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COMPARATIVE ANALYSIS OF THE OPTIMAL LOCATION FOR A NEW PUBLIC NURSERY: A CASE STUDY OF THE CELESTYNÓW COMMUNE

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ABSTRACT

This article presents a comparative analysis of potential locations for a new public nursery in the Celestynów Commune. The study employs a multi-criteria evaluation approach, integrating spatial, environmental, and social factors to identify the optimal site. Key aspects considered include accessibility, safety, proximity to residential areas, and environmental conditions such as sunlight exposure and noise levels. Analysis based on field observations and collected baseline data highlighted the benefits and trade-offs associated with each proposed location. The findings provide valuable insights for local planners and decision-makers to ensure the nursery's location promotes accessibility, child safety, and a healthy developmental environment. This case study illustrates how systematic pre-design assessments can effectively guide public infrastructure placement in small communities.

Keywords: public nursery, site selection, spatial analysis, urban planning, community development, Celestynów

INTRODUCTION

The establishment of early childhood education facilities is a critical component of community development, shaping not only the educational landscape but also influencing social and spatial dynamics within localities. In contemporary urban and suburban settings, the demand for accessible, affordable and well-equipped nursery spaces reflects broader demographic trends and societal shifts towards supporting young families (Palley & Usui, 2008). Various reports show that accessibility to nurseries differs between urban, suburban and rural areas, and remains difficult in the latter. As people in Poland choose educational institutions largely based on their location, it becomes a crucial factor (Baczko-Dombi, Komendant-Brodowska & Zając, 2015). Currently, only a small portion of the population in Poland uses institutional childcare for children under three years old. Changing that could also support the professional activity of mothers who do not want to remain outside the labour market for too long, thereby benefiting the economy (Piętka-Kosińska & Ruzik-Sierdzińska, 2010). In some cases, an apparent surplus of nursery places over the number of children is misleading; it does not result from a systematic excess of supply over demand for these places, but from problems resulting from the data collection system (Kurowska & Szczupak, 2016). Data from Statistics Poland (GUS) show that in Poland, the universality of care provided by nurseries and children's clubs is increasing, but it is still far from

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meeting the revised Barcelona goals (Racław, 2024). As Blumsztajn (2007) points out, the high educational quality of the facilities, their accessibility and their flexibility and adaptation to the needs of working parents seem to be the aspects that should be most emphasised when considering a childcare system for young children.

When planning such facilities, the decision regarding their location and the form of their integration into the existing urban fabric is paramount. The spatial distribution of preschool education facilities is one of the crucial factors in their accessibility (Wang, Zhao, Lu & Li, 2024). These choices affect not only the usability and functionality of the facility but also its accessibility, safety, and long-term sustainability (Ratajczak & Basińska, 2021; Ambrose et al., 2024). Spatial analyses of similar character – regarding the optimal location for a specific building – were conducted and published; however, they are not limited to nurseries. Some of those studies used GIS-based systems to evaluate current locations and suggest alternative spatial arrangements (Köse, Koçyiğit, Erdem & Jega, 2021). In other cases, it is not only the location that is being analysed, but broader, multi-criteria models are used for decision-making regarding the adaptations of buildings (Nedeljkovic, Jurenic & Djokic, 2023; Starzyk et al. 2023). Interestingly, the location of the analysed buildings appears vividly throughout those models. Parallelly, there are multiple studies on educational buildings that concentrate on the quality of architecture, particular design solutions, and how they affect and meet the needs of its different users (Moura e Sa & Saraiva, 2001; Astaresh, Fakhimzade & Rezaee, 2015; Lindén et al., 2024; Sungur, 2024).

In the case of the Celestynów Commune, two principal strategies emerge for meeting the demand for new facilities through the adaptation of existing kindergarten infrastructure. The first involves expanding the current kindergarten building to encompass nursery functions, thereby creating a multi-age educational environment that maximises resource use and site potential. The second approach proposes a complete conversion of an existing kindergarten facility into a dedicated nursery space, focusing on tailoring the environment specifically for the developmental needs of infants and toddlers.

Both scenarios necessitate comprehensive architectural modifications to ensure appropriate internal layouts, safe and stimulating environments, and compliance with regulatory standards for younger children. The surrounding outdoor spaces must be adjusted to provide age-appropriate play areas. It is especially important to provide access to nature in the places where children live, play, and learn (Chawla, 2015). While the degree of urbanisation had significant negative influences on the frequency of direct experiences of nature (Soga, Yamanoi, Tsuchiya, Koyanagi & Kanai, 2018), the suburban commune of Celestynów offers relatively good access to it. However, given the limited mobility of children of nursery age, accessibility to nature is significantly different from that of adults and should be carefully considered. Additionally, technical infrastructure upgrades are required to support the enhanced needs. Universal design adaptations benefit the overall inclusiveness and spatial accessibility (Jung, Elsamanoudy & Abdelaziz Mahmoud, 2025). Such transformations illustrate the complexities inherent in repurposing educational buildings, where balancing functional requirements, budget constraints, and community expectations becomes a delicate task.

Through a comparative analysis of these alternatives, this study aims to provide evidence-based recommendations to guide local authorities and planners in making decisions about nursery development. By assessing spatial, functional, and infrastructural factors, the study contributes to the ongoing discourse on efficient and effective early childhood education facility planning, with implications extending beyond Celestynów to similar communities facing comparable challenges.

MATERIAL AND METHODS

This study presents an original analysis aimed at identifying the optimal location for a new public nursery within the existing urban fabric of the Celestynów Commune. It is based on work commissioned in 2023 and was prepared along with a design concept in the architectural studio AMIRI architekci (Amiri, 2023).

The evaluation focused on two potential sites involving either the expansion of an existing kindergarten facility to include nursery functions or the complete conversion of a kindergarten building into a nursery. Both options required consideration of architectural modifications, landscape adjustments, and technical infrastructure upgrades to meet the specific needs of younger children.

Data for the analysis were gathered from municipal records and site inspections. The selection criteria included accessibility, proximity to residential areas, suitability of the existing building layout for adaptation, and compliance with current safety and educational standards. The study integrates spatial analysis with consultations involving local stakeholders to ensure alignment with community needs and expectations.

The findings are supported by graphical presentations and tabular data, drawing on pre-design assessments, architectural standards, and the relevant literature. Conclusions are derived from this comprehensive evaluation.

RESULTS

Site analysis and comparison

This section presents a detailed comparative analysis of two potential locations for the new public nursery, focusing on terrain conditions, existing infrastructure, and potential for expansion.

Location A is situated in the densely developed village centre of Celestynów, approximately 350 m from its centre, the municipal cultural and sports centre, and the public library, and about 1 km from the train station. The site covers an area of 5,559.5 m^2 and currently hosts a two-storey kindergarten building with a footprint of 1,346 m^2 (Table 1). Adjacent to the building is a large car park with approximately 40 spaces and a playground for kindergarten children. The building, shaped in a T-plan with a sloped roof, accommodates eight kindergarten classes and related facilities. Its southwestern position on the plot, coupled with existing tall trees primarily along the northern boundary, suggests that the most viable expansion option involves extending the southern part of the building to preserve adequate sunlight for new classrooms (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.). The site is well-equipped with utilities, including stormwater drainage, sanitary sewerage, electricity, telecommunications, gas, and water connections. Additionally, the presence of low vegetation within the area is unlikely to impede expansion plans. There is no direct connection to nature apart from a few trees along its northern border.

Location B is in Stara Wieś, a village in the northern part of the Celestynów Commune, approximately 80 m from a primary school and 250 m from a train station. The plot, with an area of 2,317.4 m^2, includes a kindergarten facility comprised of a historic residential building converted for educational use, alongside an adjacent newer structure added in 2011 (Table 1). Both original and expanded sections feature a sloped roof. The building is elevated approximately 50 cm above the surrounding ground level. A green playground area is situated in the northern part of the plot. The orientation of the building favours placing new nursery units on the northern side to capitalise on east and west sun exposure (Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 25 maja 2023 r.). Existing infrastructure includes water and sanitary sewerage within the site, with nearby access to electricity and gas from adjacent roads. The presence of a single tall tree and some low shrubs around the plot's perimeter may require consideration during expansion (Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 25 maja 2023 r.). Despite the short distance to the forest, the site is separated by a street that effectively prevents access to it for children of nursery age.

Comparatively, Location A benefits from its central position within the commune, with immediate access to several public amenities, making it more accessible and potentially more attractive to parents. Furthermore, the village of Celestynów, with approximately 5,000 inhabitants, is the biggest in the commune, which further supports this location. Conversely, Location B, situated on the commune's outskirts, offers more available open space on the plot (Table 1), allowing for expansion with fewer constraints to the existing building structure and playground. This spatial advantage facilitates the creation of new, age-appropriate playground facilities.

Table 1. Existing land development in both locations

Specification	Area [m^2]		Share in the general area [%]	
	Location A	Location B	Location A	Location B
Plot area	5,559.53	2,317.40	100	100
Existing buildings	1,346.18	334.80	24.21	14.44
Roads and car parks	916.47	0	16.48	0
Pavements	499.29	64.8	8.98	2.80
Building perimeter	56.03	41.54	1.01	1.79
Greenery	2,598.01	1,876.26	46.74	80.97
Safe surfaces	143.55	0	2.58	0

Source: AMIRI architekci (Amiri, 2023).

Although both sites are outside the boundaries of the current local development plans, they are designated in the commune's spatial study as suitable for kindergartens and public schools. Both locations are connected to necessary utilities, supporting their potential for adaptation to the nursery function (Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 6 marca 2025 r.).

In conclusion to this section, Location A is favoured for its centrality and integration with community resources, while Location B offers greater spatial flexibility for expansion. Further planning must balance these factors to determine the optimal site for the new public nursery.

Existing architecture

This section examines the architectural characteristics, construction quality, and accessibility features of the two potential nursery locations.

Architectural form

Location A features a two-storey building constructed using traditional techniques, capped with a sloped roof. The ground floor houses kindergarten classrooms primarily in the western wings, along with changing rooms and a kitchen. The attic contains offices, administrative spaces, and a boiler room; however, a significant portion of the attic remains unfinished and undeveloped.

Location B comprises a former two-storey residential building adapted for kindergarten use, with a northern extension added in 2011. The ground floor of the original structure accommodates play areas, changing rooms, and a boiler room, while the attic includes children's rooms and a common area. The building features two sloped roofs corresponding to the original and expanded sections. Notably, the attic layout does not comply with current fire safety regulations or standards concerning height and natural lighting according to currently applicable regulations concerning the technical conditions of buildings and their location (Table 2).

Table 2. Existing architecture in both locations

Specification	Location A	Location B
Number of storeys	2 above ground level	2 above ground level
Building height [m]	8.60	8.10
Building length [m]	34.26	19.79
Building width [m]	61.21	20.75
Usable area [m^2]	2,011.74	279.72
Building area [m^2]	1,346.18	334.80

Source: AMIRI architekci (Amiri, 2023).

Construction quality

Both buildings were erected using traditional construction methods. Location A is reported to be in good technical condition, with reinforced concrete ceilings. In contrast, Location B's original structure, designed for residential purposes, will require evaluation to verify the adequacy of the ceiling strength for continued nursery use on the upper floor according to currently applicable regulations concerning the technical conditions of buildings and their location. The 2011 extension is single-storey and similarly constructed using traditional techniques.

Accessibility

Both locations offer external ramps facilitating access for wheelchair users and caregivers with children. However, neither building is equipped with a lift, rendering the second floor inaccessible to individuals with mobility impairments. Location A includes a toilet adapted for people with disabilities, whereas Location B lacks such facilities, but they are necessary according to currently applicable regulations concerning the technical conditions of buildings and their location (Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 6 marca 2025 r.).

Recapitulation

Location A presents a structurally sound two-storey building, erected with traditional construction methods. The absence of a lift, however, restricts access to the upper floor for users with disabilities. Location B, originally a residential structure adapted for kindergarten use, requires careful structural assessment, especially concerning ceiling strength and fire safety compliance. Accessibility limitations are similar to those of Location, compounded by the absence of accessible toilets. Future modernisation and expansion plans for both locations must address compliance with fire safety, room height, and natural lighting regulations to ensure a safe, functional environment for children and staff (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.). Additionally, integrating accessibility features such as lifts and accessible toilets is essential to provide equitable access for all users, regardless of physical ability.

Site design concept

In the course of design development, two variants were proposed – each tailored to one of the analysed sites (Figs 1 and 2). These proposals focus on the adaptation of existing kindergarten plots to accommodate nursery functions, while addressing safety, accessibility, and outdoor space requirements.

At Location A, the primary access to the site remains unchanged, with entry provided from the east via Szkolna along an internal road. Similarly, Location B retains access from the northeast, via Mickiewicza. In both locations, the existing vehicular approaches are deemed sufficient, particularly in terms of compliance with fire vehicle access regulations. At Location A, the internal road system meets the 30-metre access requirement, while at Location B, emergency vehicles are able to approach directly from the adjacent public street (Rozporządzenie Ministra Spraw Wewnętrznych i Administracji z dnia 24 lipca 2009 r.).

Parking conditions differ between the two sites. Location A already offers approximately 40 on-site parking spaces, and no further expansion is planned, as this capacity is currently considered adequate. Location B, on the other hand, lacks dedicated on-plot parking. As part of the development proposal, reliance on existing parallel parking along Mickiewicza is anticipated. While both sites presently meet functional requirements, final decisions regarding parking adequacy will depend on local planning and building permit stipulations.

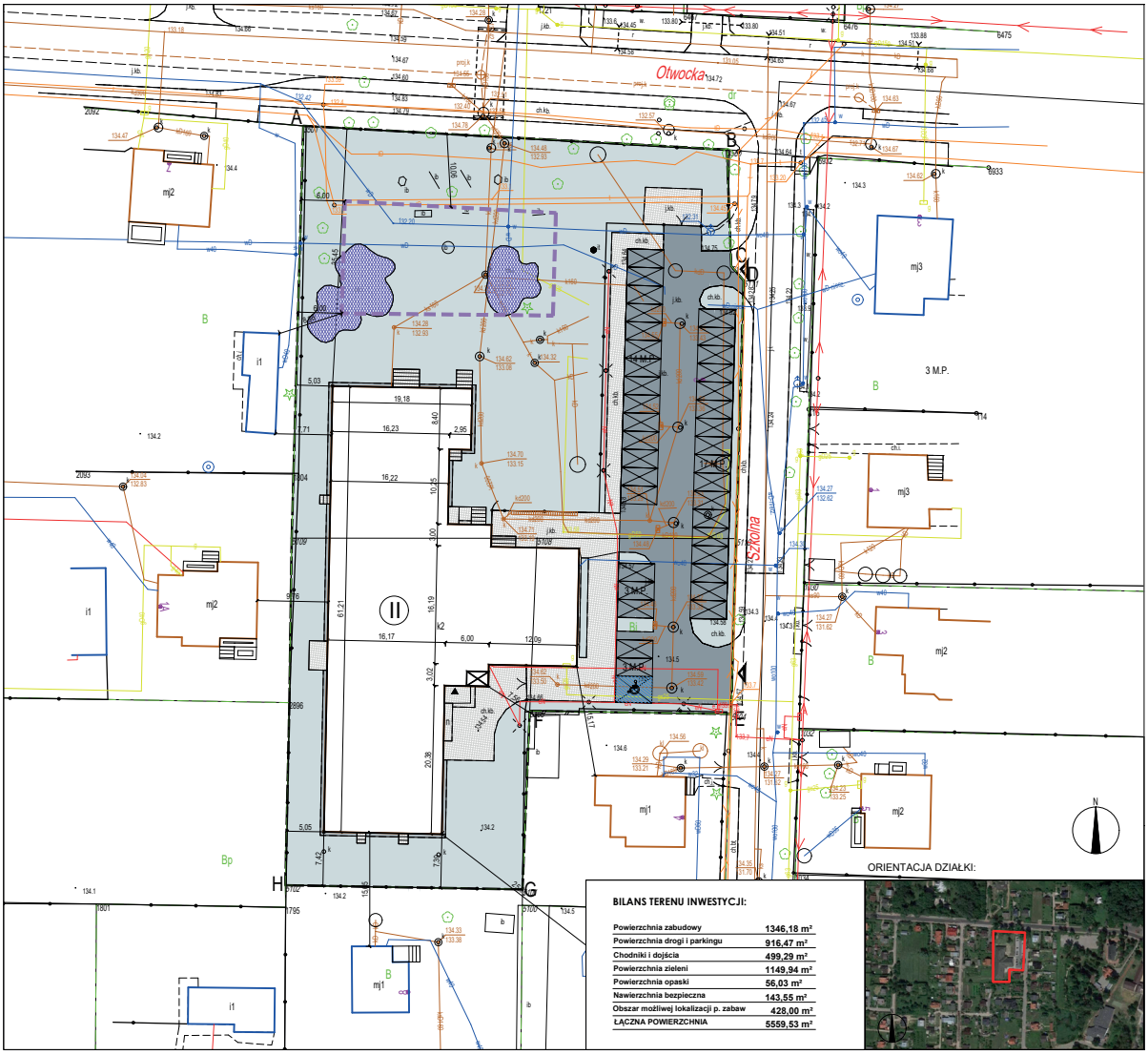

Fig. 1. Site design in Location A (Celestynów)

Source: AMIRI architekci (Amiri, 2023).

Pedestrian access and circulation are more significantly impacted at Location B. In Location A, the existing pedestrian paths are expected to remain in use without modification. However, the reorganisation of the main entrance at Location B requires the introduction of a new walkway and ramp system. These changes are intended to bridge a slight elevation difference between the existing and expanded sections of the building and to ensure full accessibility for individuals with limited mobility in accordance with universal design standards.

Outdoor space plays a critical role in early childhood facilities, and both proposals integrate playground design into the site planning process. Each plot complies with national spatial regulations regarding minimum distances between playgrounds and nearby boundaries, waste collection areas, and building openings (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.). In Location A, the playground

will be upgraded and reconfigured to meet the requirements of nursery-aged children. In Location B, where the existing kindergarten will be entirely converted to a nursery, the entire playground area will require reprogramming and new equipment installation. In both cases, sufficient space is available to accommodate the necessary adjustments, with the proposed playground area in Location B totalling 198.4 m^2.

Terrace spaces have also been incorporated to support the developmental needs of infants and toddlers. According to §4(2) of the Regulation of 7 December 2018, concerning sanitary standards for nurseries and children's clubs, access to outdoor space such as verandas or terraces should be provided (Obwieszczenie Ministra Rodziny, Pracy i Polityki Społecznej z dnia 7 grudnia 2018 r.). Location A includes terraces on both levels of the building, located on the southern façade and accessible from nursery rooms on the first floor. In contrast, Location B offers a single ground-level terrace on the northern side, designed for direct access to both indoor nursery spaces and the adjacent playground. In terms of facilities for waste storage, both sites are already equipped with dedicated shelters, and no additional infrastructure in this regard is necessary.

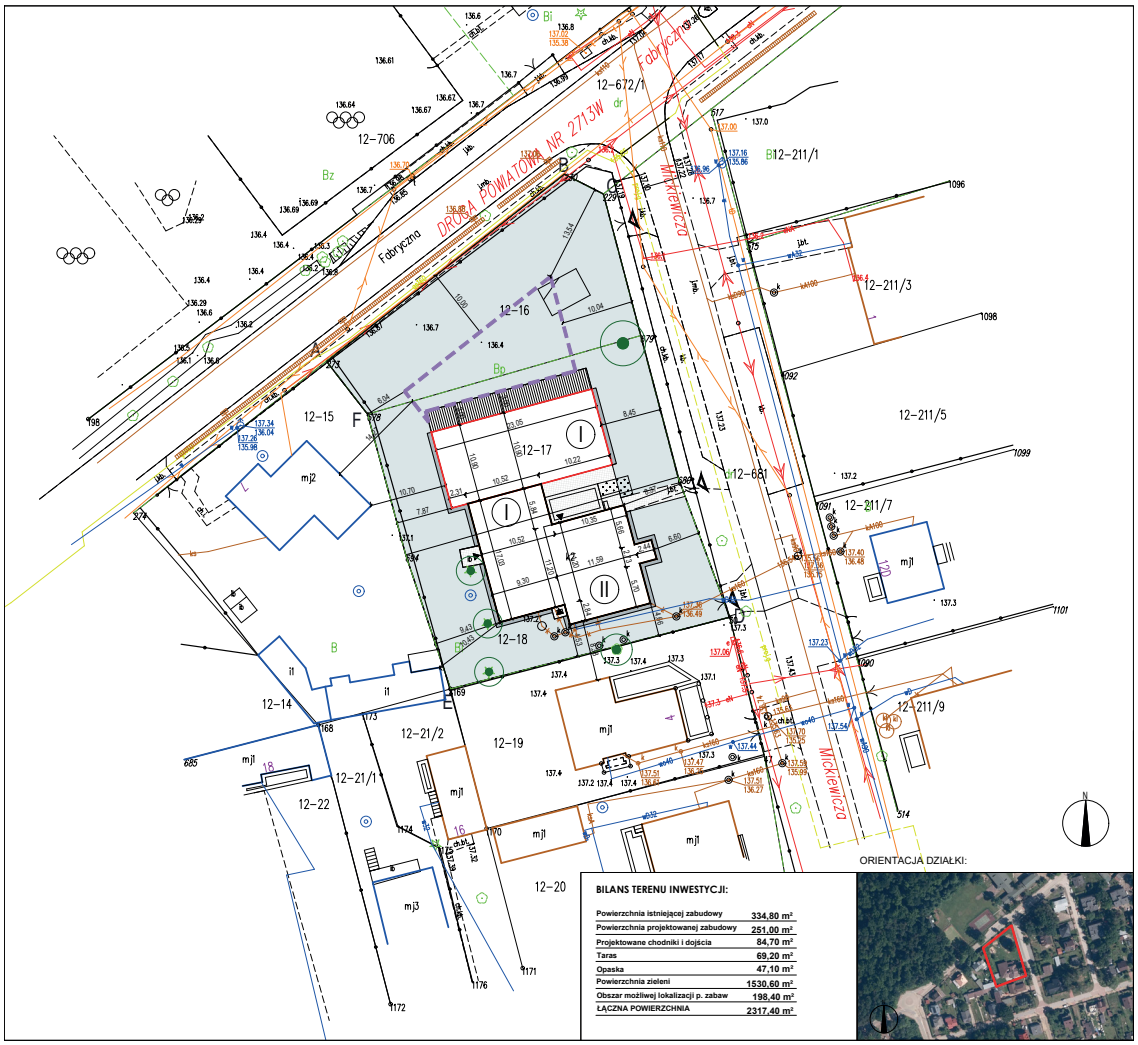

Fig. 2. Site design in Location B (Stara Wieś)

Source: AMIRI architekci (Amiri, 2023).

Overall, neither of the proposed design concepts requires substantial alterations to the existing landscape. Both sites offer adequate fire and vehicular access, potential for accessible pedestrian circulation, and space for age-appropriate outdoor activities. Location A benefits from a more developed internal infrastructure, particularly in terms of parking and existing walkways, while Location B requires minor modifications to achieve the same level of functionality (Table 3). Both sites demonstrate strong potential for successful adaptation to nursery use.

Table 3. Designed land development in both locations

Specification	Value [m^2]		Share in the general area [%]	
	Location A	Location B	Location A	Location B
Plot area	5,559.53	2,317.40	100	100
Existing buildings	1,346.18	334.80	24.21	14.44
Building expansion	0	251.00	0	10.83
Roads and car parks	916.47	0	16.48	0
Pavements	499.29	84.70	8.98	3.65
Terrace	0	69.20	0	2.99
Building perimeter	56.03	47.10	1.01	2.03
Greenery	2,598.01	1,530.60	46.74	66.06
Safe surfaces	143.55	0	2.58	0
Area of the potential playground location	428.00	198.4	7.70	8.56

Source: AMIRI architekci (Amiri, 2023).

Architectural concept

The architectural proposals for both Location A and Location B involve tailored interventions designed to expand nursery facilities while responding to the constraints and qualities of the existing buildings. In both cases, the goal is to improve functionality, ensure compliance with accessibility standards, and minimise disruption to the architectural integrity of the original structures.

At Location A, the proposal centres on extending the building's southern and central zones to accommodate new nursery rooms, a meal distribution centre, and dedicated administrative space. The northern portion, where no expansion is planned, is intended for office and administrative use – both for the nursery and to compensate for the kindergarten's facilities displaced by the installation of a new lift (Fig. 3).

The roof form in the southern section must be adjusted to allow for the creation of a terrace with direct access from the nursery rooms, a functional requirement that necessitates significant architectural modifications. A lift is to be introduced at the edge of the building, replacing the former porter's lodge. This placement has been selected to minimise structural disruption, though changes to the roof and the addition of a vertical shaft are still required. In addition, a freight lift will be installed to transport meals from the kitchen to the second-floor distribution centre, resulting in further modifications to both structure and function. The ground-floor porter's office and the first-floor nurse's room will be removed as part of these changes. Their functions will be relocated: administrative offices and a new nurse's office are planned for the northern section, while three new nursery units will be in the south. The new roof and façade elements generated by these extensions are to be harmonised with the architectural character of the existing building to preserve its visual coherence and heritage value (Fig. 4).

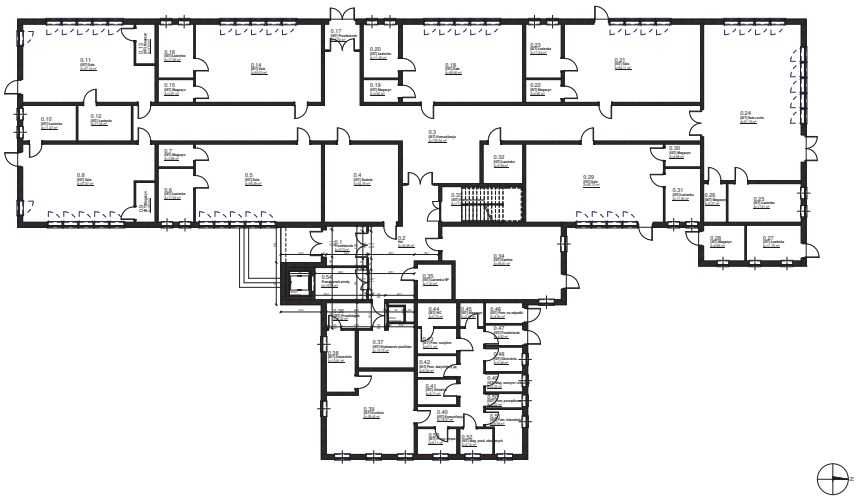

Fig. 3. Ground floor plan in Location A (Celestynów)

Source: AMIRI architekci (Amiri, 2023).

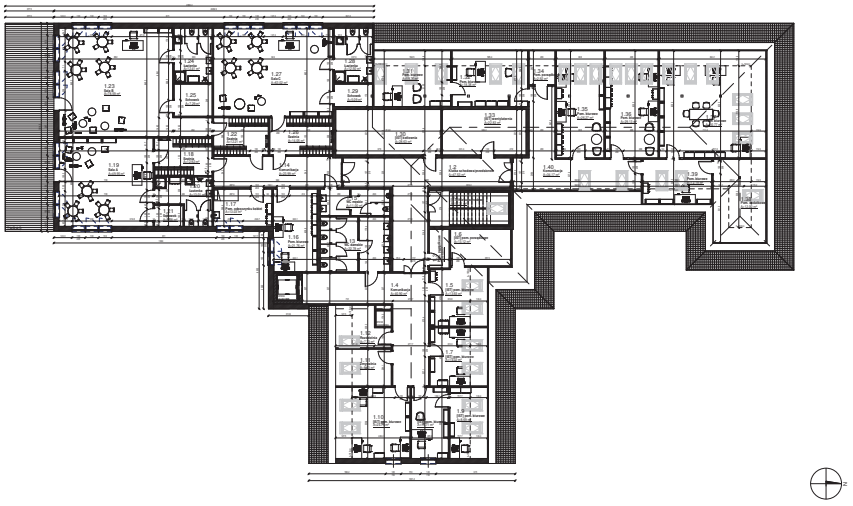

Fig. 4. First floor plan in Location A (Celestynów)

Source: AMIRI architekci (Amiri, 2023).

In contrast, the architectural strategy for Location B involves constructing a new, single-storey structure on the northern side of the existing building (Fig. 5). This addition, conceived as a separate but visually integrated component, will be structurally independent. Designed to be consistent with the original architectural language, it will require adjustments to the existing annexe's roofline and stormwater drainage. The new section will house two nursery units, complete with locker rooms, toilets, and supporting technical and administrative spaces.

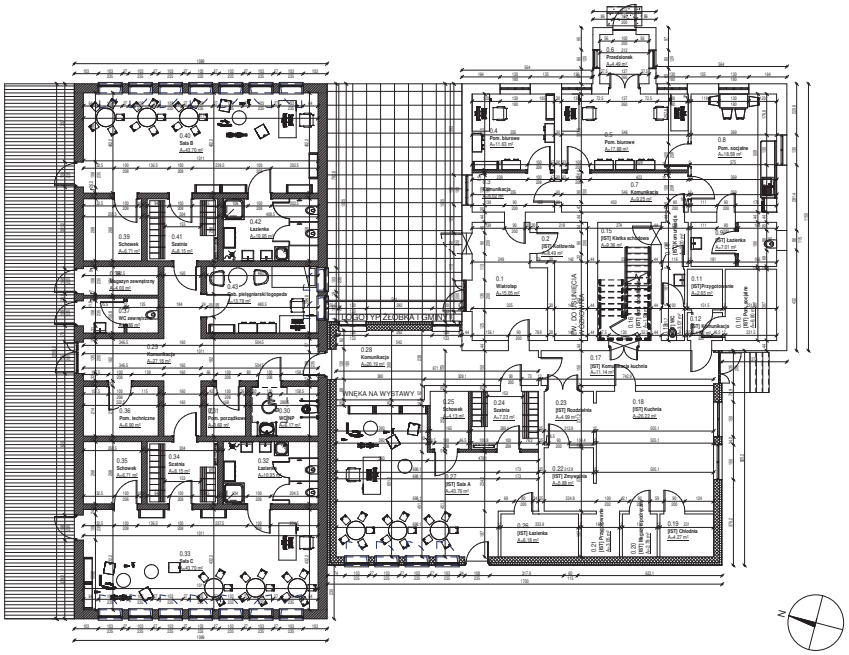

Fig. 5. Ground floor in Location B (Stara Wieś)

Source: AMIRI architekci (Amiri, 2023).

Inside the existing building, selective alterations to partition walls are planned to accommodate new locker rooms and reallocate administrative offices. The first floor, however, is to be closed entirely, as the rooms located there do not meet current fire safety or spatial standards (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.). The building's oldest section will be repurposed using existing partition walls, ensuring a minimal level of intrusion.

Construction considerations

Location A involves extensive structural work. To admit sufficient natural light into the upper rooms, significant modification of the roof's wooden truss is required – effectively amounting to an additional floor. A structural analysis of the ground floor ceiling is essential to assess whether it can bear the new loads; reinforcement may be needed, especially around the lift shaft. The installation of the passenger lift, while aligned with an outer wall for ease of construction, entails foundational intervention and the introduction of a pit, adding to the project's complexity. Given the invasive nature of the work, temporary or complete closure of the building during the construction phase will likely be unavoidable (Table 4).

Location B, by contrast, poses fewer structural challenges. The new building will not impose loads on the existing one due to the expansion joint. However, the northern portion of the existing roof must be redesigned to ensure proper water runoff, as the current slope directs water toward the proposed extension. Should the 2011 annexe be affected, the existing northern windows would need to be removed, and new ones added on the western façade. A new compliant entrance door will be inserted into the northern elevation. There is also potential to relocate the boiler room to the new part, but this would necessitate designing an independent heating system for each part of the complex. Functional changes to the original building, such as widening previously sealed openings, are minimal and structurally non-invasive (Table 4).

Table 4. Designed architecture in both locations

Specification	Location A	Location B
Number of storeys	2 above ground level	1 above ground level (existing attic closed for use)
Building height [m]	8.60	8.10
Building length [m]	34.26	27.89
Building width [m]	61.21	20.75
Usable area [m^2]	2,009.92 (of which 654.3 redesigned)	151.59
Building area [m^2]	1,346.18	319.97

Source: AMIRI architekci (Amiri, 2023).

Accessibility

Accessibility requirements inform both proposals, albeit with differing levels of complexity. At Location A, a passenger lift must be added to enable full access to the first floor. While this intervention is relatively contained, it still requires modifications to the roof and vertical circulation core. Although an accessible toilet exists on the ground floor, a similar facility must be provided on the upper level. Corridors, both existing and proposed, are sufficiently wide to support barrier-free movement.

Location B is designed with accessibility from the outset. All door widths and access points in the new section accommodate individuals with reduced mobility, and an accessible toilet is included. Since the upper floor of the old building will be closed, the need for a lift is effectively eliminated, streamlining compliance with accessibility standards (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.).

Recapitulation

Location A, while offering logical functional arrangements, presents several architectural and technical challenges. The necessity of raising part of the building and altering the rooflines has significant implications for the building's external appearance and structural performance. While the design addresses immediate needs, its long-term architectural impact remains uncertain.

Location B appears more promising in terms of both construction feasibility and architectural cohesion. The proposed extension, designed as a second wing, offers an opportunity to restore a sense of symmetry and completeness to the complex. Moreover, this expansion could visually reconcile the somewhat disjointed 2011 annexe with the older structure. Internally, after removing some secondary partitions, it would be possible to create a large, flexible space with sanitary facilities – potentially serving a range of future functions beyond nursery use.

In both scenarios, compliance with accessibility and building regulations is a critical factor. However, the overall construction burden is significantly higher in Location A, and the visual outcome of its extension remains difficult to anticipate. Location B, while not without its constraints, offers a clearer architectural resolution and a more manageable construction process.

Fire safety

Category

Both proposed sites fall under the ZL II classification, indicating buildings intended primarily for use by individuals with limited mobility (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.). This classification carries specific requirements related to evacuation, fire resistance, and accessibility, all of which have been incorporated into the respective architectural concepts for each location.

Building and fire-resistant class

In the case of Location A, the building is a low-rise (N-class building), two-storey structure exceeding 750 m^2 in usable area. As such, it requires a fire resistance Class C, which necessitates the use of fire-retardant materials and the introduction of a fire separation wall (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.). These design features ensure the containment of fire and smoke, especially in larger and vertically developed buildings.

Conversely, Location B comprises a low-rise (N-class building), single-storey structure. According to fire safety regulations applicable to ZL II buildings of this scale, a fire resistance of Class D is deemed sufficient. This distinction not only reflects the lower fire resistance needed but also reduces the complexity of required construction measures.

Spatial placement and distances for fire safety

The spatial positioning of buildings in relation to adjacent structures plays a crucial role in passive fire protection strategies. Location B maintains a compliant minimum distance of 8 m from neighbouring ZL and PM category buildings, in accordance with applicable regulations. However, Location A does not meet this requirement due to the proximity of surrounding structures to the plot boundary. As such, the implementation of the project in Location A will necessitate obtaining a derogation from fire separation distance regulations. This will entail additional administrative procedures and may lengthen the project timeline. Furthermore, the proposed placement assumes that the roofs of neighbouring buildings meet a minimum fire resistance rating of RE30 – an assumption that must be verified during the construction documentation phase.

Evacuation

The evacuation strategies for both locations have been carefully designed to meet the strict criteria set forth for ZL II buildings. In Location A, corridor lengths on the first floor do not exceed the 10-metre evacuation distance to the next fire zone in places with only one evacuation route, and all nursery room doors are designed to open outward to facilitate rapid evacuation in rooms accommodating more than six people. The length of evacuation routes remains within the 40-metre limit (with two or more evacuation routes) and avoids passage through more than three rooms. Corridor widths are designed to meet the 140 cm minimum requirement, ensuring sufficient space for the movement of individuals, including those with limited mobility.

In Location B, similar fire safety provisions have been implemented. Corridors and evacuation paths do not exceed regulatory length limits and provide direct access to the outside. Door orientation and corridor widths follow the same rules as in Location A. An additional benefit of this site is that many rooms allow direct evacuation to the exterior, which enhances safety. However, the first floor of the older part of the building must be closed for use, as the existing staircases do not conform to fire safety regulations concerning both the width of evacuation stairways and the maximum allowed length of evacuation routes (Obwieszczenie Ministra Rozwoju i Technologii z dnia 15 kwietnia 2022 r.). Achieving compliance in this regard would require extensive structural modifications, which have been deemed impractical within the current project scope.

Sanitary regulations and food provision

Sanitary facilities and ventilation

In Location A, following the anticipated expansion, more than twenty women are expected to be employed simultaneously in the building. In accordance with applicable regulations, the inclusion of an additional, dedicated women's toilet is required. On the first floor, new toilets are being designed adjacent to each nursery room, ensuring that every nursery unit is equipped with sanitary facilities that meet the regulatory

standards. Additionally, employee toilets for the office and administrative areas are being expanded to accommodate the increased number of staff. The placement of all new toilets has been strategically planned to utilise the existing shafts, thus minimising the need for extensive infrastructural modifications. It is further recommended that the facility be equipped with a mechanical ventilation system, enhancing indoor air quality and aligning with contemporary hygiene standards for childcare environments.

In Location B, the newly designed nursery units include toilets that comply fully with current regulatory standards. Across the facility, two toilets are accessible to staff: one located in the new section of the building, designed to accommodate individuals with disabilities, and a second, pre-existing toilet situated near the staircase. However, this existing facility will require adaptation to meet contemporary sanitary regulations. The proposed alterations ensure compliance while maintaining the building's operational continuity.

Food provision and kitchen facilities

In Location A, given the vertical functional division and the requirements imposed by sanitary regulations, it is necessary to create a food distribution centre and a dedicated washing room on the first floor. These spaces must be functionally connected to a freight lift, allowing efficient vertical transport of food from the kitchen to the nursery units. The existing kitchen has been assessed as adequate in terms of size and capacity, and no enlargement is required to support the new nursery units. The integration of these service functions within the existing structural layout facilitates regulatory compliance without major reconstruction.

In Location B, the number of children to be accommodated remains similar to current levels. However, the existing kitchen infrastructure fails to meet sanitary regulations. Key deficiencies include the intersection of "clean" and "dirty" pathways, the absence of essential functional spaces, and a limited usable area. To comply with current hygiene and food handling standards, the kitchen would need to be expanded by approximately 50–70% of its current size.

To meet that demand, two alternative approaches are proposed. The first involves direct expansion of the kitchen, which could be achieved by repurposing part of the adjacent unit. This would, however, lead to the reduction of nursery space, necessitating the creation of an additional nursery unit elsewhere. To mitigate this impact, a redistribution of administrative spaces could be considered – relocating one or two offices from the existing building to the new annexe. Consequently, the nursery units in the new extension could be enlarged (e.g. accommodating two groups of 23 children instead of three groups of 15), thereby maintaining the facility's overall childcare capacity.

The second approach would be to exclude the section containing the kitchen from the scope of the current development project. While this option avoids expansion costs, it would require formal approval from multiple authorities, including the architectural department, the sanitary inspectorate, and other relevant agencies overseeing final commissioning. Its feasibility depends on external administrative decisions and thus introduces uncertainty into the implementation timeline.

Additionally, in Location B, the facility's entrance area must be redesigned to ensure direct, hygienic circulation between the kitchen and the nursery units. Current spatial arrangements require food to be transported through the main vestibule – a practice that is not compliant with sanitary standards.

CONCLUSIONS

Analyses prepared for a particular building type in a particular municipality or commune often remain in the form of a technical report and are usually not intended for publication. One of the reasons might be that these documents are thought to be of marginal use for the broader public, given the selective goal, target audience and adopted perspective. The other might be that they contain information that is considered not intended for publication, especially that of a financial nature. It is therefore challenging to form a suitable

comparison of aspects that are taken into consideration while choosing a proper location for an educational building, notably for a nursery. The specificity of a case study hinders a broader application, yet there are facets that can be found in analogous studies and thus are worth emphasis. This study is focused on those that could be conveniently ubiquitous. The discussed aspects can be profitably analysed in similar processes in the future, in spite of the exact level of education – it can be appropriately adjusted to nurseries, kindergartens and possibly schools. Public institutions seeking to broaden their educational offer could benefit from applying them to particular cases of their own, which could lead to optimising the process and result in choosing the appropriate location for a new building or new public service.

The comparative analysis of the two locations – Location A in central Celestynów and Location B in Stara Wieś – highlights a fundamental trade-off between centrality and implementation feasibility. Location A benefits from proximity to other public services and the existing social infrastructure, offering convenience for local families. However, its constrained spatial conditions and structural limitations present significant challenges for expansion. In contrast, Location B, although located in a smaller and less central village, offers greater architectural flexibility and fewer logistical complications during construction (Gao, Wargocki & Wang, 2014).

The technical assessment reveals that Location A would require complex and costly interventions, such as roof reconstruction, ceiling capacity assessment, and the installation of vertical circulation elements, including a passenger and freight lift. These works would likely make the building temporarily unusable, directly affecting the 175 children currently using the facility. Additionally, the architectural risks associated with integrating a superstructure on top of an existing, recently built facility raise concerns regarding both aesthetics and structural integrity.

Location B, while facing issues such as the need to redesign and expand a non-compliant kitchen, offers a more straightforward implementation path. The building would be unoccupied during construction, and the necessary changes – such as layout reorganisation or constructing a new wing – are less invasive and technically more predictable. Furthermore, the site offers opportunities for longer-term development, including the potential to build a completely new nursery facility with an adjacent playground, should funding and permissions allow.

From an economic standpoint, the investment in Location B is more cost-effective. The expansion approach allows for lower material and labour costs compared to the superstructure planned at Location A. The preliminary estimation demonstrated a difference of approximately doubling the costs, yet exact figures are not to be published. Additionally, Location B permits continued usage of the existing Celestynów nursery facility without disruption, while also opening possibilities for mixed-use programming – such as spaces for seniors – which aligns with broader goals for community integration and sustainable development.

In evaluating the two sites, several criteria were considered, including cost, safety, functional layout, and long-term potential. While Location A has advantages in centrality, user convenience, and combining nursery and kindergarten functions, these are offset by complex structural requirements and higher construction risk. It remains valuable for future adaptive reuse – potentially serving various community purposes at a lower financial threshold – but it is less suited for immediate nursery expansion given its current use, structural complexity, and higher associated costs.

Location B demonstrates a clear advantage in most of the criteria: cost-efficiency, safety (due to ground-floor-only layouts), aesthetics and implementation logistics, with the added potential of developing a flexible function. Ultimately, the findings suggest that it offers a more viable and sustainable path for meeting the Celestynów Commune's goal of adding 45 new nursery places. It allows for a more phased, adaptable investment strategy with minimised disruption to ongoing educational services. It is definitely more cost-effective, it has the potential of becoming an intergenerational space for the local community, and given the technical issues regarding the possible expansion, it is more sustainable.

The concluding point of this study should, however, not be a specific detail of the performed analysis between these two locations, but rather a general view on the matter of accessibility and how it can, and perhaps should, be perceived. The choice of optimal location for a public nursery is nonetheless a question of its accessibility.

As Racław (2024, p. 28) emphasised: "In the field of care and early education services, accessibility takes on many aspects: territorial (regions/areas), location (distance from home/workplace), architectural and equipment (adaptation of buildings, equipment, furnishings), price (affordability of fees), compatibility/flexibility (adaptation to the mode and hours of work of parents, taking into account commuting), categorical (specific groups of service users and their needs) and in terms of staff competences (professionalisation and development) [author's transl.]."

It is with that viewpoint that a study intended as a technical report might encourage adopting a broader perspective.

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ANALIZA PORÓWNAWCZA OPTYMALNEJ LOKALIZACJI NOWEGO ŻŁOBKA PUBLICZNEGO: STUDIUM PRZYPADKU GMINY CELESTYNÓW

STRESZCZENIE

Niniejszy artykuł przedstawia analizę porównawczą potencjalnych lokalizacji nowego żłobka publicznego w gminie Celestynów. W badaniu zastosowano wielokryterialne podejście do oceny, co umożliwiło zintegrowanie czynników przestrzennych, środowiskowych i społecznych w celu zidentyfikowania optymalnej lokalizacji. Kluczowe aspekty brane pod uwagę to dostępność, bezpieczeństwo, bliskość terenów mieszkalnych oraz warunki środowiskowe, takie jak nasłonecznienie i poziom hałasu. Dzięki analizie na podstawie obserwacji terenowych i zgromadzonych danych wyjściowych uwypuklono korzyści i kompromisy związane z każdą z proponowanych lokalizacji. Wyniki mogą dostarczyć cennych informacji planistom i władzom lokalnym, co pomoże w procesie podejmowania decyzji mającej wpływ na dostępność obiektu oraz bezpieczeństwo i zdrowe środowisko rozwoju dzieci. Niniejsze studium przypadku ilustruje, jak systematyczne analizy przedprojektowe mogą skutecznie wpływać na rozmieszczenie infrastruktury publicznej w małych społecznościach.

Słowa kluczowe: żłobek publiczny, wybór terenu, analiza przestrzenna, planowanie urbanistyczne, rozwój gminy, Celestynów