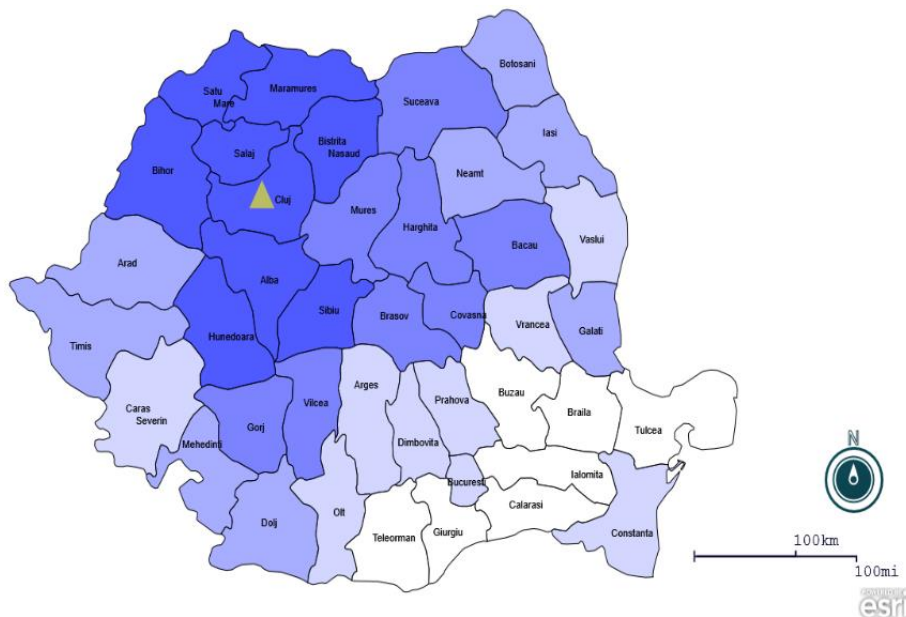
- on the one hand, it faces the inability of existing buildings to adapt to contemporary standards and to house the correct medical flows, which are indispensable for a quality medical act;

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<sup>1</sup> For further details on the current structure of the Emergency Clinical Children's Hospital Cluj-Napoca please see Annex 8.2 - Evaluation study of the structure of the Emergency Clinical Children's Hospital Cluj-Napoca

- on the other hand, the operation of the hospital in a pavilion system leads to the doubling of some medical services (for example: both the Paediatrics I department and the Paediatrics II department each have a Cardiology Compartment) and, implicitly, to different occupancy degrees. Beyond this aspect, the current organization of the hospital makes the interdisciplinary consultations quite difficult, increasing at the same time the degree of discomfort of the patient, when he/she has to navigate between several specialties, located in different locations.

However, the hospital has a high addressability, both for patients residing in Cluj County and for those in other counties, serving patients from almost all counties of the country (see **Illustration 1**). Based on these premises, the rethinking of the functional structure of the hospital, correlated with the relocation of all services to a new location that would allow an integrated approach, will directly contribute to increasing the quality of medical services provided.



**Illustration 1** Geographical distribution of discharges by county of residence

Data source: Evaluation study of the structure of the Emergency Clinical Children's Hospital Cluj-Napoca, November 2020

In order to limit the movement of patients and relatives from one hospital to another, the Emergency Clinical Children's Hospital will complete and strengthen its offer of medical services with medical services currently offered by other hospital structures in the county and region (infectious diseases, oncological treatments, medical recovery). Also, in terms of palliative care, the hospital will be an alternative for patients who are currently going to other hospitals in the country or abroad. Thus, through the proposed functional structure, the hospital will again offer the services it offered in the past, but

which were interrupted for various reasons (lack of modern infrastructure and facilities, lack of specialized staff).

At the same time, by expanding the range of services and increasing the degree of comfort and safety for patients and relatives, the Emergency Clinical Children's Hospital aims to reduce barriers that prevent paediatric patients from accessing medical services.

#### 1.4. PROJECT OBJECTIVES

The project of the Emergency Clinical Children's Hospital aims to provide an example of best practice both in terms of medical architecture and in terms of urbanization of an area which is currently in an early stage of development.

The objectives pursued by the Contracting Authority are as follows:

- Develop a medical and research services centre in the field of paediatrics, with regional addressability and a high degree of accessibility for all patients;
- Build a new hospital building, designed in accordance with current standards in the field, a building in which the professionalism and promptness of medical staff shall be supported by specialized design;
- Create a space centred around the patient's needs, able to make use of all architectural tools (from form to the relationship between spaces to finishes) in order to create a therapeutic environment, able to reduce the stress generated by the medical act;
- Generate a development pole for an area currently undergoing a process of urbanization.

#### 1.5. COMPETITION ORGANIZER

The competition is organized by the Order of Architects of Romania, in accordance with the Competition Regulations of the International Union of Architects - UIA - and the provisions of the International Recommendations for Architecture and Urbanism Competitions adopted at the UNESCO General Conference of 1956, revised on November 27, 1978, in compliance with the provisions of the legislation in force regarding the award of public procurement contracts.



## 2. SITE INFORMATION

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The new Emergency Clinical Children's Hospital will be located in the southeast of the city, at the border of Borhanci and Gheorghieni neighbourhoods. Currently, the plot has direct access from the central area of the city through the Constantin Brâncuși – Borhanciului streets. The sections below provide some brief information on the current situation of the site and the current or future constraints that will encumber the proposed solution through the competition. The negotiation of the urban constraints imposed by the location remains the responsibility of the competitors, being an important aspect in the evaluation of the proposed solutions.

### 2.1. BRIEF DESCRIPTION OF THE SITE

The plot proposed for the competition is located in the built-up area of Cluj-Napoca City. It has an area of 169,700 sqm and is identified by Land Register no. 327855, being owned by Cluj County and under the administration of the Cluj County Council. The plot is delimited on the East side by the Becaș Creek, and on the South side by a series of private properties and Borhanciului Street.

The plot was part of the Stațiunea de Cercetare-Dezvoltare Pentru Pomicultură aferentă Universității de Științe Agricole și Medicină Veterinară Cluj /Research-Development Station for Fruit Growing corresponding to the University of Agricultural Sciences and Veterinary Medicine Cluj (USAMV), being assigned to the Cluj County Council in 2020, following an agreed land exchange between the two institutions. Currently, the plot is free of construction and maintains its agricultural character.

Regarding the arrangement of vegetation on the plot, the dendrological study conducted in September 2020, did not identify trees with special historical or landscape value. From this perspective, the vegetation present on the site is the direct result of the research work carried out until recently on the plot. Annex 4.1 Dendrological study presents the arrangement of various types of vegetation on the plot.

### 2.2. FUNCTIONAL STRUCTURE OF THE AREA

From a functional point of view, the plot belongs to an area currently undergoing a process of urbanization. Most of the urban developments have a residential character (individual or collective dwellings) and are concentrated to the south and southwest of the competition plot, between Borhanciului and Romul Ladea streets. With few

exceptions, the land areas located northeast of Borhanciului Street are not developed, keeping the use of agricultural land (see Illustration 2).

Residential developments in the Borhanci neighbourhood area are part of the main features of the sub-urbanization process. Such residential developments follow the agricultural plot structure. The urbanisation process develops on 'plot by plot' system without a strategic approach in terms of systematization. As a result, the area does not have an adequate infrastructure in terms of public services (schools, kindergartens, public spaces, green spaces, local medical services, etc.). At the same time, the road infrastructure resulting from the subsequent urbanization processes does not benefit from a hierarchy system. Rather, it responds to the immediate needs of each residential development, without taking into account the multiplication factors generated by the evolution of the neighbourhood.



**Illustration 2** Development site plan



**Illustration 3** Competition plot (background / bottom left) - view from Borhanciului street



**Illustration 4** Competition plot - view from the access area from Borhanciului Street



**Illustration 5** Borhanciului Street - view from the competition plot area

## **2.3. SITE ACCESSIBILITY**

### **2.3.1. SITE ACCESSIBILITY. THE EXISTING SITUATION**

At the moment, the plot destined for the competition benefits from a low level of accessibility, both from the perspective of the relationship with the main national roads, and with the Cluj-Napoca City.

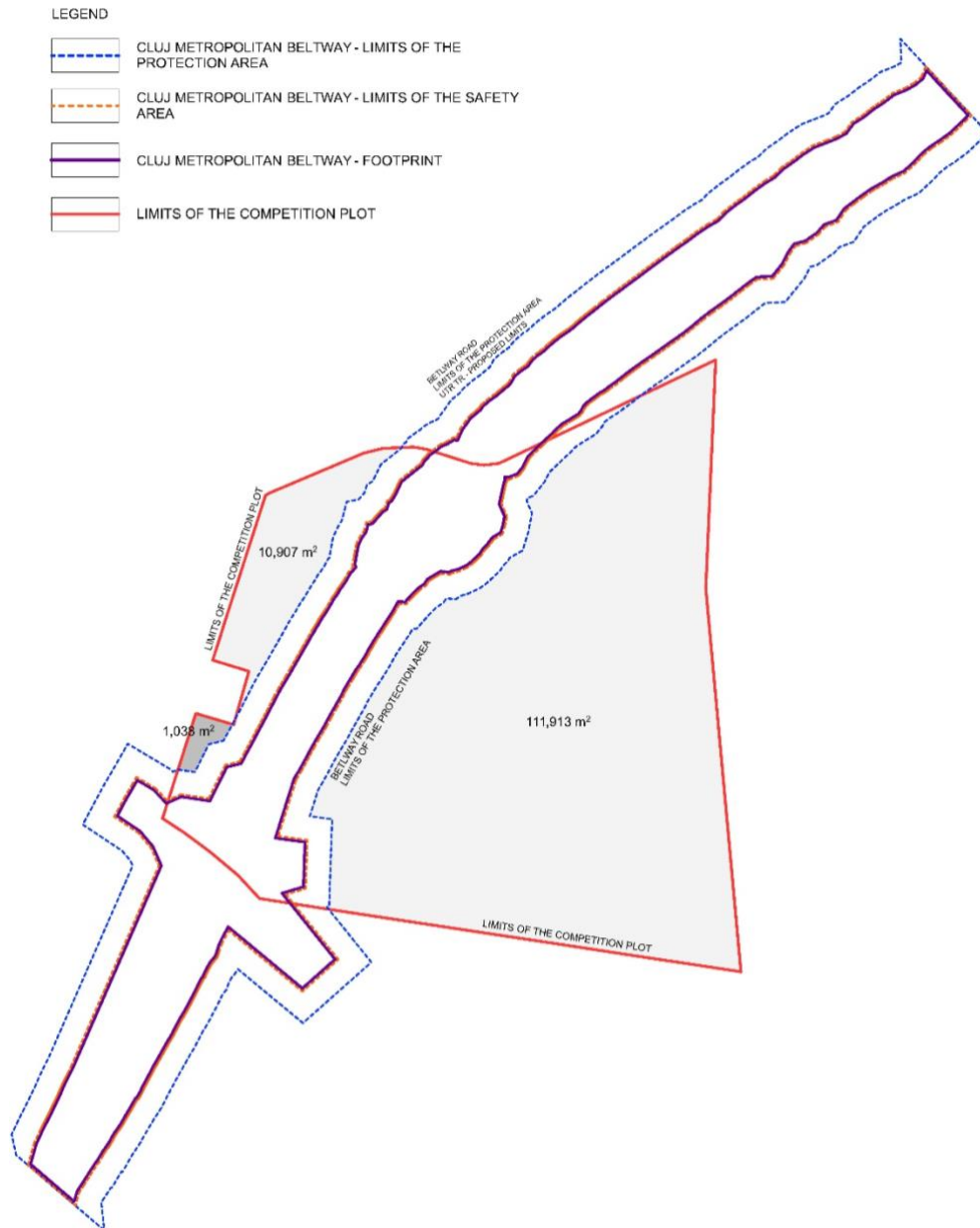
The connection with Cluj-Napoca is made through a single street, Borhanciului Street, a frequently crowded street, that serves a neighbourhood in full expansion. The connection with the main national roads can be made through the Apahida-Vâlcele belt, located 4.2 km from the site, which facilitates the following connections:

- to the East: a connection with DN1C (Avram Iancu International Airport area);
- to the Southwest: a connection with DN1 / E81 in the area of Feleacu Commune.

Regarding public transport, Borhanci neighbourhood is currently served by two public transport lines (buses): line 18 (Posada Street - Voivod Glad Street) and line 20 (Stefan cel Mare Square - Borhanci District). Of these, only line 18 passes near the site, on the way back to the city.

### **2.3.2. SITE ACCESSIBILITY. PROPOSED SITUATION**

At the time when this documentation was drafted, the Cluj Metropolitan Beltway (TR 35) is in an advanced design phase. The Cluj Metropolitan Beltway (TR 35) is part of the road of urban and peri-urban interest, TransRegio Feleac, part of the efforts of local, regional and national authorities to expand road infrastructure. The route of the Cluj Metropolitan Beltway (see Illustration 7) allows the transit of Cluj-Napoca City and its peri-urban area, on the east-west relationship, ensuring a direct connection with the A3 Highway (Bucharest - Borș) and having the capacity to reconfigure and decongest the entire current and future traffic.

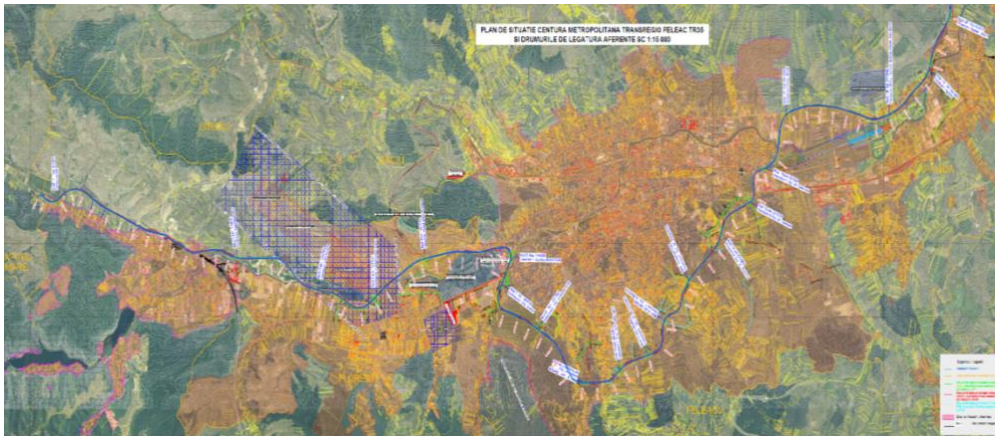


**Illustration 6** Correlation of the cadastral boundaries of the plot with the route of the Metropolitan Beltway (TR35)

The Cluj Metropolitan Beltway transits the site dedicated to the competition, on the northeast/southwest direction, occupying approximately 4.50 ha of the total land area (see **Illustration 6**). The connection of the belt with Borhanciului street will be made through the access node no. 13, located in the southwest area of the competition plot. According to the estimates of the Contracting Authority, at the time of the

implementation of the Emergency Clinical Children's Hospital project, the beltway will already be functional, which will considerably increase the accessibility of the plot.

Thus, in defining the proposals regarding the urban systematization of the plot, the competitors will take into account the presence of the Cluj Metropolitan Beltway. Hence, they will structure their steps regarding the functional organization and way of access to the plot in relation to the proposals for this infrastructure project and detailed in **Annexes 4.2 - Mobility study and 8.2 - Cluj-Napoca Metropolitan Beltway Excerpt.**



**Illustration 7** The route of the TR35 metropolitan beltway and of the connecting roads  
Data source: Mobility study for the investment Monobloc Paediatric Hospital Cluj, SC CADSIL SRL, October 2020

### 2.3.3. TRAFFIC GENERATED BY THE EMERGENCY CLINICAL CHILDREN'S HOSPITAL

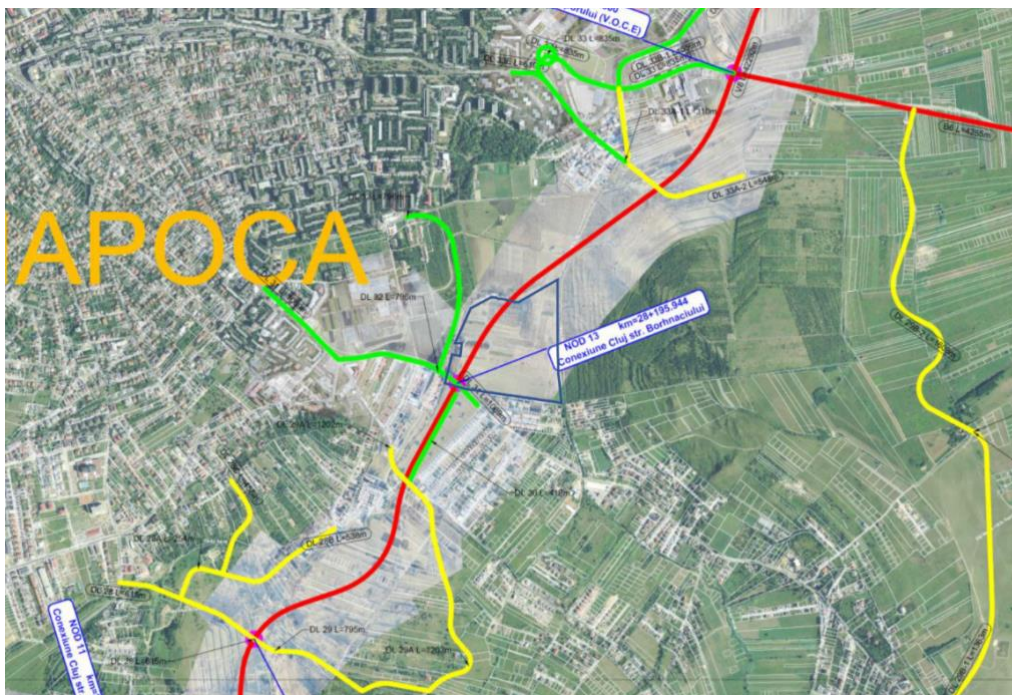
Based on the medical brief provided by the Contracting Authority, the Mobility Study presents a modelling of the traffic generated by the construction of the Emergency Clinical Children's Hospital. According to these results, the traffic generated by the hospital can vary between 155 and 230 standard car vehicles per hour and per traffic flow, at the busiest time. For this phase of the project, the competitors will use the above-mentioned values to dimension the access and exit point on the premises dedicated to the hospital.

The mobility study concludes that when the hospital is built, Borhanciului Street and the current network of streets around the hospital will not be able to absorb the traffic generated/ attracted by this function. Under these conditions, it is necessary to intervene on the traffic capacity of the streets by increasing the number of lanes or

creating new roads and implicitly changing the junctions near the hospital within a radius of at least 1km from it.

### 2.3.4. PROPOSALS FOR OPTIMIZING THE ROAD INFRASTRUCTURE

In order to ensure the access of the traffic generated/attracted by the metropolitan beltway and by the new hospital, the road node no. 13 will be an uneven node. The TR35 ring road will cross the roundabout between Borhanciului Street and the beltway access ramps (see **Illustration 8**).



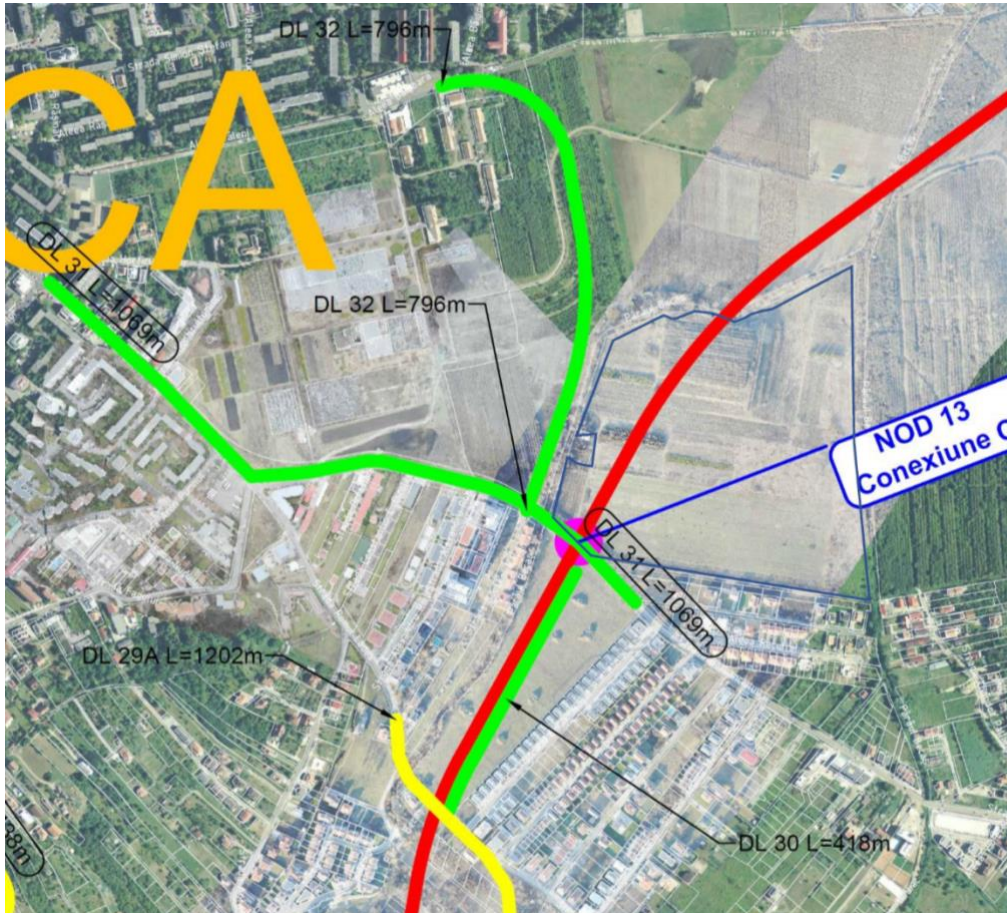
**Illustration 8** The route of the nodes connecting with the Metropolitan Beltway adjacent to the plot of COMPETITION

Data source: Mobility study for the investment Monobloc Pediatric Hospital Cluj, SC CADSIL SRL, October 2020

In addition to the TR35 project, the connecting roads named 30, 31 and 32, built and financed by the Cluj Napoca City, (see **Illustration 9**) shall be executed:

- **Road 30** is the road that will be built parallel to the TR35 beltway between Romul Ladea street and Borhanciului street. The road connects with the access ramp on the southwest side of the TR35 in the roundabout
- **Road 31** is the road that will be built on the site of Borhanciului street, before the road node 13, until the junction with Romul Ladea street, Fagului street and Constantin Brâncuși street;
- **Road 32** is the road that will ensure the connection between Borhanciului street, immediately after the road node 13, and Aleea Băișoara streets and

Liviu Rebreanu street. The connection road 32 proposed to be built will have a length of 801 m. **From this road, at km 0 + 250, a second access will be made on the plot that is subject to the competition.**



**Illustration 9** The route of the connecting roads adjacent to the competition plot  
Data source: Mobility study for the investment Monobloc Paediatric Hospital Cluj, SC CADSIL SRL, October 2020

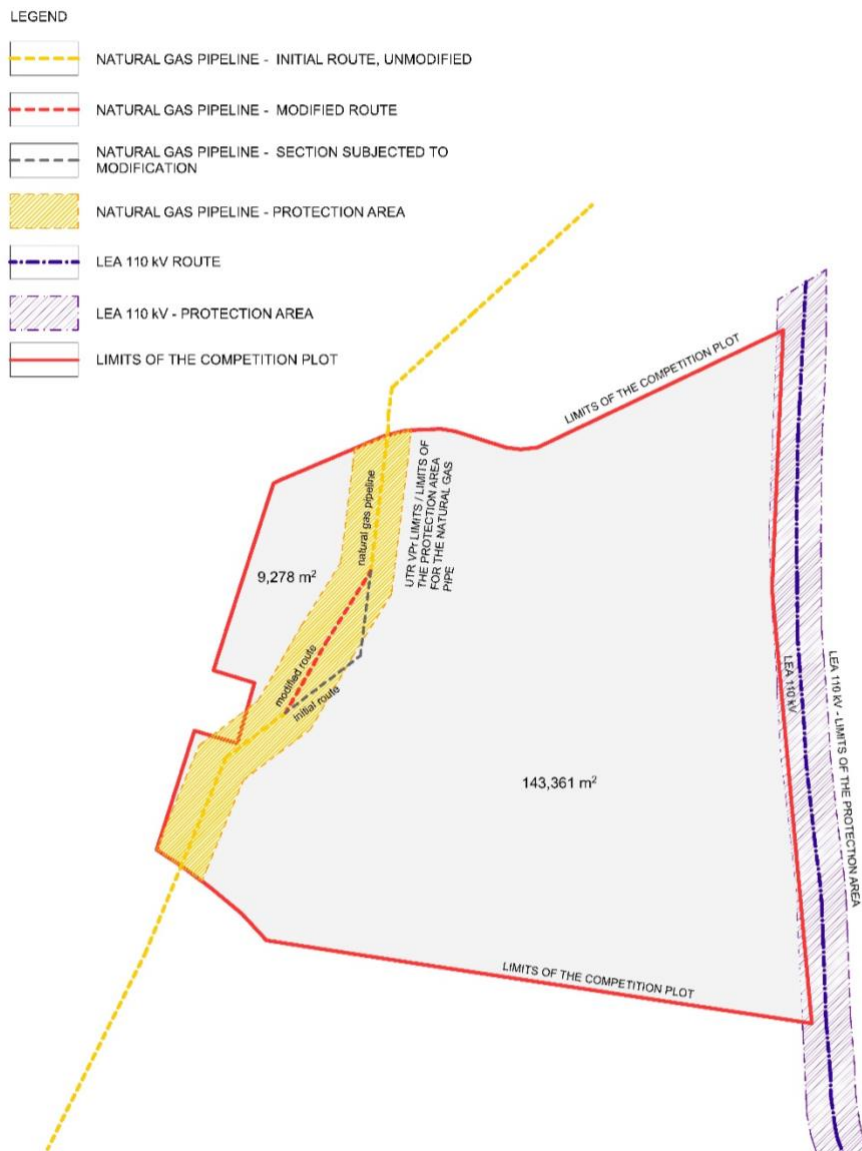


## 2.4. UTILITIES

The competition plot is crossed or is in the vicinity of the following utility networks:

- **natural gas networks:** a 16" diameter pipe crosses the plot on the southwest/northeast direction. The pipeline is part of the natural gas transmission network, being managed by SC Transgaz SA. Part of the route of this natural gas pipeline will be diverted, as a result of the construction of the metropolitan beltway. The newly proposed route for the natural gas pipeline is marked in **Illustration 10**. The boundaries of the protection zone of the natural gas pipeline that transits the plot dedicated to the competition overlap with the limits of UTR (Territorial Reference Unit) VPr. For further details see **Section 2.5 Provisions of the urban planning** documents
- **power supply networks:**
  - on Borhanciului Street there is a 0.4 kV OHL electricity supply network;
  - on the east side of the plot there is a medium voltage power supply network, 110 kV OHL;
- **water supply and sewerage networks:** these can be found on Borhanciului Street;
- **telephone and fibre optic networks:** these can be found on Borhanciului Street.

The calibration between the investment generated need and the network capacity will be done in the later design phases. The easements encumbering the plot from the perspective of urban networks are detailed in **Illustration 10**.



**Illustration 10** The route and the protection and safety zones related to the technical-municipal networks that transit the plot

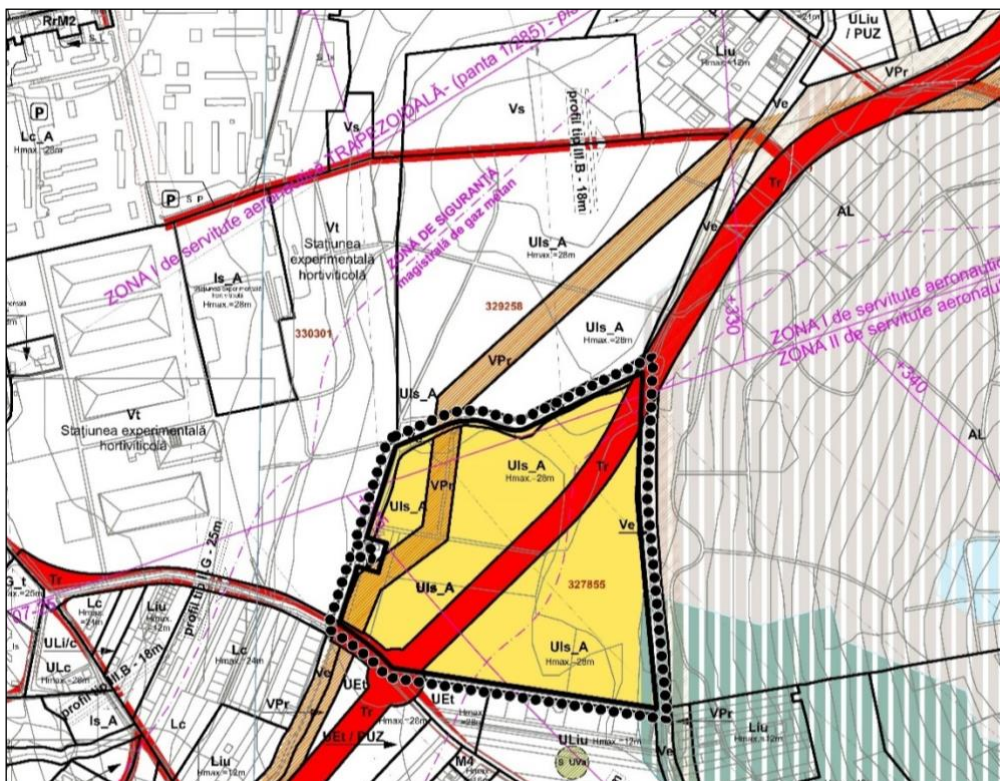
## 2.5. PROVISIONS OF THE URBAN PLANNING DOCUMENTS

### 2.5.1. GENERAL PROVISIONS

According to the General Urban Planning of Cluj Napoca City (see **Illustration 11**) the plot subject to the competition includes several territorial reference units (UTR), respectively:

- **UTR Is\_A:** Area of public institutions and services and of public interest established in independent ensembles.

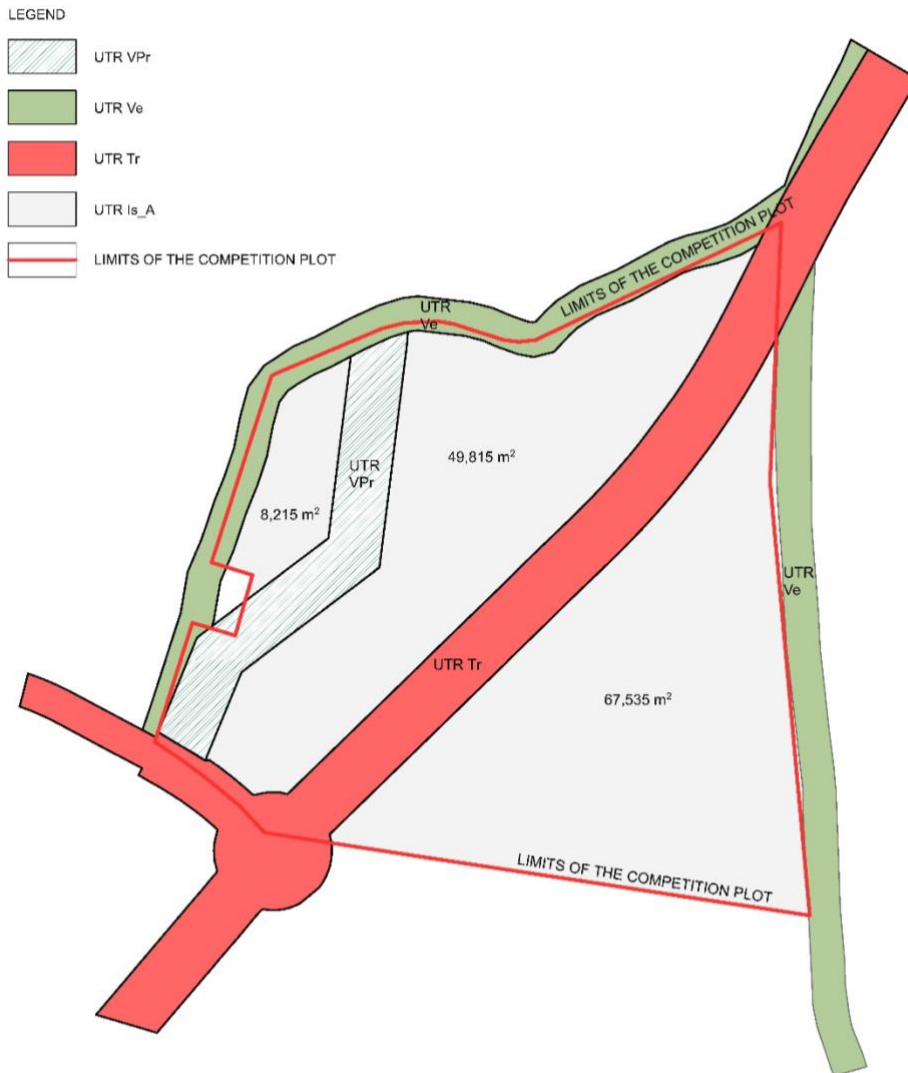
- **UTR Ve:** Green area for water protection or with the role of ecological corridor;
- **UTR VPr:** Green area of protection against major infrastructure, of sanitary protection, plantations with the role of slope stabilization and ecological reconstruction. In this case, the UTR VPr limits correspond to the protection limits related to the natural gas pipeline transiting the plot.
- **UTR Tr:** Road traffic area and related facilities



**Illustration 11** Positioning the plot in relation to the limits of UTR PUG (Territorial Reference Units General Urban Planning) Cluj-Napoca

The provisions of the Local Urban Planning Regulation related to the General Urban Planning for each of the territorial reference units included in the study area can be consulted online, accessing the following addresses:

- UTR Is\_A: [https://primariaclujnapoca.ro/urbanism/unitate-teritoriala/is\\_a/](https://primariaclujnapoca.ro/urbanism/unitate-teritoriala/is_a/)
- UTR Ve: <https://primariaclujnapoca.ro/urbanism/unitate-teritoriala/ve/>
- UTR VPr: <https://primariaclujnapoca.ro/urbanism/unitate-teritoriala/vpr/>
- UTR Tr: <https://primariaclujnapoca.ro/urbanism/unitate-teritoriala/tr/>
-



**Illustration 12** Correlation of UTR limits with the cadastral limits of the competition plot

As can be seen from **Illustration 11**, the plot dedicated to the competition is part of a larger area destined for public services or of public interest. In developing solutions aimed at systematizing the plot, competitors will take into account the impact that the proposed solution has on the evolution of the whole area, especially in terms of connections created.

According to the provisions of the Urban Planning Certificate no. 3439/11.09.2020, for the detailed regulation of the entire plot, it will be necessary to start an urbanization procedure by drafting a Zonal Urban Plan. This stage is part of the services that will be contracted after the competition with the winning team.

Starting from this premise, the negotiation of the urban constraints imposed by the site, respectively by the Local Urban Planning Regulation related to the General Urban Plan, remains the responsibility of the competitors. The competitors will take into account the fact that the Zonal Urban Plan is an operative documentation, through which new regulations are established regarding:

- construction regime;
- the function of the area;
- the maximum height allowed;
- land use coefficient (CUT) and land occupancy percentage (POT);
- the withdrawal of the buildings in relation to the alignment and the distances from the lateral and rear boundaries of the plot;

The urban planning certificate makes a series of clarifications regarding the aspects mentioned above. From a **functional perspective**, the uses allowed without conditioning fall into the following functional categories: public institutions and services or of public interest - administrative functions, cultural functions, education and research functions, health and social work functions, cult functions. For all other types of functions, the competitors will consult the provisions of the Local Urban Planning Regulation, in order to identify the imposed conditions.

Regarding the maximum height of the buildings, it will be determined in each case by PUZ (Zonal Urban Planning) or PUD (Detail Urban Planning), depending on the architectural programme and the urban context, in addition applying cumulatively the following criteria:

- for common buildings, the maximum height at the cornice shall not exceed 18 m, and the total height (maximum) shall not exceed 22 m, respectively a height regime of (1-3A) + GF + 4 + 1 R; The last level allowed will have a retreat from the plan of the facade of at least 1.80 m.
- for corner buildings, the maximum height at the cornice shall not exceed 22 m, and the total (maximum) height shall not exceed 25 m, respectively a height regime of (1-3A) + GF + 5 + 1R;
- for buildings with special functions and located in privileged (dominant) urban positions, higher height regimes can be established through a Zonal Urban Plan (PUZ / ZUP), but without exceeding 28 m at the highest point;

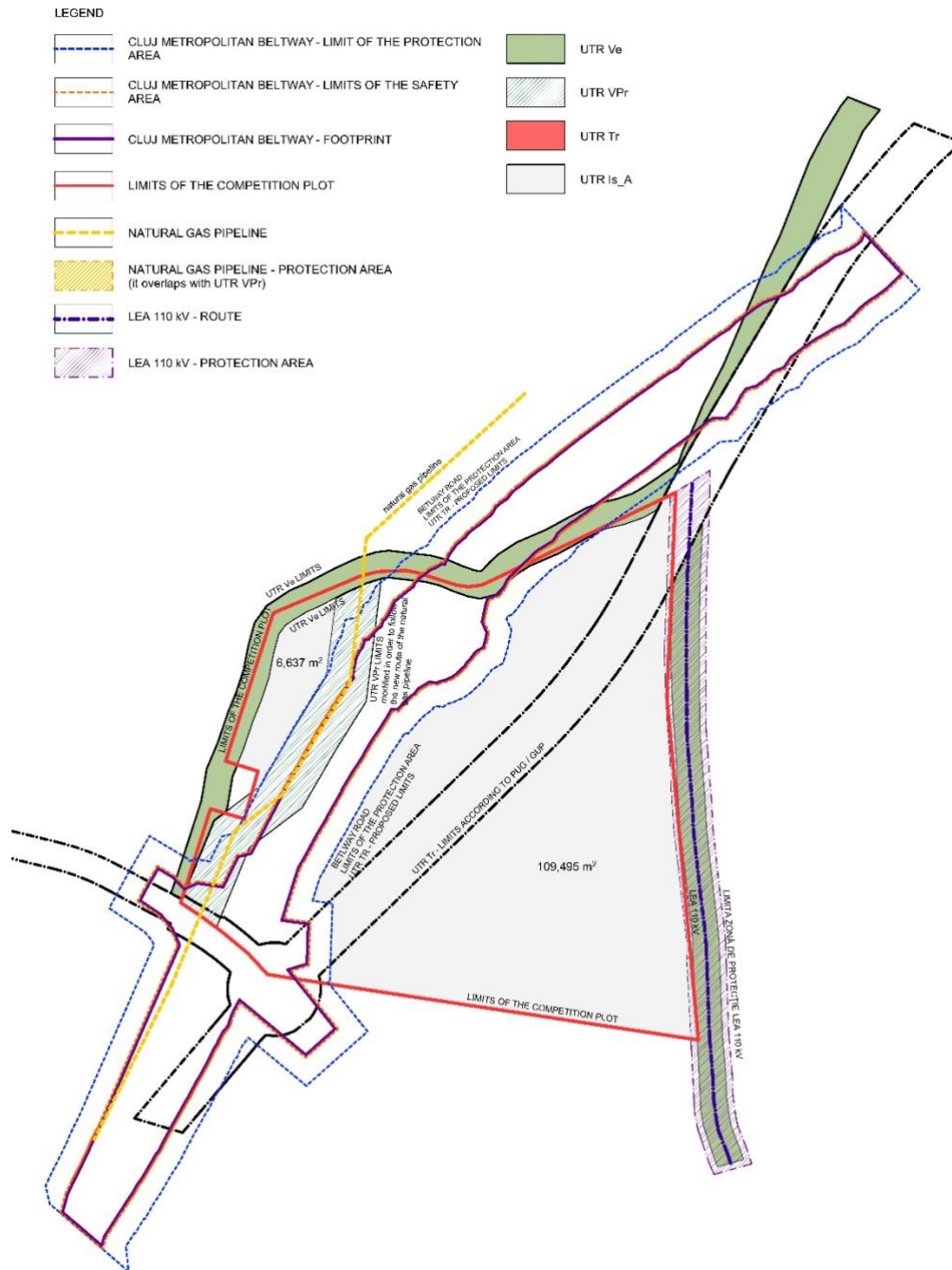
#### 2.5.2. UTR TR. UTR VPR - MODIFIED LIMITS

Taking into account the fact that UTR Tr represents the territorial reference unit that regulates the land allocated to the Cluj Metropolitan Beltway, in the competition, the competitors shall take into account the fact that the limits of this territorial reference unit will overlap beyond the protection zone corresponding to the Metropolitan Beltway. At the same time, the limits of the VPr UTR will change to correlate with the newly proposed route for the natural gas pipeline. (see **Illustration 13**)

#### 2.5.3. CORRELATION OF URBAN RESTRICTIONS. THE RESULTING BUILDABLE AREA




Restrictions resulting from the transit of the plot by the Metropolitan Beltway, as well as those related to the territorial reference units Ve, VPr or protection areas related to the technical-municipal networks limit the buildable area related to the plot **Illustration 13**).

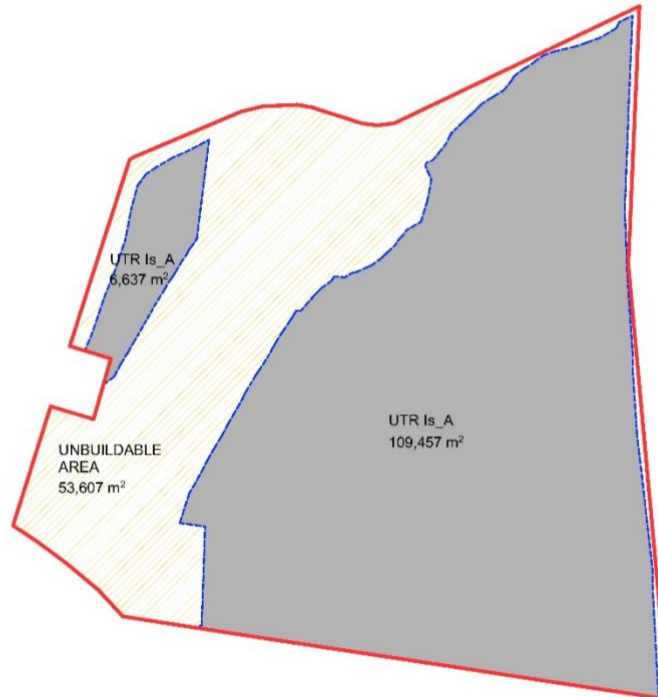
By correlating all these restrictions, we have a buildable area of 11.60 ha out of a total of 16.97 ha, arranged at the level of the plot according to **Illustration 14**. The boundaries of the restricted areas, as well as those of the resulting buildable areas are available in editable format, in Annex 8.3 of the competition documentation.



**Illustration 13** Correlation of the cadastral boundaries of the competition plot with the boundaries of areas with construction restrictions

LEGENDĂ

-  UNBUILDABLE AREA
-  BUILDABLE AREA / UTR Is\_A
-  LIMITA PARCELEI CARE FACE OBIECTUL CONCURSULUI



**Illustration 14** Correlation of the cadastral boundaries of the plot with the boundaries of the resulting buildable areas

## 2.6. NATURE OF THE LAND. GEOTECHNICAL STUDIES

The geotechnical study carried out in September 2020 on the plot that is subject to the competition presents the following conclusions, based on fifteen boreholes<sup>2</sup>:

- The construction will be done on deep foundations.
- We do not recommend to make displacement piles; if the use of displacement piles is chosen, then piles with recoverable/non-recoverable protection pipe will be made with the monitoring of the volume of excavated earth;

<sup>2</sup> **Annex 5.2 - Geotechnical study** contains the entire geotechnical study. Annex 5.1 – The topographic survey indicates the arrangement of boreholes in the field.



### **2.6.1. GEOMORPHOLOGY AND GEOLOGY**

The researched site is located on a relatively flat land, on the left bank of the Becaș brook. In the northern area there is a hill with a height of about 15 m from the meadow of the Becaș brook. The basic geological formation in the researched perimeter is made up of marls and sandstones of Badenian-Sarmatian age, over which clays, dusty clays and clayey sands appear. At the same time, muds and peat also appear due to the position of the site in the meadow of the Becaș brook.

### **2.6.2. LAND STABILITY**

The researched area does not show signs of instability at present. The location conditions do not lead to the conclusion that there is a risk of landslides. All excavations are performed supported by calculated elements. It is forbidden to carry out excavations without support.

### **2.6.3. GROUNDWATER**

Groundwater was intercepted at elevations between -2.50m and -4.50m, in the drilled holes. At the same time, at quotas between -15.00m (F103) and -18.00m (F102) a lower groundwater level was intercepted. During periods of heavy rainfall, infiltration water can occur at any level, which requires waterproofing the substructure.

According to water aggression tests, groundwater has low carbonic aggression, corresponding to an XA1 exposure class and low sulphite aggressiveness, corresponding to an XA1 exposure class. Thus, concrete protection measures are needed.

### **2.6.4. FOUNDATION CONDITIONS**

The optimal foundation conditions are found in the hill area. Outside the hill, direct foundation on layers 1, 2, 2a, 3, 3a, 3b is not accepted. Deep foundations will be made, embedded in 2d layers, Clay / dusty clay / clay dust / grey sandy dusty clay, hard, contractile, active clay, 2c Clay / dusty clay/brown sandy dusty clay, thick, contractile, active clay, with grey clay strips at depths between -18.50m and -27.70m.

### 3. DESIGN BRIEF

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The project of the Emergency Clinical Children's Hospital will be the first public hospital in Transylvania that will offer integrated medical services in the field of paediatrics. Through this approach, the Contracting Authority aims to develop a centre for medical services and research in the field of paediatrics and which also plays the role of an urban catalyst in an area undergoing urbanization. Thus, the project brings along the chance to provide an example of best practice both in terms of medical architecture and with regards to the urban development of an area currently in an early stage of development.

#### 3.1. DESIGN PRINCIPLES

Through the selected site, the project also raises a number of issues regarding the impact of a representative function on a relatively de-structured and developing area. Thus, the proposed solution **will define a staged strategy for systematization of the plot dedicated to the competition**, detailing the impact of the Emergency Clinical Children's Hospital on the development of the entire area.

As healthcare architecture programme, the Emergency Clinical Children's Hospital offers the competitors the chance to redefine, through the proposed solution, the way in which architecture can enhance medical care, opening up for discussion a series of design principles. Thus, the proposed solution:

- will create a **space centred around the patient's needs**, using the proposed finishes and the relationships between the spaces in order to create a therapeutic environment, able to reduce the stress generated by the medical act;
- **will integrate contemporary technical solutions** and provide a structure flexible enough to adapt to developments in the field of medical devices (for example: reconfiguration of medical services provided, automation of services, use of robots, etc.);
- will support a **conscious and sustainable attitude towards energy consumption**, providing viable solutions destined to reduce energy consumption in the medium and long term and enabling the **BREEAM certification** of the building;
- will integrate the principles of a **participatory design**, the final solution being the result of a consultation process of the project beneficiaries (patients, medical staff);

As we are talking about a hospital dedicated to children, it is essential that the proposals submitted in the competition meet the needs of these patients, integrating all the elements considered necessary to increase the physical and emotional comfort of children and relatives during hospitalization. The logic, ergonomics and quality of the interior and exterior spaces, as well as the visual and functional relationships created will play an important role in evaluating the proposed solutions. Thus, competitors will pay special attention to detailing those elements that customize the proposed solution in relation to the needs of the paediatric patients.

### 3.2. PLOT DEVELOPMENT REQUIREMENTS

The plot dedicated to the competition occupies a very relevant land area (16.97 ha) in relation to the urbanization efforts of the Borhanci area. At the same time, it is crossed by important elements of road infrastructure, the Cluj Metropolitan Beltway (TR35), and limited by natural elements, the Becaș Creek, located on the eastern side of the plot.

Starting from these premises, as well as from the development premises drawn up by the General Urban Plan of Cluj-Napoca City for the area adjoining the plot dedicated to the competition, the competitors will define **a strategy for systematizing the plot**, which will touch upon several levels:

- by integrating related functions at the plot level, it will lead to an **appropriate functional mix**, able to support the Contracting Authority's intention to create a paediatric medical and research centre;
- through the spatial and volumetric arrangement of the proposed functions, it will ensure a level of **urban density** capable of enhancing the further development of the area;
- through the organization of access points on the plot, as well as of the car and pedestrian traffic, it will avoid the transformation of the plot into a closed site. The solution will **facilitate the transit of the plot** and mitigate the disruptive effect of the Cluj Metropolitan Beltway;
- will allow a **staged approach**, the first stage being the one dedicated to the development of the area related to the Emergency Clinical Children's Hospital Cluj-Napoca.

#### 3.2.1. FUNCTIONAL ZONING OF THE PLOT

The proposal for the functional zoning of the plot will follow the judicious use of the land areas left free after the development of the Cluj Metropolitan Beltway (TR35).

The only major functional area imposed by means of the competition brief is the one intended for the Emergency Clinical Children's Hospital Cluj-Napoca. The competition brief does not make express requests regarding the land area allocated to the hospital or its positioning on the land. The location of the Emergency Clinical Children's Hospital on the plot and the definition of the land area necessary for the development of the function will be done in accordance with the proposed urbanization strategy of the plot and the necessary areas agreed by each competitor.

In positioning this function, the competitors will take into account all the requirements related to the proper functioning of the hospital (areas allocated to the hospital building and technical annexes, traffic flows, green and relaxation spaces, etc.). At the same time, they will take into account the fact that the Romanian legislation requires the operation of hospitals in premises with controlled access and the possibility of limiting the access of the general public, when appropriate.

The competitors have full freedom in defining the functions for the land area left free following the development of the Emergency Clinical Children's Hospital Cluj-Napoca. In selecting the proposed functional groups, they will take into account the following aspects:

- **Compatibility of the proposed related functions with the main function**, respectively their capacity to support the intention of the Contracting Authority to create a medical and research centre in the field of paediatrics with regional impact;
- **The capacity of the proposed related functions to add value to the area**, compensating some of the errors already occurred in the urbanization process. (for example: lack of service and pre-university education spaces, of public and relaxation spaces).

### 3.2.2. URBAN DENSITY. TRANSITING THE PLOT. PUBLIC SPACES.

The spatial and volumetric layout of the proposed functions will ensure a level of urban density capable of supporting the further development of the area, while stimulating a judicious use of land. The competition brief does NOT impose restrictions on the height regime of the buildings or the percentage of land occupancy.

In the arrangement of free spaces, the aim will be to strengthen the urban character of the area, by arranging representative spaces - squares, gardens. These will be in direct relation with the main access points and the routes generated at the level of the plot, while ensuring the mediation of the relationship between the proposed volumes.

The Cluj Metropolitan Beltway (TR35) brings along a series of benefits regarding the accessibility of the area at local and regional level. However, with regards to the plot dedicated to the competition, it has a disruptive character, acting as a barrier. By creating a road network supported by a suite of public spaces, competitors can directly contribute to the definition of a set of urban routes capable of directing the further

development of the area and mitigating the negative effects of infrastructure elements already present in the area.

The arrangement of the car and pedestrian routes, as well as of the network of public spaces that support them will be done in accordance with the urbanization strategy presented by each competitor, following the integrated development of all the proposed functions at the level of the plot.

### 3.2.3. STAGING THE DEVELOPMENT OF THE PLOT

The proposed urbanization strategy will lay the foundations for an operational framework that will manage the development of the area for the next decade. It is important that, even at this point, the issues related to the urbanization of the plot touch upon the following aspects:

- Identifying and drawing a maximum development potential of the plot;
- Translating this development potential into distinct stages of urbanization, both spatially and functionally.

All these aspects start from the premise that the **urbanization strategy of the plot will have a dynamic character**, able to integrate any changes occurred along the way. Thus, the definition of the urbanization stages will be made in close connection with the proposals on infrastructure development and taking into account the financial impact they impose on the Contracting Authority. To the extent deemed appropriate by the competitors, the urbanization strategy of the plot **may include proposals regarding various forms of partnership**, capable of supporting a sustainable evolution of the entire urban development approach.

### 3.2.4. SPECIFIC REQUIREMENTS REGARDING THE COMPETITION STAGE

In the competition stage, the competitors will present a **development concept of the plot** dedicated to the competition. Through planimetric representations, but also through sketches, texts and images, competitors will capture the volumetric and functional relationships generated both inside the plot and with the surrounding area. At the same time, they will highlight, in a clear manner, **the stages of urbanization of the plot**, presenting the evolution of the functional mix in each of the captured stages. In this stage, the proposal will have a conceptual character, and will be detailed in the subsequent design phases, through a Zonal Urban Plan.

### 3.3. EMERGENCY CLINICAL CHILDREN'S HOSPITAL. FUNCTIONAL REQUIREMENTS

#### 3.3.1. FUNCTIONAL STRUCTURE

The spatial-functional structure of the Emergency Clinical Children's Hospital is determined by the intention of the Contracting Authority to develop an integrated treatment centre, capable of managing a wide range of paediatric diseases, thus limiting the transfer of patients between various treatment points.

The Emergency Clinical Children's Hospital will have a number of **510 continuous hospitalization beds, 65 companion beds and 50 outpatient hospital beds**. It will be organized in 12 different departments, with the corresponding compartments, to which a set of commonly used functions is added:

- Anaesthesia and Intensive Care Department;
- common medical functions (operating room, imaging, pharmacy, etc.)
- spaces dedicated to research and education;
- administrative, technical and logistical spaces.

**Competitors CANNOT change the total number of beds imposed by the design brief.** Any change in the total number of beds, namely 510 continuous hospitalization beds, 65 companion beds and 50 outpatient hospital beds, leads to a scoring of 0 (zero) for the criteria regarding the functionality of the solution. **Regarding the number of beds allocated to each department, it is recommended that competitors comply with the requirements imposed by the brief, a variation of a maximum of 5 (five) beds for each department being accepted.**

The medical and surgical departments, including patient accommodation, will be organized in a modular way so that, where appropriate, they will allow easy re-organization of the number of beds within the departments or between various departments.

In the organization of the medical spaces and flows, the fact that the training of students and medical staff will continue in the hospital will also be taken into account. Thus, **an area of lectures/conferences** will be provided, with all the necessary annexes for carrying out these types of activities.

The subsequent sections detail the relationships established between these functional groups both in terms of the number of beds allocated and related areas, and of the

medical flows necessary for the proper functioning of the Emergency Clinical Children's Hospital. **Annex 1.2 - Summary of costs, areas and staff**, part of the competition documentation made available to competitors, includes a function list for each of the major functional groups, indicating both the required relationships between spaces and a first estimate of the areas needed for the development of the Emergency Clinical Children's Hospital.

Competitors are free to propose the optimization<sup>3</sup> of **useful areas indicated by the design brief and its annexes**, in order to achieve an optimal ratio between the built area and the number of beds, located around 100sqm BA / bed. The areas included in the competition brief and its annexes for various types of spaces **are indicative**. **Competitors can modify these areas**, depending on the proposed architectural solution, provided that they do not exceed an average built area of 100 sqm/bed. At the same time, insofar as they consider it necessary/possible, **competitors can complete the list of spaces defined by the design brief with other complementary spaces/functions centred around the patient's needs**.

The need for parking spaces was estimated according to the provisions of the Local Urban Planning Regulation related to the General Urban Plan of Cluj-Napoca. It provides a parking space for 80 sqm net area, respectively a parking space for bicycles for 100 sqm net area. Based on the brief data provided by the Contracting Authority, an estimated net area of 51,200 square meters results, which leads to a need for **640 parking spaces for vehicles and 512 parking spaces for bicycles**. Competitors will follow the grouping of parking spaces, so as to reduce the area occupied by them at ground level. At least 20% of the parking spaces will be organized in underground or above-ground car parks.

The Emergency Clinical Children's Hospital will be provided with a **heliport**, served by SMURD helicopters. It will be located on the roof of the hospital and will be in direct contact with the operating theatres. Competitors will decide where to position the heliport, taking into account the volumetric solution and the constraints imposed by the location and the legal framework in force.

### **3.3.2. SPECIFIC REQUIREMENTS REGARDING THE ORGANIZATION OF THE LAND AREA DEDICATED TO THE EMERGENCY CLINICAL CHILDREN'S HOSPITAL**

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<sup>3</sup> The surface optimization proposals will comply with the requirements imposed by the legal framework in force.



The landscaping proposal for the area dedicated to the Emergency Clinical Children's Hospital will seek to enhance the urban character of the area, by creating a sequence of public spaces - squares, rest places, etc. - directly related to the main access points dedicated to the public (patients, relatives and visitors) and to the medical staff. The urban furniture will follow to a coherent concept for the urban image of public spaces and relate to the architectural style of the project.

The access points on the plot will be organized so as to allow the optimal functioning of the following areas:

- **Public area:** area where most external users and vehicles have direct access to the main access points on the plot;
- **Service area:** the area delimited by the accesses, the circulations and the platforms corresponding to the spaces that shelter technical-municipal functions;
- **Recreation area for the patients-** includes green spaces, playgrounds and outdoor promenade alleys reserved for patients. A direct relationship between it and the vertical circulation nodes that serve the health functions will be considered, as well as the possibility of supervising patients;
- **Protection zones** - include planted areas for the protection of the microclimate and other restricted areas for the protection of certain functions;

The traffic nodes mentioned above subordinate to the landscaping proposal of the entire ensemble. Hence, the car and pedestrian traffic flows generated by the new investment will be integrated into a traffic systematisation proposal covering the entire plot. The dimensioning of the roadways will be done according to the traffic (flows), the parking needs, the dimensions of the means of transport used. Roadways will be separated from pedestrian alleys and their width will not be smaller than:

- 3.5 m wide for those with a traffic lane and a maximum length of 10.00 m;
- 7m for those with two lanes and a length greater than 10.00 m.

**3.3.3. PROPOSED FUNCTIONAL STRUCTURE**

<b>Secție I Ward</b>		<b>Număr paturi</b> <i>No. of beds</i>	<b>Suprafață utilă (mp)</b> <i>Net area (sqm)</i>
<b>S01</b>	<b>Pediatrie (din care:)</b> <i>Paediatrics (out of which:)</i>	<b>165</b>	<b>6.425</b>
	Pediatrie <i>Paediatrics</i>	61	1.705
	Compartiment Diabet zaharat, nutriție și boli metabolice <i>Diabetes, Nutrition and Metabolic Diseases Compartment</i>	15	515
	Compartiment Endocrinologie copii <i>Endocrinology Compartment</i>	6	305
	Compartiment Reumatologie copii <i>Rheumatology Compartment</i>	4	255
	Compartiment Imunologie clinică și alergologie copii <i>Clinical Immunology and Allergology Compartment</i>	4	255
	Compartiment Onco-pediatrie <i>Onco-paediatrics Compartment</i>	5	280
	Compartiment Dermatovenerologie copii <i>Dermatology Compartment</i>	5	280
	Compartiment Gastroenterologie copii <i>Gastroenterology Compartment</i>	20	655
	Compartiment Cardiologie <i>Cardiology Compartment</i>	15	550
	Compartiment Hematologie <i>Haematology Compartment</i>	15	540
	Compartiment Genetică Medicală <i>Medical Genetics Compartment</i>	15	540
<b>S02</b>	<b>Nefrologie (din care:)</b> <i>Nephrology</i>	<b>25</b>	<b>1.265</b>
	Nefrologie <i>Nephrology Ward</i>	13	235
	Compartiment Dializă peritoneală <i>Peritoneal Dialysis Compartment</i>	2	50
	Compartiment Toxicologie <i>Toxicology Compartment</i>	10	235
	Compartiment Dializă cronică <i>Chronical Dialysis Compartment</i>	10	235
<b>S03</b>	<b>Neurologie pediatrică</b> <i>Paediatric Neurology</i>	<b>30</b>	<b>1.210</b>

<b>Secție I Ward</b>		<b>Număr paturi</b> <i>No. of beds</i>	<b>Suprafață utilă (mp)</b> <i>Net area (sqm)</i>
<b>S04</b>	<b>Psihiatrie pediatrică (din care:)</b> <i>Paediatric psychiatry</i>	<b>30</b>	<b>1.875</b>
	Psihiatrie <i>Psychiatry</i>	30	
	Laborator de sănătate mintală <i>Mental Health Lab</i>	0	
<b>S05</b>	<b>Pneumologie</b> <i>Pneumology</i>	<b>25</b>	<b>1.110</b>
<b>S06</b>	<b>Boli infecțioase copii</b> <i>Infectious diseases</i>	<b>30</b>	<b>1.210</b>
<b>S07</b>	<b>Îngrijiri cronice și paliative</b> <i>Chronic and palliative care</i>	<b>25</b>	<b>1.085</b>
<b>S08</b>	<b>Recuperare, medicină fizică și balneologie</b> <i>Physical medicine and balneology</i>	<b>30</b>	<b>1.210</b>
<b>S09</b>	<b>Neonatologie – prematuri</b> <i>Neonatology</i>	<b>25</b>	<b>1.260</b>
<b>S10</b>	<b>Chirurgie pediatrică (din care:)</b> <i>Paediatric surgery</i>	<b>60</b>	<b>3.020</b>
	Chirurgie pediatrică <i>Paediatric surgery</i>	15	480
	Compartiment Neurochirurgie copii <i>Paediatric Neurosurgery Compartment</i>	5	255
	Compartiment Chirurgie plastică și reparatorie <i>Plastic Surgery Compartment</i>	5	255
	Compartiment Chirurgie oncologică <i>Oncologic Surgery Compartment</i>	5	255
	Compartiment Chirurgie cardiovasculară <i>Cardiovascular surgery</i>	5	255
	Compartiment Urologie pediatrică <i>Paediatric urology</i>	5	255
	Compartiment Otorinolaringologie (ORL) copii <i>ENT Compartment</i>	15	480
	Compartiment Oftalmologie copii <i>Paediatric Ophthalmology Compartment</i>	5	255
<b>S11</b>	<b>Ortopedie pediatrică</b> <i>Paediatric Orthopedy</i>	<b>30</b>	<b>1.175</b>

<b>Secție I Ward</b>	<b>Număr paturi</b> <i>No. of beds</i>	<b>Suprafață utilă (mp)</b> <i>Net area (sqm)</i>
<b>S12</b> <b>Unitate arși</b> <i>Burn Center</i>	<b>5</b>	<b>685</b>
<b>S13</b> <b>Anestezie și terapie intensivă</b> <i>Intensive Care Unit</i>	<b>30</b>	<b>1.305</b>
<b>Spitalizare de zi (din care:)</b> <i>Out-patient Unit</i>	<b>50</b>	<b>1.625</b>
Spitalizare de zi – general <i>Out-patient – General</i>	45	
Spitalizare de zi / Onco-hematologie <i>Out-patient / Onco - haematology</i>	5	
<b>Bloc operator</b> <i>Operating theatres</i>	-	<b>1.560</b>
<b>Servicii medicale comune</b> <i>Common Medical Services</i>	-	<b>7.560</b>
<b>Servicii tehnice comune</b> <i>Technical Services</i>	-	<b>6.500</b>
<b>Bloc administrativ</b> <i>Managing Unit</i>	-	<b>600</b>
<b>Cercetare și activitate clinică</b> <i>Research and Clinical Activity Unit</i>	-	<b>1.500</b>
<b>NUMĂR TOTAL DE PATURI / SPITALIZARE CONTINUĂ (din care:)</b> <i>Total number of beds / Inpatient units (out of which)</i>	<b>510</b>	<b>40.565</b>
Secții medicale <i>Medical Wards</i>	385	16.660
Secții chirurgicale <i>Surgical Wards</i>	95	4.880
Anestezie și terapie intensivă <i>Intensive Care Unit</i>	30	1.305
<b>NUMĂR TOTAL DE PATURI / SPITALIZARE DE ZI</b> <i>Total number of beds / Out-patient Unit</i>	<b>50</b>	<b>1.625</b>

**Table 1** Correlation of the proposed functional structure with the number of beds and the estimated usable area

### 3.3.4. ESTIMATED BUILT-UP AREA

The estimate of the built-up area was made starting with the usable area, according to the table below:

Usable area (estimated)	42,190 sqm
Circulation area (estimated)	9,372 sqm
(S circulations = estimated between 15% and 30% x Net area)	
Built-up area (estimated)	61,874 sqm
S CD = 120% x (S circulations + S usable)	
Built-up area (estimated)	121 sqm/bed
related to each hospital bed	
Land area	169,700 sqm
(of which approximately 51,600 sqm are unbuildable, subject to the route of the new metropolitan belt, as well as UTR VPr and Ve)	

**Table 2** Estimated built-up area

### 3.3.5. MEDICAL FLOWS

The proposal will integrate the appropriate technical and spatial organization solutions to ensure the correct resolution of the medical flows mentioned in the table below, in compliance with all legal provisions in force.

<b>Flows</b>	
<b>1</b>	<b>The patient's flow</b>
	Represents the flow followed by the patient from the time of hospitalization to the time of discharge. The patient's flow shall not intersect the flow of medical instruments, linen, food or waste.
<b>2</b>	<b>The healthcare personnel flow</b>
	Represents the flow followed by healthcare personnel (qualified and unqualified medical personnel) from the moment of entry into the hospital until leaving the hospital. In defining the flow of healthcare personnel, all the necessary filters will be interposed to reduce the epidemiological risk. The flow of healthcare personnel shall not intersect the linen, food or waste flow.
<b>3</b>	<b>The flow of visitors and attendants</b>
	The flow of visitors and attendants entails an increased epidemiological risk. In order to limit the risk of exposure, the flow will be outlined according to the requirements of each unit, with the provision of the required access filters, i.e., limiting the access of



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## Flows

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visitors and attendants to certain areas. Specific to the paediatric hospital, the attendants flow implies the existence of beds for attendants and related spaces to ensure their comfort.

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### 4 Student flow

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Represents the flow followed by medical students from the moment of entering the hospital until leaving it. In defining the students' flow, all the necessary filters will be interposed to reduce the epidemiological risk. The student flow will not intersect the linen, food or waste flow and will be limited only to areas dedicated to academic activities.

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### 5 Flow of the deceased

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Represents the flow followed by the deceased persons from the registration of the death until their takeover by the family through an authorized funeral service. After death, the body is transported to the morgue and deposited in the mortuary refrigerator / cold room. After performing all the necessary procedures (autopsy), the body is released to the relatives. The flow of the deceased persons will not intersect the rest of the medical flows and will be a non-return flow.

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### 6 Medical instrument flow

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Represents the flow followed by the medical instrument within the central sterilization service, i.e., from the central sterilization service to the point of use and back to the sterilization area. The proposed solutions will ensure a separation between the flow followed by the sterile and non-sterile/used instruments/materials.

**Central sterilization service** will have a closed flow for people, with unique access from general hospital circulations. If the central sterilization service is attached to the operating room, it can also have an internal communication with its circulations (through the door in the "neutral" area and through the counter in the "clean" area of the room). Within the sterilization service, the spaces are divided and flowed in such a way as to ensure separate flows for non-sterile and sterile instruments and materials, as follows:

- a. **activity area with non-sterile materials**, comprising the spaces for reception, temporary storage, sorting, primary processing, introduction into the sterilization apparatus or chamber;
- b. the sterilization area itself or the "hot zone";
- c. **activity area with sterile materials**, comprising the spaces for removal from the hot zone and cooling, sorting, inscription, storage, handover;
- d. **common annexes sector**: registry, detergent and talc deposit (as appropriate), locker room and bathroom with shower for personnel.

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### 7 Operating theatre flow

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## Flows

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The operating theatres will have:

- Direct connection with the anaesthesia service - intensive care and with the central sterilization area.
- Provided easy connections with the emergency service, radiology and functional exploration services, the pathological anatomy laboratory and the hospital units.

In terms of hygienic-sanitary conditions, the operating room is part of the clean area of the hospital. It is intended for hospital patients only and has severe hygiene and asepsis requirements. It may be sectorised, by septic and aseptic block separation, with differential treatment of operating rooms and medical annexes with regard to asepsis measures.

The arrangement of the spaces and the organization of the flows inside the operating block will be done gradually, respecting the asepsis requirements, including the following areas:

- **Neutral zone** (sanitary conditions common to the health sector): area of access filters and area of ancillary functions (operating protocol, transfusion point, laboratory for emergency determinations, etc.)
- **Clean area** (special hygienic conditions): patient preparation room, wake-up room, workspace for doctors, etc.
- **Aseptic area:** operating room, washing room and sterile equipment of the operating team, etc.

The following flows will be solved inside the operating room:

- i. Persons flow;
- ii. Medical-surgical instruments flow;
- iii. Soft material flow;
- iv. Organic products flow for EHP;
- v. Waste flow;
- vi. Supply flow;
- vii. FPF flow.

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## 8 Food supplies flow

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The food flow includes the food block, the way of distribution and transport of the prepared food, the food offices on the units and the way the patients are served. The proposed solutions for the transport of food from the food block to the food offices on the units will ensure a separate flow, which does not intersect the rest of the functional flows.

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## Flows

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### 9 Linen flow

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The linen flows includes the routes generated by the transport, storage and collection of clean and dirty linen. It includes all the spaces necessary to ensure the respective flow, both at the level of the units and at the level of the laundry of the medical unit.

**Hospital linen**<sup>4</sup> represents all the textiles used in the medical unit and includes: sheets, pillowcases, uniforms of medical personnel, towels, pyjamas, clothing for patients, etc. It is classified into:

- **dirty linen** represents all items of linen and includes both unstained dirty linen (dirty linen from hospitalized patients) and contaminated linen (linen that has come in contact with blood and / or other biological fluids);
- **clean linen** represents linen that has gone through all stages of the washing, drying, ironing process and which does not show traces of dirt, visible stains and has undergone a process of thermal or chemical disinfection.

**Linen storage** within the units shall be carried out in a separate space for clean linen and dirty linen, to which patients and visitors will not have access. The solutions proposed for the transport of linen between the hospital units and the laundry area will ensure the separation of the clean and dirty linen flows.

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### 10 Waste flow

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The waste flow includes, from a sanitary point of view, the measures to be taken to avoid contamination of the external environment by ensuring their proper collection and disposal. Waste is classified into<sup>5</sup>:

- Non-hazardous waste: means waste whose composition and properties do not pose a danger to human health and the environment;
  - Hazardous waste:
    - **anatomic-pathological waste**: comprise human fragments and organs, including blood vessels and preserved blood;
    - **infectious waste** is waste that has hazardous properties, i.e., substances and preparations containing viable micro-organisms or their toxins which are known to cause disease in humans or other living organisms;
    - **stinging - cutting waste** are sharp objects that can cause mechanical damage by stabbing or cutting; this waste is considered infectious /
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<sup>4</sup>according to the provisions of Order No. 1.025 / 2000 for the approval of the Laundry Services Rules for medical facilities.

<sup>5</sup>according to the provisions of Annex 1 to Order no. 1,226 / 2012 for the approval of the Technical Rules on the management of waste resulting from medical activities and of the Data Collection Methodology for the national database on waste resulting from medical activities.



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## Flows

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hazardous waste if it has been in contact with biological fluids or hazardous substances;

- **chemical and pharmaceutical waste:** are solid, liquid or gaseous chemicals which may be toxic, corrosive or flammable; expired drugs and residues of chemotherapeutic substances, which may be cytotoxic, genotoxic, mutagenic, teratogenic or carcinogenic.

**Collection, categorization, packaging and labelling** waste will be made as close as possible to the place of their production.

**Temporary storage** will be carried out according to the categories of waste collected at the place of production. The duration of temporary storage will be as short as possible, and the storage conditions will comply with the hygiene rules in force. For hazardous waste, the duration of temporary storage must not exceed 72 hours, of which 48 hours inside the unit and 24 hours for transport and final disposal.

The central waste storage space will have two compartments:

- **a hazardous waste compartment**, fitted with a locking device allowing only the access of authorized persons;
- **a non-hazardous waste compartment**, arranged according to the hygiene standards and recommendations regarding the living environment of the population, approved by the order of the Minister of Health no. 536/1997, as amended and supplemented.

**Conditions of the central storage area for hazardous waste** must allow the temporary storage of the amount of hazardous waste accumulated in the interval between two successive disposals. The space will be provided with:

- floor drain for the discharge of wastewater resulting from cleaning and disinfection into the sewage system.
- adequate ventilation to ensure low temperatures that do not allow the decomposition of organic material in hazardous waste.

**Transport of hazardous waste** inside the health unit will be carried out on a separate flow, which will not intersect the flow of patients or that of visitors and attendants.

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**Table 3** Medical flows - minimum requirements

### **3.3.6. SPECIFIC REQUIREMENTS ON FUNCTIONAL RELATIONSHIPS**

In defining the proposals, the competitors will also take into account the specific aspects of the various functional groups, listed below:

#### **Access area:**

- Will be organized around a bright, generous and friendly space, which can provide enough elements of sensory stimulation capable of distracting children of different ages;
- The reception area will be the main point of the access area, giving the personnel in this area the ability to supervise the space. The furniture dedicated to the reception area will be dimensioned in such a way as to ensure a direct visual relationship between the dedicated personnel and patients of different age and height;
- The access filter for visitors will be organized in the area of the main access to the building, aiming to limit their access to the unit, outside the areas specially designed for visits. The area will also be provided with a visiting room, which can alternatively be used as a discussion space between doctors and relatives.
- The access area will include playgrounds suitable for children of different age. The spaces will be designed and arranged in such a way as to stimulate children's senses.
- In the vicinity of the waiting area, support spaces will be provided, which will ensure the necessary level of privacy for changing or breastfeeding children.

#### **Unwinding facilities for patients and caregivers**

- In order to reduce the mental discomfort related to the hospitalization period, patients and caregivers will benefit from relaxation facilities (e.g., playgrounds, discussion spaces), in all the areas dedicated to common medical services and in areas dedicated to medical and surgical units. The arrangement of these facilities within the hospital depends on the architectural solution proposed by each competitor.
- The design proposal will include spaces dedicated to the continuation of the school activity for those patients with a longer hospital stay.
- The design and finishing of the spaces will be adapted to the age of the users, aiming to create a good mood.
- The relaxation areas inside the building will be completed by dedicated outdoor areas and playgrounds / sports fields suitable for several age groups.

**Medical services:**

- Each ward will be served by a reception area, acting as an interface between the medical care area and the wider public (relatives / visitors, other people). The reception desk will also control the access of the public within the hospital wards. The reception area will also serve as a workstation for nurses;
- Wards will be sized and configured in such a way as to allow for the highest possible standardisation of the main functional categories throughout the hospital (e.g., standardisation of treatment facilities, patient surveillance points, accommodation areas).
- Consideration will be given to reducing the mental discomfort for patients through those medical services that they experience on their own, without caregivers (for example: within the imaging area). Through the proposed fitting and finishing elements, the resulting spaces will have the ability to distract patients from the fears related to the medical act.

**Patient accommodation:**

- All elements in the patients' accommodation area will have an ergonomic design, according to the age and needs of the users. The furniture, finishes and colours used will aim to create a calm and user-friendly environment. In their proposals, competitors will detail the essential elements that help reduce mental discomfort during the hospitalization period (such as: how to furnish indoor spaces, the integration of modern technologies in the design of indoor spaces, the use of art and play in the medical act etc)
- All patient-rooms and side-rooms will be sized and furnished in such a way that, where appropriate, allows an attendant / relative to be admitted with the patient.
- The restrooms corresponding to the patient-rooms and side-rooms will be accessible to disabled people. In the case of two-bed patient-rooms, the toilet area will be separated from the shower area. At the same time, the plumbing facilities will be designed in such a way as to include an integrated bedpan system (emptying and disinfecting the bedpans inside the restroom corresponding to each patient-room).

**Medical flows:**

- The areas dedicated to infectious patients will have separate flows, with organized filters at the entrance and negative pressure ventilation compared to neutral medical areas (access routes, corridors, other sections);

- The Infectious Diseases Ward will have a direct flow that will ensure the connection between this unit and the Emergency Room (in the triage area);
- The Infectious Diseases Ward will benefit from a separate access flow from the general access dedicated to patients and caregivers;
- Spaces for immunosuppressed patients will have separate flows, with organized filters at the entrance and positive pressure ventilation;
- The “clean” areas (operating theatres, AIC) will have access through filters and positive pressure ventilation system and HEPA filters to ensure air quality;
- The flows related to the Out-patient Unit will be organized in such a way as to allow its transformation into a buffer zone for critical situations.

#### **The Anaesthesia and Intensive Care Unit:**

- The accommodation system of the patients will be organized both in an **open-space system** (of four beds grouped around a monitoring post), and with **side-rooms and isolation-rooms** of one person each. Individual monitoring posts shall be provided for the area of reserves and insulators. Depending on the proposed planimetric solution, monitoring posts may be grouped to serve more reserves.
- The access filter of the medical personnel will be a common one for the entire unit.

#### **Operating Theatres:**

- The operating theatres and their annexes will be grouped to ensure the most efficient operation, both in terms of medical flows and subsidiary functions.
- The access filter of the medical personnel will be common for the entire operating theatre area.
- There will be a closed flow between the operating theatres and the hospital wards, accessible only to medical personnel and, implicitly, to patients undergoing surgery.
- There will be a direct connection between the operating theatres and the Anaesthesia - Intensive Care Unit.
- The operating theatres will benefit from the necessary equipment to ensure the live transmission of surgeries, when appropriate.

#### **General requirements:**

- Gesture-controlled installations will be integrated, preferably without touch;
- The furniture will be easy to mobilize, on lockable wheels, to facilitate cleaning;

- Windows shall be fitted with external blinds in place of curtains and in the case of spaces used predominantly by patients shall have a reduced parapet allowing a direct visual relationship with the outside environment;
- Materials which reduce and attenuate noise will be used;
- The use of the premises will facilitate hand hygiene (washing with soap and water and disinfecting with alcoholic solutions) by installing water sources and soap and water-alcoholic solutions within the reach of medical staff and patients. The hand drying after washing shall be done with single-use paper towels;
- Sufficient storage facilities will be provided for both sanitary materials and equipment, as well as for the personal belongings of patients and caregivers;

### 3.4. EMERGENCY CLINICAL CHILDREN'S HOSPITAL. TECHNICAL REQUIREMENTS

#### 3.4.1. CHARACTERISTICS OF THE PROPOSED CONSTRUCTION

According to the anti-seismic design regulations - Part I - "Design provisions for buildings", indicative P 100-1 / 2013, the building falls into the 1<sup>st</sup> class of importance.

**The level of fire resistance and the importance category of the building** will be established in the subsequent stages of the solution competition, according to the regulations in force.

#### 3.4.2. URBAN EQUIPMENT OF THE BUILDING

It is proposed to equip the building with the following types of installations:

- **plumbing and sewage systems** adapted to the different types of functions (according to the national and international standards in force):
  - usual plumbing and sewage systems;
  - sterile water systems;
  - fire extinguishing systems: indoor and outdoor hydrants, sprinkler fire extinguishing system;
- **ventilation and air conditioning systems** adapted to the different types of functions and their specificity (according to the national and international standards in force):
  - air conditioning systems (heating or cooling);
  - ventilation systems;
  - smoke extraction systems.
- **high current electrical installations** adapted to the different types of functions and their specificities (according to the national and international standards in force)
  - ET on units and rooms where applicable (e.g., operating room)
  - PUS system;
  - electric generators platform;
  - substation
  - earthing network;
- **low current electrical installations** adapted to the different types of functions and their specificities (according to the national and international standards in force):



- nurse alarm system;
- voice-data system;
- access control systems;
- video surveillance systems;
- audio system for each room;
- fire detection and alarm system;
- Building Management System.
- **medical gas systems** adapted to the different types of functions and their specificities (according to the national and international standards in force):
  - medical oxygen;
  - medical compressed air - 4 bar;
  - medical vacuum;
  - argon;
  - medical carbon dioxide.
- pneumatic mail system.

The following aspects will also be considered:

- modern technologies for the transport of waste, materials and medicines, cleaning, communication, building orientation, automatic patient identification (e.g., clean-up or materials and waste transporting robots) will be integrated;
- the water and sewage systems will not have recesses, closed “bottom” areas, which would facilitate the stagnation of water and waste;
- the hospital will have its own waste and wastewater neutralization station.

### 3.4.3. ENERGETIC EFFICIENCY

In defining the proposed technical solutions, the increase of the energetic efficiency of the building will be considered. Thus, the envelope of all heated spaces will be, as far as possible, continuous, reducing thermal bridges as much as possible. Passive solutions will be proposed which can help reduce energy consumption. (shading systems to avoid overheating, naturally lit spaces to reduce energy consumption from artificial lighting, thermal mass for energy retention and storage, etc.).

The entire hospital will be equipped with a system of automation, monitoring and control of the facilities, to make their operations more efficient and to reduce consumption or maintenance costs. It is also proposed to use renewable energy production systems capable of covering at least 10% of primary energy needs.

Renewable energy production systems shall be subject to a technical and economic analysis, as specified in **Section 3.4.4 Project sustainability**.

#### 3.4.4. PROJECT SUSTAINABILITY

The Contracting Authority will certify the design and execution process of the Emergency Clinical Children's Hospital Cluj-Napoca, using the BREEAM standard (Building Research Establishment's Environmental Assessment Method) International New Construction, aiming to obtain the standard: minimum Excellent. In this regard, the winner of the competition will hire a consultant and an evaluator, who will assist the design and execution teams until the reception of the building, verifying the evolution of the project, conducting studies to substantiate the solution, providing advice for project improvement and implementing the requirements of the BREEAM standard.

In order to be able to correctly estimate the design cost, we inform the participants that during the elaboration of the feasibility study, it will be necessary to substantiate the following aspects:

- **energy modelling** to verify whether the building will have a primary energy consumption below 69 kWh / sqm / year, as well as the effect of the passive solutions implemented
- **technical and economic feasibility of implementing** renewable energy production sources proposed by the design team
- **cost benefit analysis:** two different construction systems will be analysed both in terms of cost for the construction and for the operation of the building over a period of at least 60 years, taking into account any repair, maintenance or replacement costs.

At the same time, after the completion of the feasibility study, the winner of the competition will carry out, at his own expense, the studies below, which will fully comply with the BREEAM standard guidelines. Conclusions and recommendations will be implemented at the technical project stage:

- natural lighting analysis;
- thermal comfort analysis;
- acoustic study (including acoustic measurements before the reception of the building);
- ecological report;



- flood risk analysis;
- calculation of the carbon footprint over the life of the construction (Life Cycle Assessment);
- indoor air quality plan;
- thermography report;
- accessibility strategy;

### 3.4.5. SPECIFIC REQUIREMENTS FOR DIFFERENT TYPES OF SPACES

For the dimensioning and equipping of the different functions of the Children's Emergency Clinical Hospital, the national standards in force and the minimum requirements detailed below for each type of space shall be complied with:

Space	Requirements
<b>Wards and reserves</b>	
Volumetric requirements	<ul style="list-style-type: none"> <li>• the minimum height of the wards will be 2.80m;</li> </ul>
Lighting	<ul style="list-style-type: none"> <li>• will benefit from natural lighting, with an adequate orientation in relation to the cardinal points;</li> <li>• the windows will have a low height parapet, which will allow patients a direct visual relationship with the external environment;</li> <li>• an automated economical artificial lighting with a colour intensity specific to the medical space will be provided;</li> </ul>
Finishes / Furniture	<ul style="list-style-type: none"> <li>• will be equipped with electric beds and nightstands with folding table;</li> <li>• the beds will be placed parallel to the front of the window;</li> <li>• the distance between beds will be of at least 80cm and the distance between the bed and the outer wall will be of at least 80cm;</li> <li>• the restrooms will be equipped with easy-to-maintain toilets, with special accessories to support patients.</li> </ul>
Installations	<ul style="list-style-type: none"> <li>• low current networks: assisted alarm system, voice-data system, fire alarm system, telemedicine system, video surveillance systems where applicable, audio systems;</li> <li>• HVAC system specific to the medical space and to the patient's needs;</li> <li>• medical gas network with the following types of gases: compressed air, vacuum and oxygen;</li> </ul>

<b>Space</b>	<b>Requirements</b>
	<ul style="list-style-type: none"> <li>• backup electrical network;</li> </ul>
<b>AIC wards and reserves</b>	
Lighting	<ul style="list-style-type: none"> <li>• five types of lighting for the artificial lighting system will be proposed;</li> <li>• Direct-type LED lighting for patient examination mounted on the ceiling;</li> <li>• directional examination LED lighting mounted near the bed or incubator;</li> <li>• LED lighting for visitors - mounted on the ceiling or wall, directional to the seating area;</li> <li>• ambient LED lighting with indirect light, mounted on walls or ceilings;</li> <li>• lighting for interventions with 3000K colour temperature.</li> </ul>
Finishes / Furniture	<ul style="list-style-type: none"> <li>• the floors will be sound absorbing floors;</li> <li>• the doors will open automatically, will be equipped with glass that will be equipped with shutter system A - ISO8 cleaning class;</li> </ul>
Installations	<ul style="list-style-type: none"> <li>• medical gas network with the following types of gases: iNO, carbon dioxide, helium, protoxide, oxygen, medical air, vacuum;</li> <li>• monitoring and alarm systems on all circulations, with monitors for vital signs in all corners, IP telephony, tele ICU, tele-surveillance system, video calling system, ICCA computer system;</li> <li>• a computer will be provided - with a barcode reader integrated in the operating and archiving system for each patient and a cabinet with consumables for each room.</li> </ul>
<b>Medical offices, offices and spaces dedicated to medical personnel</b>	
Lighting	<ul style="list-style-type: none"> <li>• will benefit from natural lighting, with an adequate orientation in relation to the cardinal points;</li> <li>• an automated economical artificial lighting with a colour intensity specific to the medical space will be provided;</li> </ul>
Finishes / Furniture	<ul style="list-style-type: none"> <li>• they will be equipped with a washbasin connected to the usual water and sewage network;</li> </ul>
Installations	<ul style="list-style-type: none"> <li>• low current networks: central surveillance system where applicable, voice-data system, fire alarm system, telemedicine system, video surveillance systems where applicable, audio systems;</li> </ul>

<b>Space</b>	<b>Requirements</b>
	<ul style="list-style-type: none"> <li>• HVAC system specific to the medical space and the needs of that space;</li> <li>• backup electrical network;</li> </ul>
<b>Treatment and intervention rooms</b>	
Lighting	<ul style="list-style-type: none"> <li>• an automated economical artificial lighting with a colour intensity specific to the medical space will be provided;</li> </ul>
Finishes / Furniture	<ul style="list-style-type: none"> <li>• they will be equipped with a medical washer with sterile water or a washbasin connected to the usual water and sewage network.</li> </ul>
Installations	<ul style="list-style-type: none"> <li>• medical gas network with the following types of gases: compressed air, vacuum and oxygen;</li> <li>• low current networks: voice-data system, fire alarm system, telemedicine system, video surveillance systems where applicable, audio systems;</li> <li>• HVAC system specific to the medical space and the needs of that space;</li> <li>• backup electrical network;</li> </ul>
<b>Operating rooms</b>	
Volumetric requirements	The minimum height of the operating rooms will be 3.00m;
Categories	<p>The proposed operating rooms are of two types: septic and aseptic. The septic ones will be separated from the aseptic ones through a filter - through which the supply of materials and the access of patients or medical personnel will be carried out.</p> <p>The following categories of operating rooms will be provided:</p> <ul style="list-style-type: none"> <li>• risk class B operating rooms - ISO5 equivalent;</li> <li>• risk class C operating rooms - ISO7 equivalent.</li> </ul>
Installations	<p>The following types of medical gases will be provided:</p> <ul style="list-style-type: none"> <li>• medical oxygen;</li> <li>• medical compressed air - 4 bar</li> <li>• medical vacuum;</li> <li>• argon;</li> <li>• medical carbon dioxide.</li> </ul> <p>The following additional protective measures shall be taken for electrical consumer power systems:</p> <ul style="list-style-type: none"> <li>• automatic power switch-off;</li> <li>• making equipotential links;</li> </ul>

Space	Requirements
	<ul style="list-style-type: none"> <li>• limitation of touch voltage;</li> <li>• use of high sensitivity differential devices;</li> <li>• power supply with high sensitivity IT scheme;</li> <li>• individual electrical separation.</li> </ul> <p>The following low current systems will be provided:</p> <ul style="list-style-type: none"> <li>• electrical monitoring and access control systems;</li> <li>• door automation systems;</li> <li>• structured cabling / surveillance systems, TV and voice data;</li> <li>• nurse alarm systems;</li> <li>• telemedicine system;</li> <li>• electrical fire alarm systems.</li> </ul> <p><b>The ventilation and air conditioning equipment</b> will be decentralized to limit contamination and high redundancy. It is recommended to use the filtering ceiling system to ensure dry treatment of the room air temperature. The operating rooms will be equipped with laminar flow air conditioning equipment, including HEPA filtration, individual for each room. The entire ventilation and air conditioning system will be automated.</p>
<b>Farmacy</b>	<p>Pharmaceutical materials are stored in the central pharmacy and on different units, using centralized, robotic systems. Distribution from the central pharmacy to the units will be carried out through a pneumatic mail system.</p>
<b>Laboratory</b>	<p>Distribution from the central laboratory to the units will be done through a pneumatic mail system. Small niches with rapid analysis equipment will be installed in the departments with urgent needs.</p>
<b>Sterilization</b>	<p>The clean and dirty flows to access it will be separated. The transport will be carried out with trolleys.</p>

**Table 4** Requirements for equipping different spaces – synthesis

### 3.4.6. VERTICAL AND HORIZONTAL CIRCULATIONS

The areas proposed by the design theme **DO NOT include** areas allocated to vertical and horizontal circulations. They will be carefully sized and grouped together, reducing as far as possible their weight in relation to the total area of the building. The efficiency

of the surface used by the two types of circulation and the reaction time will be considered.

The vertical circulations will be grouped in traffic nodes, dimensioned according to the regulations and legislation in force (including fire evacuation). The vertical traffic nodes shall be sized to allow stretcher access, both in the elevator area and the escape stairs.

The horizontal circulations will have a minimum width of 2.20 m. Where monitoring posts are required to be positioned on circulation routes, they shall have a width of at least 2.80 m. The minimum height will be 2.40m.

The main networks of installations will be located along the horizontal circulation routes. If they do not have natural ventilation, they will be equipped with a smoke extraction system.

#### **3.4.7. FINISHES**

The interior finishes will be chosen in such a way as to comply with the regulation and legislation in force, in particular Order 914/2006 for the approval of regulation on the conditions a hospital must fulfill in order to obtain the sanitary authorization for operation.

The finishes of the hospital rooms where the patients stay or move or where medical activities are carried out will be:

- washable;
- resistant to disinfectants;
- resistant to radioactive decontamination (as appropriate);
- no dust-retaining asperities;
- bactericides (in aseptic spaces);
- non-generation of fibres or particles which may remain suspended in the air;
- resistant to acids (in laboratories and treatment rooms).

It is forbidden to use finishing materials that by their composition or by the way of application can favour the parasitic organisms (arthropods, mites, mould) or harmful substances that can endanger human health development.

### 3.5. FINANCIAL FEASIBILITY OF PROPOSALS

For the building related to the Children's Emergency Clinical Hospital Cluj-Napoca, the estimation of the total investment value was made starting with the cost indicators adopted within the feasibility study carried out by the Ministry of Health for the Cluj Regional Emergency Hospital, by reporting them to an average value / sqm built. The calculation was made by rounding up the estimated built-up area, from 61,400 sqm to 62,000 sqm. The values expressed are in euros, excluding VAT.

#### 3.5.1. FINANCIAL APPRAISAL - TOTAL INVESTMENT VALUE

	<b>Estimated price</b> (euro / sqm)	<b>Total</b> (euro, excluding VAT)
Estimated built area 62,000 sqm		
<b>Total Investment Value – Clinical &amp; Emergency Children's Hospital Cluj-Napoca building</b>	<b>2,830</b>	<b>175,460,000</b>
Total value C + M	1,700	105,400,000
C + M percentage of the total investment value		60%

**Table 5** Financial appraisal - Total investment value

#### 3.5.2. FINANCIAL APPRAISAL - DESIGN AND TECHNICAL ASSISTANCE COSTS

	<b>Estimated price</b> (euro / sqm)	<b>Total</b> (euro, excluding VAT)
Estimated built area 62,000 sqm		
<b>Total design and technical assistance costs – Clinical &amp; Emergency Children's Hospital Cluj-Napoca building</b>	<b>175</b>	<b>10,850,000</b>
Percentage of total investment value		6.18%
Percentage of C + M		10.29%
<b>Total design and technical assistance costs for the design team – Clinical &amp; Emergency Children's Hospital Cluj-Napoca building</b>	<b>105</b>	<b>6,510,000</b>
SCD estimated 62,000 sqm		
Percentage of total design value		60%
Percentage of total investment value		3.71%
Percentage of C + M		6.18%

**Table 6** Financial appraisal - Costs for design and technical assistance

## 4. DELIVERABLES RELATED TO THE COMPETITION

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### 4.1. TECHNICAL PROPOSAL

#### 4.1.1. AREA ESTIMATES TABLE - ACCORDING TO ANNEX 2.3.2

The competitors will complete and hand over the table included in Annex 2.3.2 in A4 format, summa the proposed surfaces and functional structure. The document will be anonymized according to the provisions of the Competition rules.

#### 4.1.2. COMPETITION BOARDS

The projects will be presented on a maximum of 6 (six) boards, A0 - 841 x 1189 mm format, oriented vertically (portrait), not overlaid on a rigid support. All drawings included on the boards will be identified, specifying the name of the item and the scale at which it is presented (for example: Ground floor plan, scale 1: 200). The boards will include the following written and drawn items:

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#### **Board 1**

##### **Objectives / Minimum requirements for written and drawn items**

Submit the proposed urbanization strategy for the plot under competition, highlighting the envisaged development stages.

<b>Written and drawn items</b>	<b>Scale</b>
<ul style="list-style-type: none"> <li>• 1 situation plan of the whole plot detailing:               <ul style="list-style-type: none"> <li>○ The proposed functions at the plot level and the synergies created between them;</li> <li>○ Integration of transport infrastructure elements already under design phase (Cluj Metropolitan Beltway) into the proposed solution;</li> <li>○ Spatial layout of urbanization stages;</li> </ul> </li> </ul>	1: 1500
<ul style="list-style-type: none"> <li>• 1 situation plan for the area dedicated to the Paediatric Hospital:               <ul style="list-style-type: none"> <li>○ The access points, the way of organizing the traffic in the area dedicated to the Paediatric Hospital, the manner of arranging / prioritizing the public, semi-public and / or private spaces will be presented.</li> <li>○ The plan will include a proposal for landscaping of the park and relaxation areas that will serve the hospital with details of the elements that contribute to increasing the physical and emotional comfort of patients and caregivers.</li> </ul> </li> </ul>	1: 750
<ul style="list-style-type: none"> <li>• 1 bird eye view, presenting the systematization proposal;</li> </ul>	graphics

### **Board 1**

#### **Objectives / Minimum requirements for written and drawn items**

- |  |          |
|--|----------|
| • Sketches, functional / volumetric schemes, collages, renderings and / or suggestive proposals detailing the proposed adjacent functions and how to correlate them with the considered urbanization stages; | graphics |
| • Explanatory text - maximum 500 words.  | graphics |

**Table 7** Board 1. Minimum required content

### **Boards 2 & 3**

#### **Objectives / Minimum requirements for written and drawn items**

Details the proposal regarding the building of the Emergency Clinical Children's Hospital Cluj-Napoca:

- how to occupy the plot;
- the volumetric concept and the spatial-functional organization.

#### **Written and drawn items**

	Scale
• Plans of all levels, with chromatic coding of the main functional groups;	1: 500
• Schematic presentation of the medical flows' organization, chromatically coded. The manner of representation is up to the competitor.	graphics
• 1 relevant section through the proposed volume;	1: 500
• 2 facades of choice, at least one of which will capture the main access to the building;	1: 500
• 2 external perspectives, of which at least one will be at eye level;	graphics
• Sketches, functional / volumetric schemes, collages, renderings and / or suggestive proposals highlighting the proposed solution;	graphics
• Detailing of the elements that customize the proposed solution related to the needs of paediatric patients;	graphics
• Summary of areas and number of beds according to the template included in Annex 2.3.3 Table of areas (template). <b>Including this element on one of the two boards and respecting the template presented in Annex 2.3.3 is mandatory.</b>	graphics

**Table 8** Boards 2 and 3. Minimum required content



### **Boards 4,5,6**

#### **Objectives / Minimum requirements for written and drawn items**

Detail the following areas:

- Access & reception area;
- Imaging area;
- Operating Room and Anaesthesia - Intensive Care area;
- A medical unit with a 25 or 30 beds capacity (the medical unit presented is of competitors choice)

Through sketches, functional / volumetric schemes, collages, images and / or suggestive proposals highlighting the solution, the competitors will detail, for each of the functional areas mentioned above:

- the elements that contribute to the standardization of spaces and services, at the entire building level;
- the elements that contribute to ensuring the physical and emotional comfort of patients and caregivers;
- the innovative elements included in their proposal;

<b>Written and drawn items</b>	<b>Scale</b>
<ul style="list-style-type: none"> <li>• <b>Excerpt from the ground floor plan detailing the access area to the building</b>, with all adjacent functions. The plan will also capture the relationship between the access area and the outdoor space and how to arrange it.</li> </ul>	1: 200
<ul style="list-style-type: none"> <li>• 1 outer perspective, at eye level in the access area;</li> </ul>	graphics
<ul style="list-style-type: none"> <li>• 1 inner perspective, at eye level, from the access area.</li> </ul>	graphics
<ul style="list-style-type: none"> <li>• Excerpt from the floorplan of the level (or levels) in which the <b>imaging area</b> is located, with the chromatic coding of the main functional groups.</li> </ul>	1: 200
<ul style="list-style-type: none"> <li>• Medical flows - schematic presentation, chromatically coded, either on the above-mentioned or on a separate plan.</li> </ul>	graphics
<ul style="list-style-type: none"> <li>• 1 inner perspective, at eye level, from the imaging area</li> </ul>	graphics
<ul style="list-style-type: none"> <li>• Excerpt from the plan of the level (or levels) in which the <b>Operating Theatre and the Anaesthesia - Intensive Care Unit</b> are located, with the chromatic coding of the main functional groups;</li> </ul>	1: 200
<ul style="list-style-type: none"> <li>• Medical flows - schematic presentation, chromatically coded, either on the above-mentioned or on a separate plan.</li> </ul>	
<ul style="list-style-type: none"> <li>• 1 inner perspective, at eye level, from the Anaesthesia - Intensive Care area;</li> </ul>	graphics
<ul style="list-style-type: none"> <li>• 1 inner perspective, at eye level, from inside an operating room;</li> </ul>	graphics
<ul style="list-style-type: none"> <li>• <b>The floor plan of a medical ward</b> selected by the competitor, with chromatic coding of the main functional groups.</li> </ul>	1: 200
<ul style="list-style-type: none"> <li>• Medical flows - schematic presentation, chromatically coded, either on the above-mentioned or on a separate plan.</li> </ul>	graphics

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**Boards 4,5,6**

**Objectives / Minimum requirements for written and drawn items**

- 
- 2 inner perspectives at eye level, from the selected unit: a perspective detailing the accommodation area and one detailing the treatment spaces. graphics

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  - Sketches, functional / volumetric diagrams, collages, images and / or suggestive proposals highlighting the proposed solutions; graphics

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  - Explanatory text - maximum 500 words / board. graphics

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**Table 9** Boards 4,5 and 6. Minimum required content

The boards may contain other elements considered important to support the proposed solution, but not exceeding the maximum number of 6 (six) boards in A0 format.

Competitors may submit a smaller number of boards provided that the following requirements are met:

- Compliance with the minimum requirements for written and drawn parts, detailed above;
- An urbanization strategy proposal for the plot subject to the competition;
- The functional and volumetric solution proposed for the Paediatric Hospital;
- Detailing the following functional areas:
  - Access & reception;
  - Imaging;
  - Operating Room and Anaesthesia - Intensive Care;
  - The medical unit with a 25 or 30 beds capacity (the presented medical unit of competitors choice).

With regards the general elements on each board, they will comply with the provisions of the Competition Rules, section 3.6.

#### 4.2. FINANCIAL PROPOSAL

Each project will include an estimate of the design services, completed according to **Annex 2.3.1 - Financial proposal**. The values in the financial proposal will be expressed in lei and will not exceed the maximum estimated threshold for design costs. The financial proposal will be part of the negotiation basis for concluding the design services contract with the winner of the competition.

## 5. EVALUATION CRITERIA

The criteria that will underlie the evaluation of the proposed solutions are the following:

	<b>Criterion</b>	<b>Max points</b>
<b>A</b>	<b>Complying with the spatial, functional and technical requirements</b>	<b>60 points</b>
<b>A1</b>	<b>Sustainability of urban intervention:</b>	<b>20 points</b>
	<p>Given the urban context in which we operate, the solution regarding the Emergency Clinical Children's Hospital cannot be evaluated outside a sustainable proposal for the systematization of the entire plot. Thus, the following aspects will be evaluated in particular:</p> <ul style="list-style-type: none"> <li>• Sustainability of the proposed plot systematization (in terms of functions, proposed urban density or permeability of the resulting functional nuclei);</li> <li>• The capacity of the proposed urban systematization stages to lead to a sustainable development of the plot;</li> <li>• Sustainability of the landscaping proposal for the land area dedicated to the Emergency Clinical Children's Hospital (the occupation of the plot, the fluidization of the relationship between public, semi-public or private spaces, the relationship with the rest of the proposed functions at plot level).</li> </ul>	
<b>A2</b>	<b>Functionality of the proposed solution</b>	<b>30 points</b>
	<p>The project aims at a complex medical function, burdened by a series of regulatory constraints, generated by the existing legal framework. In order to lay the foundations for a feasible approach, it is essential that the proposed solution meets all the spatial and functional requirements imposed by the design theme and respects the existing legal framework. Thus, in the evaluation of the projects, the following sub-criteria will be followed:</p> <ul style="list-style-type: none"> <li>• Integration of all the functions required by the competition brief and judicious use of space;</li> <li>• Correct resolution and optimization of the medical functions and flows by integrating innovative solutions;</li> </ul>	

	<b>Criterion</b>	<b>Max points</b>
	<ul style="list-style-type: none"> <li>Volumetric and functional adaptation of the solution to the specific requirements resulting from the predominant use of space by children or adolescents.</li> </ul> <p><b>The Competitors CANNOT change the total number of beds imposed by the design theme.</b> Any change in the total number of beds, i.e., 510 continuous hospital beds, 65 beds for attendants and 50 outpatient hospitalization beds, <b>results in a score of 0 (zero) for criterion A2 - Functionality of the proposed solution.</b></p>	
<b>A3</b>	<b>Financial offer for design services</b>	<b>10 points</b>
	<p>The criterion quantifies the value of the design services provided by the bidder. As it is a complex medical function, financed from public funds, it is important that the ratio between the services provided and their value is correct.</p> <ul style="list-style-type: none"> <li>The actual cost of the design and its inclusion in the maximum estimated cost threshold is a mandatory criterion.</li> <li><b>Failure to meet the maximum cost threshold results in a score of 0 (zero) for criterion A3 - Financial offer for design services.</b></li> </ul>	
<b>B</b>	<b>The expressive attributes of the intervention</b>	<b>40 points</b>
<b>B1</b>	<b>The quality of urban intervention</b>	<b>10 points</b>
	<p>The systematization solution of the plot dedicated to the competition brings with it the capacity of a development pole for an area in process of urbanization. The quality of the urban intervention thus plays an important role in defining the way in which the area located northeast of Borhanciului Street will be developed. Within this criterion, the following aspects will be evaluated:</p> <ul style="list-style-type: none"> <li>Ability of the systematization proposal of the plot to act as a development pole (quality of the proposed functional, spatial and volumetric relations);</li> <li>The quality of the landscaping proposal dedicated to the Emergency Clinical Children's Hospital (quality of the functional, spatial and volumetric relationships proposed, quality and ergonomics of the resulting spaces, the way they</li> </ul>	

<b>Criterion</b>	<b>Max points</b>
meet the needs of different categories of users: medical personnel, patients, caregivers, visitors, etc).	
<b>B2 The plastic expressiveness of the proposed volume</b>	<b>15 points</b>
<p>The architectural quality of the proposed volume brings added value both to the project, as a whole, and to the local community. With a correct approach, the project has the chance to become a landmark for this area of the city under development. The following aspects will be evaluated:</p> <ul style="list-style-type: none"> <li>• The potential of the solution to establish a model of good practice in terms of medical architecture.</li> <li>• The representative / contemporary character of the proposed volume.</li> </ul>	
<b>B3 The quality and atmosphere of the proposed spaces</b>	<b>15 points</b>
<p>The criterion evaluates the project's ability to generate <b>spaces centred around the patient's needs</b>, using the proposed finishes and the relationships between spaces to create a therapeutic environment capable of reducing the stress generated by the medical act.</p> <ul style="list-style-type: none"> <li>• The quality of the proposed spaces and the visual relationships generated, including the relationship with the natural environment;</li> <li>• Adapting the details and finishes to the specific needs of paediatric and / or adolescent patients, in order to reduce the physical and emotional discomfort related to the treatment and hospitalization period;</li> <li>• Easy in-hospital orientation (wayfinding) and ergonomic use of spaces to create a patient friendly environment.</li> </ul>	

**Table 10** Evaluation criteria - details

The calculation algorithm used for the final evaluation of the projects is the following:

**Final score (maximum 100 points) = Criterion A score + Criterion B score**

**Criterion A score** (maximum 60 points) = A1 + A2 + A3

**Criterion B score** (maximum 40 points) = B1 + B2 + B3

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The documentation was drafted based on:

- Medical brief provided by the Cluj County Council and developed by architect Raluca Șoaită.
- The evaluation study of the structure of the Emergency Clinical Children's Hospital Cluj-Napoca, provided by the Cluj County Council and developed by MD Alexandru Coman.