Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics in Varaždin (FOI 2)

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

DIGIT – Digital, Innovation, and Green Technology Project (P180755)

REPUBLIKA HRVATSKA
Ministry of Science, Education and Youth

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CONTENT

ABBREVIATIONS

Abbreviation	Full term
FOI 2	Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics Project
FOI	Faculty of Organization and Informatics, Varaždin
DIGIT Project	Digital, Innovation, and Green Technology Project
CHMP	Cultural Heritage Management Plan
EHSG	Environmental Health and Safety Guidelines
EIA	Environmental Impact Assessment
E&S/ES	Environmental and Social
ESS	Environmental and Social Standards
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
GIIP	Good International Industry Practice
GRM	Grievance Redress Mechanism
MSEY	Ministry of Science, Education and Youth
OHS	Occupational Health and Safety
OG	Official Gazette
NFPA	National Fire Protection Association
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
SEP	Stakeholder Engagement Plan
WB	World Bank
WHO	World Health Organization

1 INTRODUCTION

1.1 Objectives of ESMP

The main objective of this Environmental and Social Management Plan (ESMP) is to ensure that the Project complies with applicable national and EU legislation, as well as with the World Bank Environmental and Social Framework (ESF), throughout all phases of the Project lifecycle (design, construction, and operation).

Accordingly, the ESMP addresses the requirements of the World Bank Group Environmental, Health and Safety Guidelines (EHSG) and Good International Industry Practice (GIIP).

The ESMP identifies and assesses potential environmental and social risks and impacts associated with the proposed Project and defines mandatory mitigation measures to prevent, minimize, or mitigate adverse impacts on the biophysical and socio-economic environment during the construction phase of the Project "Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics in Varaždin (FOI 2)".

During the preparation of this ESMP, the PIU's Environmental and Social (E&S) specialists conducted a review and audit of the complete available design documentation developed during the design phase. The audit included an assessment of potential environmental and social risks and impacts, as well as an evaluation of the extent to which these aspects were integrated into the existing technical solutions. Based on the findings of the review, corrective and preventive measures were defined and will be incorporated into the remaining design and tender documentation and implemented during the construction phase.

In addition, this ESMP provides guidance and recommendations to manage and mitigate potential environmental and social impacts during the operational phase.

The scope and application of this ESMP are guided by the Project Environmental and Social Commitment Plan (ESCP), the Digital, Innovation and Green Technology Project (P180755) Environmental and Social Management Framework (ESMF), the applicable World Bank Environmental and Social Standards (ESSs), the World Bank Group EHSG, and GIIP.

An Environmental and Social Mitigation Plan and Monitoring Plan, covering all stages of the Project and intended to ensure E&S compliance and effective implementation of mitigation and corrective measures, form an integral part of this ESMP.

1.2 Project background

The Government of the Republic of Croatia and the International Bank for Reconstruction and Development (IBRD) have signed the Loan Agreement (Loan No. 9558-HR) for the **Digital, Innovation, and Green Technology Project (DIGIT Project)** for EUR 106 million on June 28, 2023.

The DIGIT Project facilitates the digital transformation and the green transition of the economy, increases resources for applied research and experimental development, and supports the efforts of the Croatian government to strengthen its institutional capacity to deliver research and innovation policies. Activities under the DIGIT Project are financing research and innovation through grant schemes, with a focus on digital and green, and complement and enhance the effectiveness of investments and build the capacities of institutions to deliver on this agenda. The DIGIT Project also supports reforms envisaged in the National Recovery and Resilience Plan 2021-2026 (NRRP), the Croatia Smart Specialization Strategy 2021-2027 (S3), Operational Programme Competitiveness and Cohesion 2021-2027 (OPCC), and activities important for the country's accession to the Organization for Economic Co-operation and Development (OECD).

The DIGIT Project's development objective is to advance research and innovation with a digital and green focus through enhancing institutional infrastructure and research performance of research organizations and firms.

The DIGIT Project aims to fill gaps in the institutional and other enabling conditions and financing for research and innovation. The interventions will build the capacities of institutions to deliver on the digital and greenresearch and innovation agenda, complement and enhance the effectiveness of EU-funded investments, and finance digital and green research and innovation.

The Project consists of two (2) components and four (4) subcomponents:

Component 1: Enabling institutional conditions for digital and green research and innovation
Subcomponent 1.1: Strengthening the institutional infrastructure for research and innovation policy
• Capacity development for design, implementation, and M&E of research and innovation programs
• Institutional support for performance-based funding reform in research organizations
• Financing for selected research and technology infrastructure projects
Subcomponent 1.2: Strengthening effectiveness of research and innovation financing
• Funding to enhance the effectiveness of the program mix
• Online diagnostic and technology scouting
• Professionalization of research centres
Component 2: Programs for digital and green research and innovation
Subcomponent 2.1: Pre-commercial digital and green R&D support
• Grants for pre-commercial digital and green R&D
• Challenge program
Subcomponent 2.2: Synergies program
• Synergies program

Component 1 provides technical assistance and financing to strengthen institutional capacities for Research, Development and Innovation (RDI) support, address gaps in green and digital technology adoption and industry-science collaboration, support the professionalization of research centers, and improve the research and technology infrastructure. Component 2 provides financing to cover the gaps in the program mix, as well as to improve the targeting of research and innovation support to digital and green technology.

Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics (FOI 2) falls under Subcomponent 1.1. activity: Financing selected research and technology infrastructure projects. This activity finances grants to research organizations addressing gaps in the availability of quality equipment and access to research infrastructure. The project was selected based on a number of non-exclusive criteria, including contribution to digital transformation and green transition, public-private cooperation, private sector demand, performance-based financing reform, lagging regional development.

1.3 Study Team

This ESMP was prepared by the Environmental Specialist and Social and Communication Expert of the PIU Team, supported also by the other team members and the team of FOI 2.

1.4 Timeline

ESMP for Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics (FOI 2) will be developed in following phases:

1. Draft of ESMP: April 2026
2. Public consultations: mid-May 2026
3. Final version of ESMP: end of May 2026
4. Implementation, monitoring, and reporting: during construction and equipping.

1.5 Policy framework

1.5.1 National Environmental and Social Legislation

The following most relevant Croatian environmental and social legal acts (including stemming and/or relevant bylaws) define a legal framework for environmental and social management:

LEGISLATION	OVERVIEW
ENVIRONMENTAL	
Environmental Protection Act (OG 80/13, 153/13, 78/15, 12/18, 118/18)	Relevant from the aspect of environmental protection. According to the law, all established preventive environmental protection measures shall be applied during the planning and execution of the intervention, in order to avoid risks and dangers to the environment. Potential risk to the environment can be expected during construction and use.
Nature Protection Act (OG 80/13, 15/18, 14/19,127/19, 155/23)	Relevant from the aspect of biodiversity protection. According to the law, nature protection is the obligation of every physical and legal person and to that end they are obliged to cooperate in order to avoid and prevent dangerous actions and the occurrence of damage to nature. Potential impact on local biodiversity expected during construction is negligible. However, the project is not located within nor near nature protection areas nor Natura 2000 sites.
Regulation on Environmental Impact Assessment (OG 61/14, 3/17)	project is not subject to EIA according to national legislation nor ESIA according to WB ESF.
Waste Management Act (OG 84/21, 142/23)	Relevant from the aspect of waste management. It provides a framework for implementing measures for the protection of environment and human health by preventing or reducing waste generation, reducing the negative effects of waste generation and waste management, reducing the overall effects of raw material use and improving the efficiency of raw material use and increasing recycling and reuse, which is necessary for the transition to a circular economy. Generation of waste is expected during construction and use.
Regulation on the Protection of Workers from Risks Related to Asbestos Exposure (OG 15/25)	The Regulation sets requirements for identifying and managing asbestos in the workplace. It mandates risk assessment, implementation of protective measures, worker training and certification, health monitoring, and safe removal and disposal of asbestos-containing materials to ensure worker safety.
Ordinance on Waste Management (OG 106/22, 138/24, 108/25)	This ordinance prescribes the manner of performing waste management procedures, performing waste trade activities and other details related to waste management.
Air Protection Act (OG 127/19, 57/22, 136/24)	Relevant from the aspect of air quality. It provides a framework for implementing air protection measures, as well as prevention and reduction of air pollution. Potential impact on air quality is expected during construction.
Water Act (OG 66/19, 84/21, 47/23)	Relevant from the aspect of water quality. It provides a framework for achieving and maintaining good water status in order to protect human life and health, protect their property and protect aquatic and water-dependent ecosystems. It also regulates the use of water for public water supply, as well as discharge, drainage and treatment of wastewater. Potential impact on ground waters is expected during construction and use.
Energy Efficiency Act (OG 155/25)	Relevant from the aspect of energy efficiency of the buildings. It provides the framework for improving energy efficiency and implementing energy efficiency measures in building sectors.

LEGISLATION	OVERVIEW
	The design of the building shall consider all relevant and possible energy efficiency measures.
Noise Protection Act (OG 30/09, 55/13, 153/13, 41/16, 114/18, 14/21)	Relevant from the aspect of human health. It provides a framework for establishing measures to avoid, prevent or reduce harmful effects on human health that cause environmental noise. An increased noise level can be expected during construction.
Ordinance on the Maximum Allowed Noise Levels with regard to the Type of Noise Source, Time and Place of Occurrence (OG 143/21)	Determines the maximum permissible noise levels with regard to the type of noise source, time and place of origin.
Ordinance on activities for which it is necessary to determine the implementation of noise protection measures (OG 91/07)	Determines the activities for which it is necessary to determine the implementation of noise protection measures, as well as the procedure and method of determining these conditions. The obligation to determine whether noise protection measures have been implemented is subject to all activities that use noise sources, and whose noise emission may cause noise immission in the surrounding living and/or working spaces that exceeds the permitted limits.
Act on Climate Change and Protection of the Ozone Layer (OG 67/25)	Relevant because it, among other things, defines the measures to mitigate climate change, adapt to climate change and protect the ozone layer are applied for the purpose of: - protection of the climate system and the achievement of goals in accordance with the Paris Agreement on climate change - strengthening resistance to climate change and reducing the vulnerability of natural systems and society to climate change, increasing the ability to recover from harmful impacts and exploiting the possible positive effects of climate change - avoiding, preventing or reducing harmful consequences on human health, quality of life and the environment - prevention and reduction of pollution affecting the ozone layer and climate change - the use of more efficient technologies with regard to energy consumption and encouraging the use of renewable energy sources - ensuring public availability of information on greenhouse gas emissions and consumption of substances that damage the ozone layer and on fluorinated greenhouse gases - fulfilment of obligations assumed by international agreements to which the Republic of Croatia is a party, and participation in international cooperation in the field of protecting the ozone layer and mitigating climate change. Project takes integrates climate change mitigation and adaptation measures.
Act on Fire Protection (OG 92/10, 114/22)	Relevant from the aspect of human health. It provides the framework for establishing and implementing measures for fire safety. Every physical and legal person are obliged to act in a way that cannot cause a fire, as well as to implement fire protection measures. Potential risk of fire can be expected during construction and use.
Act on the Protection and Preservation of Cultural Property (OG 145/24, 151/25)	Relevant because it regulates the types of cultural property, the establishment of protection over cultural property, measures for the protection and preservation of cultural property, as well as other issues related to the protection and preservation of cultural goods. project is partly located within the Area of Archaeological Heritage.
Construction Act (OG 155/25)	According to the Construction Act, the building must be designed and constructed in such a way that during its lifetime it does not pose a threat to the hygiene or health and safety of workers, users or neighbors and that

LEGISLATION	OVERVIEW
	it does not have a significant impact on the environmental quality or climate. It also must be designed and built in such way that it ensures safety and accessibility during use, noise protection, energy efficiency, and sustainable use of natural resources.
Technical Regulation for Building Structures (OG 17/17, 75/20, 7/22)	This regulation prescribes mandatory implementation of EU Eurocode 8: Design of structures for earthquake resistance. This regulation, within the framework of fulfilling the basic requirements for structure, prescribes the technical properties for construction structures in buildings, requirements for design, execution, maintenance, removal and other requirements for construction structures, properties that construction products must have in relation to their essential features and other requirements for building products intended for installation in building structures.
SOCIAL	
Constitution of the Republic of Croatia	Regarding national social legislation, it should be highlighted that the right to equality and non-discrimination is a fundamental human right protected by the The Constitution establishes fundamental human rights, equality before the law, protection of minorities, gender equality, labor rights, social security, and access to justice. It guarantees prohibition of discrimination, protection of human dignity, safe working conditions, and respect for international law. It provides the overarching legal framework ensuring non-discrimination, protection of vulnerable groups, fair labor conditions, stakeholder participation, and access to legal remedies.
Constitutional Act on National Minorities Rights (OG 155/02, 47/10, 80/10, 93/11)	This Act guarantees equality, cultural autonomy, language rights, and political participation for national minorities in Croatia. It supports inclusion, non-discrimination, and meaningful participation of minority groups in development projects. It ensures protection of vulnerable ethnic communities, promoting equitable access to employment, public services, and decision-making processes.
Labor Act (OG 93/14, 127/17, 98/19, 151/22, 46/23, 64/23)	The Labor Act regulates employment relationships, workers' rights, collective bargaining, working hours, termination, and protection against unfair treatment. It promotes fair labor practices, equal opportunity, safe working conditions, and grievance mechanisms. The Act prohibits discrimination and regulates contracts, occupational protections, and workers' representation, requires decent work, non-discrimination, and protection of project workers, including vulnerable and temporary employees.
Gender Equality Act (OG 82/08, 69/17)	This Act establishes measures to eliminate gender-based discrimination and promote equal opportunities in employment, education, and public life. It reinforces equal treatment, prevents harassment (including sexual harassment), and supports gender-responsive stakeholder engagement. It strengthens institutional mechanisms for monitoring equality, ensuring inclusion, prevention of gender-based violence, and equitable participation of women.
Act on the Right to Access to Information (OG 25/13, 85/15, 69/22)	The Act ensures public access to information held by authorities, promoting transparency and accountability. It sets procedures for requests, deadlines, and appeals, while allowing limits to protect privacy, security, and confidential data, in line with EU standards including GDPR.
General Data Protection Regulation (GDPR)	The GDPR is an EU law that protects personal data and privacy. It sets rules for collecting, processing, and storing data, grants individuals rights (access, correction, erasure), and requires transparency, security, and accountability from organizations, with strict penalties for violations.

LEGISLATION	OVERVIEW
Act on the Suppression of Undeclared Work (OG 151/22)	The Act aims to prevent illegal employment and protect workers' rights. It defines undeclared work, strengthens inspections, and introduces penalties for employers who fail to register workers or pay taxes and contributions, promoting fair competition and compliance in the labor market.
Anti-discrimination Act (OG 85/08, 112/12)	The Act prohibits discrimination based on race, ethnicity, gender, religion, disability, age, sexual orientation, and other grounds, ensuring equal treatment in employment, access to services, and public participation. The law establishes legal remedies and complaint procedures, requirements for non-discrimination, protection of vulnerable groups, and accessible grievance mechanisms in project implementation.
Occupational Safety and Health Act (OG 71/14, 118/14, 94/18, 96/18)	This Act regulates workplace safety, risk prevention, employer obligations, worker training, and accident reporting. It ensures safe working environments and minimizes health and safety risks to workers and communities. It mandates preventive measures, protective equipment, and inspections.
Technical Regulation on ensuring Accessibility of Buildings for People with Disabilities and Reduced Mobility (OG 12/23)	This Regulation sets out the requirements for ensuring building safety and accessibility in use, specifically regarding access to buildings and the built environment. It defines the conditions and methods for providing unhindered access, movement, residence, and work for persons with disabilities and reduced mobility in public and commercial buildings, as well as enabling the easy adaptation of residential and mixed-use buildings. The Regulation transposes Directive (EU) 2019/882 of the European Parliament and of the Council on accessibility requirements for products and services (Text with EEA relevance) (OJ L 151, 7 June 2019).
Foreigners Act (OG 133/20, 114/22, 151/22, 40/25)	The Foreigners Act governs entry, residence, work permits, and rights of third-country nationals. It ensures regulated employment of migrant workers and safeguards legal status and labour protections. It supports non-discrimination and access to rights for foreign workers engaged in projects.
Law on EEA Member States Nationals and Their Family Members (OG 66/19, 53/20, 144/20, 114/22)	This law regulates residence and employment rights of EU/EEA nationals and their families in Croatia. It guarantees equal labor rights, mobility, and non-discrimination. It ensures access to employment, social security, and public services under equal conditions.
Law on International and Temporary Protection (OG 70/15, 127/17, 33/23, 17/25)	This Act governs asylum, subsidiary protection, and temporary protection procedures. It protects vulnerable displaced persons and ensuring access to basic rights, including employment, healthcare, and education. The law supports non-discrimination, social inclusion, and grievance mechanisms, requirements for safeguarding refugees and asylum seekers potentially affected by development projects.
Ratified International Conventions: - **Convention Concerning Equality of Treatment for National and Foreign Workers as Regards Workmen's Compensation for Accidents (OG 11/03)** - **Employment Policy Convention (OG 11/00)** - **Discrimination (Employment and Occupation) Convention (OG 5/00)**	Establishes binding international standards on non-discrimination, equal pay, prohibition of forced labour, safe working conditions, and protection of migrant workers. These conventions reinforce requirements for fair treatment, occupational health and safety, equal opportunity, and prevention of exploitative labor practices.

LEGISLATION	OVERVIEW
- **The Abolition of Forced Labor Convention (OG 7/97)** - **The Equal Remuneration Convention (OG 3/00)** - **Convention Concerning Forced or Compulsory Labor (OG 5/00)** - **Convention Concerning Safety in the Use of Asbestos (OG 11/03)**	

1.5.2 Overview of the World Bank Environmental and Social Standards (ESS)

The World Bank Environmental and Social Framework (ESF) sets out the World Bank's commitment to sustainable development through a Bank Policy and a set of Environmental and Social Standards designed to support Borrowers' projects, with the overarching objectives of ending extreme poverty and promoting shared prosperity.

In addition to articulating the Bank's vision for sustainable development, the ESF comprises the Environmental and Social Policy for Investment Project Financing and the Environmental and Social Standards (ESSs). The Environmental and Social Standards establish the requirements for Borrowers regarding the identification, assessment and management of environmental and social risks and impacts associated with projects supported by the World Bank.

The ESSs, further supported by the World Bank Group Environmental, Health and Safety Guidelines (EHSG) [1] and Good International Industry Practice (GIIP), are mandatory under the ESF and are applied in parallel with national legislation. In cases of divergence, the more stringent requirement shall prevail.

Overview of the World Bank Environment, Health and Safety Guidelines (EHSG)

Recommendations for the management of EHS impacts during the Project implementation are provided in the General WB EHS Guidelines[2].

EHSG applicable to the Project:

Environmental	1.1 Air Emissions and Ambient Air Quality 1.2 Energy Conservation 1.3 Wastewater and Ambient Water Quality 1.4 Water Conservation 1.5 Hazardous Materials Management 1.6 Waste Management 1.7 Noise
Occupational health and safety	2.1 General Facility Design and Operation 2.2 Communication and Training 2.3 Physical Hazards 2.4 Chemical Hazards

[1] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

[2] https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf

	2.7 Personal Protective Equipment (PPE) 2.9 Monitoring
Community Health and Safety	3.1 Water Quality and Availability 3.2 Structural Safety of Project Infrastructure 3.3 Life and Fire Safety (L&FS) 3.4 Traffic Safety 3.7 Emergency Preparedness and Response
Construction and Decommissioning	4.1 Environment 4.2 Occupational Health and Safety 4.3 Community Health and Safety

Overview of the World Bank Environmental and Social Standards (ESS)

The World Bank has developed an Environmental and Social Framework (ESF) that sets out the Bank's commitment to sustainable development through the application of Bank Policy (as defined in the ESF) and a set of Environmental and Social Standards (ESSs) designed to support Borrowers' projects, with the overall objectives of ending extreme poverty and promoting shared prosperity.

The ESSs establish the mandatory requirements that apply to the Borrowers and their projects. They provide a set of obligatory guidelines and instructions aimed at ensuring the efficient and effective identification, assessment, and mitigation of potentially adverse environmental and social impacts associated with development projects, while promoting proper stakeholder engagement and sustainable management practices.

The ESSs, further supported by World Bank Group Environmental, Health and Safety Guidelines (ESHG) and Good International Industry Practice (GIIP), are mandatory under the ESF, and are applied in parallel with national legislation, with the more stringent requirement prevailing in cases of divergence.

There are ten ESSs in total. Each of ESS sets out several objectives, which describe the outcomes that the standard is intended to achieve. The following ESSs are relevant for this Project:

ESS1 **Assessment and Management of Environmental and Social Risks and Impacts**	It defines the Borrower's responsibilities for identifying, assessing, managing and monitoring environmental and social risks and impacts at each stage of the Project, with the aim of achieving environmental and social outcomes consistent with the requirements of the ESSs.
ESS2 **Labor and Working Conditions**	The objectives of this Standard are to promote workplace safety and health; ensure the fair treatment, non-discrimination, and equal opportunity of project workers; protect the health and safety of all workers, including vulnerable groups such as women, persons with disabilities, children of working age, migrant workers, contracted workers, community workers, and primary supply workers, as appropriate; prevent the use of all forms of forced labour and child labour; uphold the principles of freedom of association and collective bargaining for project workers in a manner consistent with national law; and provide project workers with accessible mechanisms to raise workplace concerns.
ESS3 **Resource Efficiency and Pollution Prevention and Management**	Objectives of this Standard are to promote the sustainable use of resources, including energy, water and raw materials; to avoid or minimize adverse impacts on human health and the environment by preventing or reducing pollution from Project activities; to avoid or minimize project-related emissions of short and long-lived climate pollutants; to avoid or minimize the generation of hazardous and non-hazardous waste; and to minimize and manage the risks and impacts associated with use of pesticides.
ESS4 **Community Health and Safety**	The objectives of this Standard are: to anticipate and avoid adverse impacts on health and safety of project-affected communities throughout the Project life cycle, under both routine and non-routine circumstances; to promote

	quality, safety, and climate change considerations in the design and construction of infrastructure, including dams; to avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials; to ensure effective measures are in place to address emergency events; to minimize and manage the risks and impacts associated with pesticide use; and to ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	The objectives of this Standard are to protect and conserve biodiversity and habitats; to apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could impact biodiversity; and to promote the sustainable management of living natural resources.
ESS8 Cultural Heritage	The Standard establishes general provisions regarding risks and impacts to cultural heritage from Project activities and outlines measures designed to protect cultural heritage throughout the Project life cycle. ESS8 recognizes that cultural heritage provides continuity between the past, present and future, in both tangible and intangible forms. Cultural heritage, in its various manifestations, is important as a source of valuable scientific and historical information, as an economic and social asset for development, and as an integral part of people's cultural identity and practices. ESS8 is complemented by ESS6, which recognizes the social and cultural values of biodiversity, as well as by ESS7 and ESS10, which provide additional guidance on related environmental and social aspects.
ESS10 Stakeholder Engagement and Information Disclosure	The objectives of this Standard are to establish a systematic approach to stakeholder engagement that enables Borrowers to identify stakeholders and build and maintain a constructive relationships with them, particularly with project-affected parties; to assess the level of stakeholder interest in and support for the Project; and to ensure that stakeholders' views appropriately considered in Project design and environmental and social performance, as well as in related decision-making processes.

More detailed description of ESSs is elaborated in ESMF[3] prepared by the MSEY.

[3] https://digit.mzom.hr/o-digit-projektu/dokumenti-i-akti/

2 PROJECT DESCRIPTION

2.1 General information

General information are listed in Table 1.

Table 1. General information – Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics (FOI 2)

Name of the Project	Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics (FOI 2) in Varaždin
Purpose	Project FOI 2 is dedicated to the construction and equipping of the headquarters and open laboratories. Part of the design documentation, demolition works, construction works & equipment, promotion and visibility, project management will be financed under the Project.
Beneficiary	Faculty of Organization and Informatics in Varaždin
Location (Address, City/Municipality, County)	Faust Vrančić Street 3, Varaždin, City of Varaždin
Cadastral unit and municipality	Cadastral Unit 1348/10; Cadastral Municipality Varaždin
Landowner	University of Zagreb Faculty of Organization and Informatics is the owner according to the Land Registry Excerpt 15578, cadastral municipality Varaždin, Varaždin.
Are there any associated facilities[4] related to the project?	NO
Is the Project aligned with spatial planning documents?	YES General Urban Plan of the city of Varaždin (OG 1/07, 7/16, 5/19, 9/22)
Is the Project located within the archaeological/cultural protection zones?	YES The Varaždin city center is listed in the Registry of Cultural Heritage of the Republic of Croatia as Cultural and Historical Entity of the City of Varaždin under registration number Z-5417 and the site is located on its eastern border. Existing FOI 2 building is **not** classified as protected heritage.
Is the Project located within the nature protection areas or Natura 2000 sites?	NO

2.2 Background information

The Faculty of Organization and Informatics (FOI) is one of the constituent units of the University of Zagreb, located in the northern part of Croatia, at the heart of the historic city of Varaždin. Established in 1962, the FOI is an institution that reaches back more than half a century, which is a comparably long tradition when modern technologies studies are concerned. Over the decades, FOI has been actively engaged in research activities and higher education, educating experts in the field of information sciences and technologies, economics, organization, communication and other related fields.

[4] According to the World Bank's Environmental and Social Standards (ESS), the term „Associated Facilities“ means facilities or activities that are not funded as part of the project and are: (a) directly and significantly related to the project; and (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist. For facilities or activities to be Associated Facilities, they must meet all three criteria. Associated Facilities should meet the requirements of the ESSs, to the extent that the Borrower has control or influence over such Associated Facilities.

The purpose of the project is to strengthen research infrastructure by creating new spatial capacities within the framework of green and energy-efficient construction, thereby improving the quality and effectiveness of research activities and enhancing the institution's integration into the European Research Area.

The new FOI 2 building, located at Faust Vrančić Street 3 in Varaždin, stands in one of the city's most distinctive areas – a space that naturally connects Varaždin's historic core with modern research facilities. The micro-location offers a rare combination of tradition and contemporary university life, making it exceptionally valuable for the development of research infrastructure.

For decades, this site housed the former Music School building, and today the facility serves FOI as an important teaching area. This building was never completed, it was built to about 25% of its projected dimensions, it is now non-functional, the foundations are leaking underground voids, and the roof is leaking rainwater, the building does not meet accessibility standards, infrastructurally it is outdated and no longer meets the needs of modern research and higher education. Although functional, the building is infrastructurally outdated and no longer meets the needs. This is precisely why this parcel – located in the cadastral municipality of Varaždin, in an area recognized as part of the future FOI campus – holds even greater significance: it has been designated as the site of the future, state-of-the-art FOI 2 building, a key investment project of the FOI.

Due to its position, the parcel on which FOI 2 is located has exceptional development potential. The new building is planned as an energy-efficient, modern "green" facility that will completely replace the outdated structure and enable the expansion of the FOI's research capacities. In doing so, the existing space will be transformed from a modest teaching building into a representative university center, fully integrated into the historical and urban fabric of the city.

FOI 2 building will be based on the principles of sustainability – it is planned as a low-energy, with the use of the most modern materials, technologies and spatial design.

The FOI 2 project is a continuation of a long-term development strategy started more than 15 years ago, and the previous phases included the construction of a student restaurant and the extension of the Student Dormitory. The FOI 2 building represents the key and final step of this strategy, aimed at strengthening the role of FOI in knowledge transfer and creating an innovative environment.

The project is fully aligned with the strategic frameworks of the Republic of Croatia and the European Union, in particular the National Development Strategy of the Republic of Croatia until 2030, the Smart Specialisation Strategy (S3), and the objectives of the European Research Area. The investment strengthens research and innovation infrastructure in the field of information sciences and digital technologies, supports the digital transition, and enhances cooperation between science and industry. In doing so, the project contributes to increased competitiveness, balanced regional development, and the long-term strengthening of national and European research capacities.

The FOI 2 building will be an important foundation for further strengthening cross-border and transnational cooperation. Varaždin, located near the borders with Slovenia, Hungary and Austria, has great potential for international student and teaching staff exchange, as well as for joint projects of research and higher education institutions with the economy. As a prominent component of the University of Zagreb, FOI with this investment also contributes to the decentralization of higher education, the polycentric development of the University and the strengthening of the regional competitiveness of the North-West Croatia region.

2.2.1 Project Activities

Project activities include:

1/ Preparation of technical (design) documentation

This activity covers the preparation and finalization of all technical and design documentation required

for the implementation of the project. The Main Design, including all required design packages, has been completed, and the building permit for the project was obtained on 7 November 2025. The Detailed Design was finalised in February 2026. Part of the technical design documentation costs will be financed through the DIGIT Project. DIGIT financing will be applied retroactively to eligible costs incurred prior to the signing of the Grant Agreement, in accordance with the Call provisions.

As part of this activity, an environmental and social (E&S) is conducted for the design documentation. The Detailed Design and Bill of Quantities accordingly will incorporate all required environmental and social mitigation measures, including, where applicable, radon protection planning, to ensure full compliance with relevant environmental and social standards throughout project implementation.

2/ Execution of demolition works and construction of the new facility

The procurement process for both demolition and construction works is planned to start in May 2026, with the actual execution of the works scheduled for the summer months of 2026. The ESMP will be included in the tender documentation and the contract for the works, ensuring that all environmental and social mitigation measures are implemented during construction.

As part of this activity, the following professional services are also included: project design supervision, construction supervision, the construction site manager, and the occupational health and safety coordinator (Phase 2), in line with national legal requirements.

3/ Purchase and installation of scientific equipment

Procurement, delivery and installation of scientific and research equipment needed for laboratory work, innovation activities and research processes within the new facility.

4/ Purchase and installation of non-scientific equipment

Procurement, delivery and installation of furniture, IT and other non-scientific equipment required for administrative, teaching and support functions.

5/ Promotion and visibility

Implementation of communication, publicity and visibility activities ensuring that the project, its objectives and results are appropriately presented to stakeholders and the public in line with relevant guidelines.

6/ Project management

Coordination, monitoring and administrative supervision of all project activities, including reporting, financial management and compliance with applicable regulations. As part of this activity, the engagement of external experts is planned to support the preparation and implementation of public procurement procedures, ensuring timely, transparent, and compliant procurement of works, goods, and services.

2.2.2 Documents Prepared

Table 2. Documents prepared issued so far (by April 2026)

Documents	Date	Additional information/Comments
DEMOLISION WORKS		
Demolition Design	July 2025	**Design Company: Eurco. Ltd., Vinkovci** • **Folder 11/12: Demolishion Design; designer:** Marija Sojčić (part of the Main Design)

Documents	Date	Additional information/Comments
Bill of Quantities for Demolition Works	February 2026	**designer:** Marija Sojčić
CONSTRUCTION WORKS		
Main Design	July 2025	Design Company: At.Ar. Ltd., Zagreb; main designer Tin Sven Franić Main Design includes the following folders: • Folder 1/12: Architectural Design (Fire Protection Measures included) • Folder 2/12: Architectural Design – Landscape Design • Folder 3/12: Structural Design • Folder 4/12: Mechanical Installations Design - Hydrotechnical Installations • Folder 5/12: Mechanical Installations Design - Heating, cooling, ventilation • Folder 6/12: Electrical Installations Design – Electrical current • Folder 7/12: Electrical Installations Design – Fire Alarm • Folder 8/12: Electrical Installations Design – Photovoltaic Power Plant • Folder 9/12: Rational Use of Energy and Thermal and Acoustic Design • Folder 10/12: Mechanical Installations Design - Sprinkler Installations Design • Folder 11/12: Demolishion Design • Folder 12/12: Mechanical Installations Design - Elevator Design The following studies are part of the Main Design • Occupational safety study • Geotechnical Study
Building Permit	November 2025	Building Permit, CLASS: UP/I-361-03/25-01/000147, NO. 2186-1-05-06/1-25-0022, 7 November 2025, issued by the Varaždin County, Administrative Department for Construction and Communal Economy, Department for the Implementation of Spatial Planning Documents and Construction
Detailed Design	March 2026	Design Company: At.Ar. Ltd., Zagreb; main designer Tin Sven Franić Detailed Design includes the following folders: • Folder 1: Architectural Design (Landscape Design included) • Folder 3: Structural Design • Folder 4: Mechanical Installations Design - Hydrotechnical Installations • Folder 5: Mechanical Installations Design -Heating, cooling, ventilation • Folder 6: Electrical Installations Design – Electrical current • Folder 7: Electrical Installations Design – Fire Alarm • Folder 8/10: Electrical Installations Design – Photovoltaic Power Plant

Documents	Date	Additional information/Comments
		• Folder 10: Mechanical Installations Design - Sprinkler Installations Design
Bill of Quantities for Construction Works	March 2026	Bill of Quantities is developed for: • Demolition works • Construction works • Landscaping works (horticulture and paved areas) • Mechanical Installations - Hydrotechnical Installations • Mechanical Installations -Heating, cooling, ventilation • Electrical Installations – Electrical current • Electrical Installations – Fire Alarm • Electrical Installations – Photovoltaic Power Plant • Mechanical Installations - Sprinkler Installations • Elevators.
EQUIPMENT		
Bill of Quantities for Equipment	March 2026	Bill of Quantities includes: • Scientific Equipment • Computing and Electronic Equipment • Furniture.

2.3 Audit of the Design Documentation

During the preparation of this ESMP, the PIU's Environmental and Social (E&S) specialists conducted a review and audit of the design documentation. The audit included an assessment of potential environmental and social risks and impacts, as well as an evaluation of the extent to which these aspects were integrated into the technical solutions.

Based on the findings of the review, corrective and preventive measures were defined and will be incorporated into ESMP and implemented during the construction and equipping phase.

WB ESS	The Design Documentation compliance
ESS3 **Resource Efficiency and Pollution Prevention and Management**	The building is designed according to the NZEB principle, achieving energy class A for thermal energy and A+ for primary energy. High-efficiency HVAC systems (heat pumps and VRF systems with heat recovery) are implemented to reduce energy consumption and improve indoor air quality. A 100.0 kW photovoltaic power plant is installed on the roof, contributing to renewable energy generation. The building is connected to municipal water supply and wastewater systems, with water-saving fixtures (aerators, low-consumption cisterns) in line with DNSH principles and EU Water Label requirements. The project includes stormwater and wastewater management systems ensuring controlled discharge. Refrigerants (R410A, R32) are handled in controlled systems with no harmful environmental impact, and procedures are defined in case of leakage.

	Noise emissions are limited in accordance with applicable standards. Lightning protection (LPS) and grounding systems are implemented to ensure safe and efficient operation.
ESS4 **Community Health and Safety**	The design complies with essential construction requirements including mechanical resistance, fire safety, hygiene, environmental protection, accessibility, noise protection, and energy efficiency. The building is designed in compliance with Technical Regulation on ensuring Accessibility of Buildings for People with Disabilities and Reduced Mobility (OG 12/23) ensuring the building will meet all the requirements for providing unhindered access, movement and work for people with disabilities and reduced mobility. The Regulation is closely aligned with the Universal Accessibility principle. The design supports the CHS by positioning the building, the arrangement of the outdoor facilities and ensuring the necessary proportion of natural terrain. The building is positioned more than 10 m away from the site boundaries (13 m on the west, 14 m on the south, 18 m on the east and 16 m from the north). The plot is landscaped with trees, shrubs, climbing plants, ground cover plants, perennial plants and lawns. On the south side of the building the existing pedestrian path is implemented in the design. The footprint of the building is 28%, and green area 41% of the plot. Fire safety is ensured through integrated systems including fire detection, sprinkler systems, fire dampers, and automated shutdown of ventilation systems. The building ensures adequate ventilation, indoor air quality, and thermal comfort for users. Systems are designed to ensure safe operation and maintenance throughout the building lifecycle. Radon testing is foreseen, including measurement of radon concentration in soil, construction elements, and indoor air, in order to assess potential exposure risks. If elevated levels are identified, appropriate mitigation measures will be implemented in accordance with applicable regulations.
ESS6 **Biodiversity Conservation and Sustainable Management of Living Natural Resources**	The project includes a landscape design ensuring proper treatment of green areas and integration into the existing urban environment. Measures include preservation and reuse of topsoil (humus) during construction, contributing to sustainable land use. The project is located in an urban area and is not expected to have significant adverse impacts on biodiversity or natural habitats.
ESS8 **Cultural Heritage**	In accordance with the Special Requirements issued on 4 July 2025 by the Conservation Department in Varaždin, archaeological supervision during earthworks is mandatory. The Beneficiary will engage a licensed archaeologist and ensure all necessary conditions for supervision and potential protective research. Prior approval for archaeological works will be obtained in accordance with the Ordinance on Archaeological Research (OG 102/10, 2/20). Chance find procedures will be applied if required and included in contractor obligations and site method statements.

	All works will be carried out in compliance with national cultural heritage protection regulations.

2.4 Location and building plot

The micro-location on Faust Vrančić Street is particularly noteworthy due to its close proximity to historic baroque streets, green areas, and numerous cultural and administrative institutions of Varaždin. Within just a few minutes' walk are the Varaždin Cathedral, City Hall, the Croatian National Theatre Varaždin, and several city squares and parks, providing students and staff with a pleasant working and living environment. At the same time, the location is part of the university axis that includes FOI 1, future innovation centers, student dormitories, and the technology park – gradually forming a compact and easily accessible urban campus.

Access to the location is via the parking lot (in front of the building) in Faust Vrančić Street, on the left, which can be reached by turning off the main street - Petra Krešimira IV Street, southwest of the building.

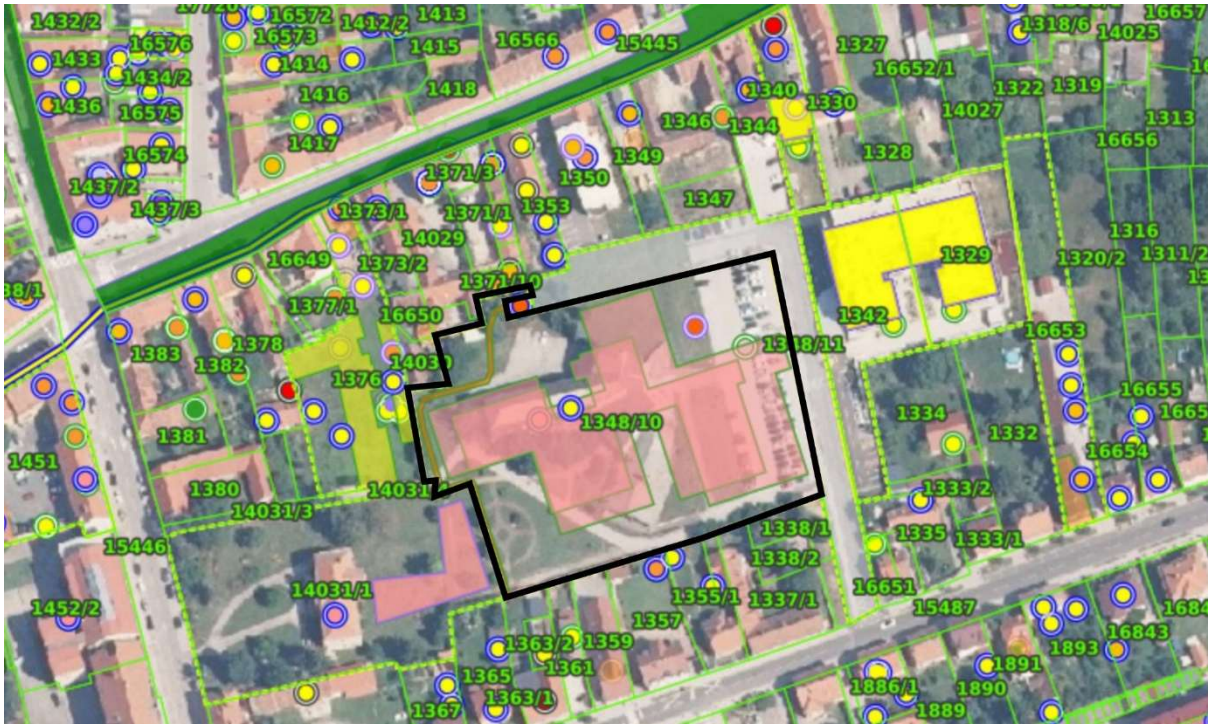

Figure 1. Building plot cadastral unit 1348/10, cadastral municipality of Varaždin

The plot currently houses a building used by the FOI - the former Music School with ancillary facilities and a parking lot. In the part of the plot southwest of the building, pedestrian paths have been arranged in a regular geometric layout. The rest of the plot is landscaped with approx. 10 trees, modest shrubs and grass.

On the edges of the plot boundaries, on the south side there are the backyards of family houses located along P. Krešimira IV Street, on the east side there is an access road with a parking lot, on the north side there are the backyards of family houses and a continuation of the access road that is not completely built, and on the west side there is Oršić Villa connected to Preradovićeva Street.

An asphalted pedestrian path has been formed from Preradovićeva Street on the north side of Oršić Villa along the borders of neighboring northern plots. The terrain is mostly flat without major elevation fluctuations throughout the entire area within the boundaries of the site. The existing faculty/music school building is planned to be removed according to the project.

2.5 Existing Building

The building of the former Music school has storeys of Basement + Ground Floor + 2, with a floor plan area of 1,644 m^2 and a total gross area of 3,432 m^2 (main building 2,928 m^2, auxiliary building 504 m^2). The main entrance is on the east side. A large part of the plot is now occupied by a parking lot accessed from the road on the eastern side of the site.

The Project plans the demolition of the entire existing building, and the associated asphalted surfaces, i.e. parking spaces and access roads. The building is located as an independent object at a sufficient distance from neighboring buildings.

Figure 2. Photos of the Existing FOI 2 Building, 18 December 2025

Due to the structural complexity of the buildings and the proximity of the existing buildings, demolition will be carried out using mechanical methods.

The buildings will be demolished without the use of explosives. Instead, construction machinery will be used, including crawler excavators (with a short arm reach of up to 10 m and a high-reach arm of up to 20 m), mini excavators, and hydraulic equipment for concrete crushing, such as hydraulic pliers and hydraulic jaws.

2.6 Technical Description

2.6.1 Layout

The urban concept of the micro location and architectural design for FOI 2 is the first prize entry on the architectural-urban competition held in 2013 ensuring high quality architecture that relates harmoniously with its urban environment and local character. The competition conditions were in accordance with the conservation requirements of the Ministry of Culture. The project should transform a partially neglected area in the proximity of the historic core into a quality open space for science, higher education and public purposes.

The building is designed in such a way that the basic facilities are placed within four volumes and are connected by a central communication section (dilation T, ground floor+1). The central section is elongated in an east-west direction with entrances at both ends. It connects all facilities and outdoor areas - the access square, courtyard, green areas and outdoor parking and vehicular and pedestrian access on the eastern side.

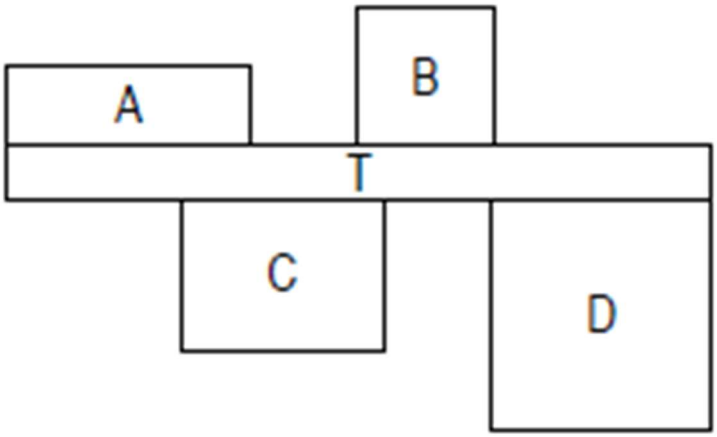

Figure 3. Layout Scheme of the Dilatations A, B, C, D and T

Volume 1 (dilation A) - Classrooms and laboratories (ground floor+1)

The north-oriented volume is intended for computer classrooms on the first floor, while the ground floor houses the Center for Biometrics, Forensics and Privacy and the Laboratory for Artificial Intelligence, which can function as separate units.

Volume 2 (dilation C) - Halls (ground floor+1)

The volume within which three smaller halls on the ground floor and a larger hall on the first floor and spaces for students are located.

Volume 3 (dilation D) - Lecture rooms and seminars / Garage (ground floor+1)

A block with 4 seminar lecture rooms on the first floor and a covered garage on the ground floor (with 26 parking spaces) and auxiliary rooms and storage rooms.

Volume 4 (dilation B) - Teaching area (ground floor+3)

The space intended for individual work with students and work in laboratories contains the number of offices for professors and other teaching staff specified by the program. The ground floor contains service rooms.

The FOI 2 building has three smaller halls accommodating 132 users each on the ground floor and a large hall on the first floor, for 300 users. Next to the large hall are spaces for individual student work and the student club. On the first floor there is also a block with 4 seminar lecture rooms with 80 seats each and auxiliary spaces. In dilatation B is the Teaching Section (ground floor+3 floors). The space is intended for individual work with students and work in laboratories and contains the number of cabinets for professors and other teaching staff specified by the program. The north-oriented volume is intended for computer classrooms on the first floor. On the ground floor are the Center for Biometrics, Forensics and Privacy and the Laboratory for Artificial Intelligence, which can function as separate units, independent of the operation of the rest of the building. Also, covered parking space on the ground floor (with 26 parking spaces) and auxiliary rooms and storage rooms are planned.

An additional 60 parking spaces are created in the access road on the plot. The parking lots are equipped with electric vehicle chargers. There is a photovoltaic power plant on the roof. The building is designed according to the NZEB principle. The achieved energy class for thermal energy is A, for primary energy A+

Figure 4. Visualization of FOI 2 Building

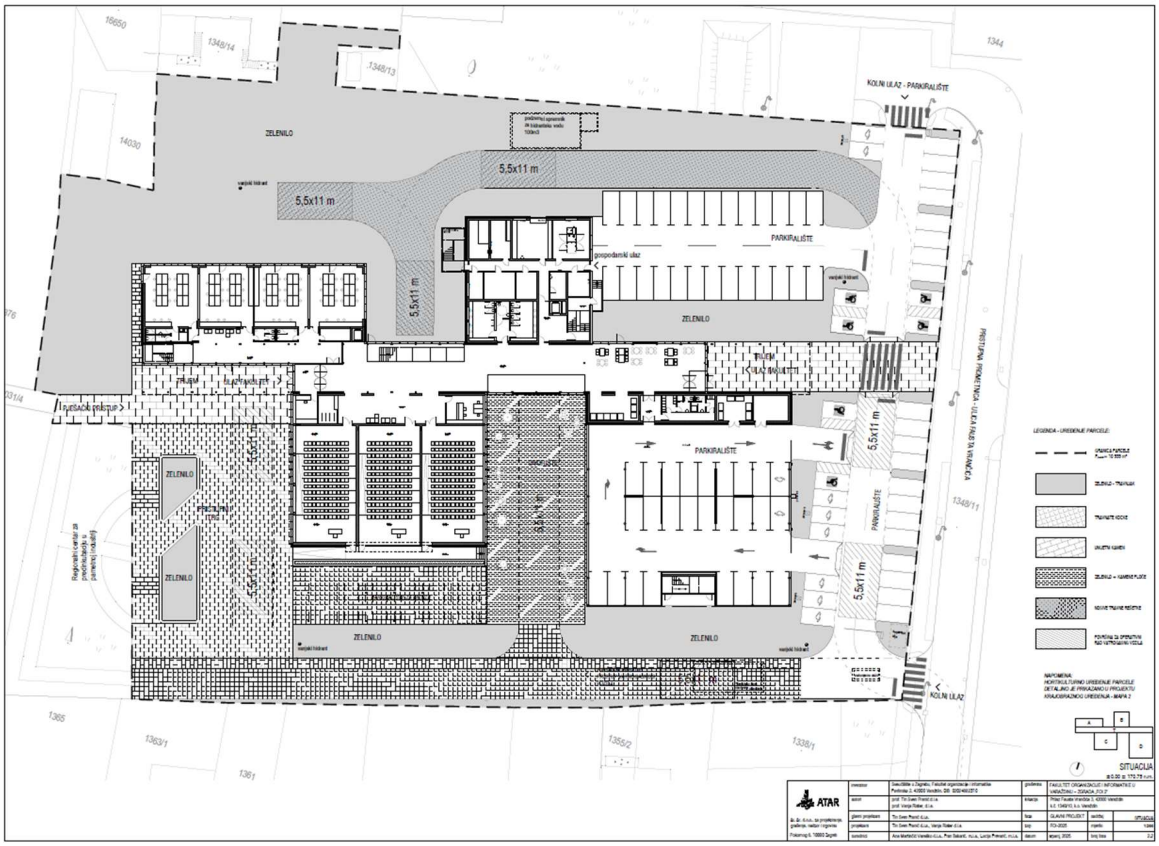

Figure 5. Ground Floor Plan of the FOI 2 Building, Main Architectural Design, July 2025

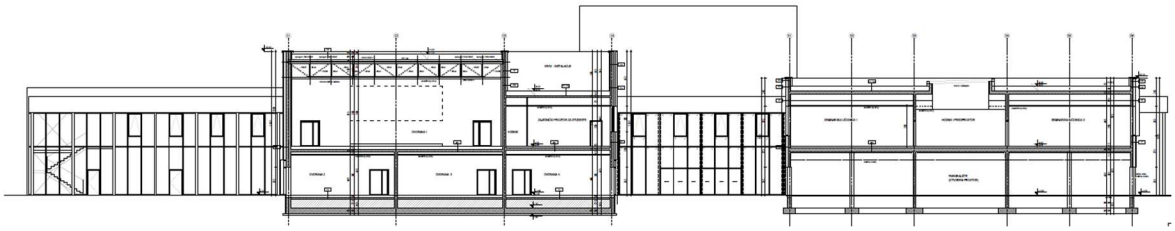

Figure 6. Longitudinal Section of the FOI 2 Building, Main Architectural Design, July 2025

2.6.2 Spatial Parameters

Table 3. and 4. present the spatial parameters related to the project, including key data on location, dimensions, and zoning details.

Table 3. Gross floor area

STOREY	**Gross Floor Area (m^2)**
GROUND FLOOR	2,087.8
1ST FLOOR	2,763.8
2ND FLOOR	353.8
3RD FLOOR	353.8
TOTAL GFA	**5,559.2**

Table 4. Other spatial parameters

Building plot area	10,939 m²
Gross floor area (GFA)	5,559.2 m²
Net usable floor area (NUFA)	4,876.7 m²
Footprint	3121,9 m²
Construction coefficient	0.28
Efficiency coefficient	0.50
Green area	4,490 m^2 / 41%

2.6.3 Structural design

Due to the size and layout of the building, the entire building is divided into five dilatations. The structure is concrete load-bearing elements in volumes/ dilatations A, B, C and D, while the structure of the central part (dilatation T) is steel. In dilatations T (ground floor+1), steel frames are planned, with a light roof covering above the 1st floor, while the floor above the ground floor is a reinforced concrete slab on a trapezoidal sheet metal. The vertical structure is made of steel columns at a longitudinal distance of 3.55 m.

The foundation of the building is on a reinforced concrete foundation slab d=50 cm, except for the part of the dilatation D (at the parking lot) and T where there are strip foundations.

The roof structure over the large lecture hall consists of steel roof trusses with a span of 18.6 m and a spacing of 4.4 m. The roof trusses are supported on the perimeter reinforced concrete walls.

A reinforced concrete wall with a thickness of d=30 and 40 cm are planned along the perimeter of the large lecture hall.

2.6.4 Water Supply and Drainage

Water supply installations

For the needs of sanitary and fire water of the building, the connection of the existing building will be reconstructed from Ø90mm to Ø110mm. Local preparation of hot water is planned with electric boilers, except for dilatation B, for which central preparation of DHW is planned.

Drainage installations

Installation of sanitary wastewater drainage (fecal sewage)

Fecal sewage is an independent installation, and the basic horizontal distribution will be conducted through shafts and in foundations, from where it is further led outside the building, after which the fecal sewage is led to the gravity control window marked FŠ10 at the road entrance to the parcel in question. The fecal sewage system will be vented to the roof of the building via several vent verticals

Installation of clean rainwater drainage

The building's clean rainwater drainage system includes gravity drainage of roof water and drainage by a vacuum system. Flat roofs of dilatation C and flat roofs of dilatation T are drained by gravity. After leaving the building, the rainwater drainage system will continue to be led into the terrain around the building. Part of it will go directly to the connection of the mixed drainage system, together with the fecal drainage system, while the other larger part, which is loaded with 86 l/s, will be led into a retention system with a volume of 80 m^3. The flat roofs of dilatation A, B, part C and D are drained by a vacuum system. The complete rainwater vacuum sewer is connected to external internal gravity manholes and pipelines and is drained into an inspection manhole at the edge of the plot, from where it is further connected to the public mixed drainage system. The rainwater drainage system is dimensioned for the expected rainfall. For the drainage of possible extraordinary precipitation or in the event of blockages on the roofs, safety overflows are provided to prevent overloading of the roof structure in relation to the static calculation and/or unwanted water penetration into the building.

Installation of oily rainwater drainage (outdoor parking lot)

Rainwater from the outdoor parking lot is drained by gravity to an oil separator that will be located in the greenery next to the southern driveway, from which rainwater is then drained by gravity to a manhole connected to the public mixed sewage network.

Hydrant network

An internal and external hydrant network is planned for fire protection. The pressure at the connection, as well as the flow, is not sufficient for the proper functioning of the external hydrant network, and it is planned to install a pressure boosting station, which is supplied from a fire water tank with a volume of 100 m^3. The water tank contains 70% of the water capacity needed for extinguishing. The pressure boosting station is located in a shaft next to the water tank.

2.6.5 HAVC Installations

Heating and cooling systems

For heating and cooling the facility, the installation of a VRV/VRF system with built-in parapet, duct or cassette indoor units is planned, depending on the purpose and interior design. The installation of VRV/VRF system outdoor units is planned in the centers of flat roofs and on recessed roof surfaces. The selected systems operate on the principle of "reversible air-to-air heat pumps", which produce thermal energy in the winter, while inverting the cooling cycle in the summer produces cooling energy for cooling/air conditioning. SPLIT systems with automatic restart are planned for year-round cooling of technical spaces and waste areas. To prevent freezing, electric radiators will be installed in some technical spaces, which will prevent the temperature from falling below zero.

Hot water preparation systems

Due to the large distribution of hot water consumers and the low total consumption of hot water, its heating is planned centrally for dilatation B via a separate heat pump with an integrated hot water tank, while for other dilatations, the preparation is local, using electric water heaters (boilers) in each sanitary facility on each floor.

Ventilation systems

Some areas with a larger number of people (lecture rooms, meeting rooms and smaller halls) will be mechanically ventilated via recuperative ceiling units with or without additional Freon heaters/coolers installed.

The main hall will be mechanically ventilated via an air handling unit located on the recessed part of the roof of dilatation C. The air handling unit is in a floor version and consists of a supply and exhaust section, a mixing section, a heat recuperator and a Freon heat exchanger (DX heater/cooler). The distribution of air flow from the air handling unit to the exhaust and intake elements is carried out via spiral sheet metal ventilation ducts. In the sanitary rooms, exhaust mechanical single-channel ventilation is provided, as well as in technical spaces and storage rooms that do not have external openings.

In places where ventilation ducts pass through the border of the fire sector, fire-fighting electromotor dampers are installed, which will be connected to the fire alarm system as part of the electrical project.

In certain sections, ventilation ducts are lined with fire-fighting lining of fire resistance class EI90.

To manage the operation of thermomechanical systems, the installation of a CMS (central monitoring and control system) is planned. The central monitoring system consists of a computer with a monitor, a network server/controller and control substations that will be located near the devices that will be monitored and controlled. The substations are formed for the needs of managing and supervising certain segments or groups of electro power and thermomechanical installations and devices.

2.6.6 Electrical Installations

LV connection, measurement and energy distribution

The existing power is retained, and the existing billing metering points will be merged into a new billing metering point with purchased power. The main energy distribution is planned by laying three energy cables from the LV network to the main building cabinet located in the electrical room on the ground floor. An uninterruptible power supply device is also planned for the building as an auxiliary power source, which will be located at the intended position on the ground floor. In addition to the main cabinet, the technical room is planned to accommodate the safety power supply, which will be a physically separate cabinet. The energy distribution of the building is designed so that the functional units have their own distributors depending on the need.

Photovoltaic power plant

The installation of a 135.0 kW photovoltaic power plant is planned on the roof of the building.

Diesel generator

For powering the safety systems (hydrocell, sprinkler pumps, evacuation elevator, external and internal hydrant network pumps, etc.), a backup power supply is provided in the form of a stationary diesel generator. Manual shutdown of the diesel generator is permitted for firefighters and it is possible via a button located next to the GRO shutdown button at the entrance to the building on the ground floor.

2.6.7 Accessibility of the Building to Persons with Disabilities and Persons with Reduced Mobility

The design follows the provisions of the Technical Regulation on Ensuring Accessibility of Buildings for Persons with Disabilities and Reduced Mobility (OG 12/23).

Accessibility elements implemented in the design are:

- the main entrance to the building is on the ground floor and without height barriers;
- vertical transport is enabled by an elevator;
- the movement of people with reduced mobility around the building is continuous and without obstacles
  - the designed corridors are wide enough (>150cm) for passing each other;
  - elevator cabin has dimensions of at least 110x140cm with a door width of 90cm;
  - the sanitary facility for people with reduced mobility is located on the ground floor and first floor near the central communication area and elevator;
- inside the teaching rooms, wheelchairs can turn around the room within the space 150cm in diameter, and a space for moving around furniture of 90cm wide.
- the entrance door to the teaching rooms has a clear opening width of more than 90 cm;
- the finishing materials of all communication surfaces (corridors, staircases) are non-relief and easy to maintain;
- all places where there is a risk of falling are protected by railings;
- an advertising board is provided, placed with its lower edge at a height 120cm, marked with an accessibility sign;
- the method of installation of construction products and other materials, in relation to accessibility, is in accordance with the standards.

2.6.8 Fire Safety

The building is divided into several fire sectors and will be protected by an external and internal hydrant network and fire extinguishers. As a protection measure, the building is planned to be protected by a sprinkler installation and a fire alarm system.

The fire resistance of the building's structural elements, as well as other requirements that the building must meet in the event of a fire, is defined in accordance with the provisions of the Ordinance on Fire Resistance and other Requirements for Buildings in case of Fire (OG 29/13, 87/15).

The specificities arising from the purpose are defined in accordance with the provisions of the OiB Guidelines 2. The covered parking space (ground floor) is provided with solutions for protection measures based on OIB Guidelines 2.2.

2.6.9 Finishes

Floors

The floor finishes are a polished concrete floor in the central part, epoxy flooring in the corridors in other volumes, parquet flooring in the offices/cabinets and parquet flooring in the halls and lecture halls.

The sanitary areas are covered with R10 anti-slip ceramic tiles.

The floor is thermally insulated from the ground with 15 cm thick XPS polystyrene boards. Sound insulation is achieved by creating a floating floor.

Suspended Ceilings

Suspended ceilings are of plasterboard are planned in the offices, sanitary areas and the administrative hall, and in the sound-absorbing panels in the hall, lecture halls and corridors.

Roofing

The roofs are partly greened, and partly on the roofs are placed mechanical equipment and the photovoltaic power plant. The loggia next to the hall is finally covered with wood.

Roof waterproofing is performed as a single-layer waterproofing with synthetic TPO strips with polyester fleece on the underside.

Flat roofs are insulated with extruded polystyrene XPS slabs with a minimum thickness of 20 cm, finally covered with gravel.

Openings

Interior doors are made of solid wood panels. Door frames are made of class I wood. Sound insulation of doors of offices, lecture halls and large halls according to the noise protection study. Facade openings are made of aluminum facade profiles. Glazing is triple laminated Izo glass with two low-E foils and inert gas filling. Sun protection with fixed external elements made of brick and Flos roller shutters.

Cladding

The facade of the central part, the ground floor part of dilatation C and A, and the facade of the seminar rooms on the 1st floor (dilatation D) is an aluminum glazed suspended continuous facade.

The other parts are clad with facade brick which partially (with perforations) extends over the glass parts/windows.

2.6.10 Landscaping

The plot is planned to be greened as much as possible - edge protective greenery towards neighboring plots, and a central lawn and inner courtyards intended for relaxation and socializing. The total landscape area is 4,490 m^2 or 41% of the building plot.

The entrance square is located on the west side towards the Villa Oršić / FOI 3 building. The area to the east and northeast is planned as a parking zone. The parking spaces are partially shaded by rows of trees. A courtyard has been formed within the central, southern area, between two blocks. The surface of this area will be treated with gravel stabilized in cement mortar. Green islands have been formed within the surface, around with seating area. The green areas will be irrigated by an irrigation system.

Approx. ten trees have been recorded on the site as well as fragmentary modest shrubs and grass. All trees that can be preserved in relation to the planned construction will be incorporated into the landscaping. The site is planned to be landscaped with trees, shrubs, climbing plants, ground cover plants, perennial plants and lawns.

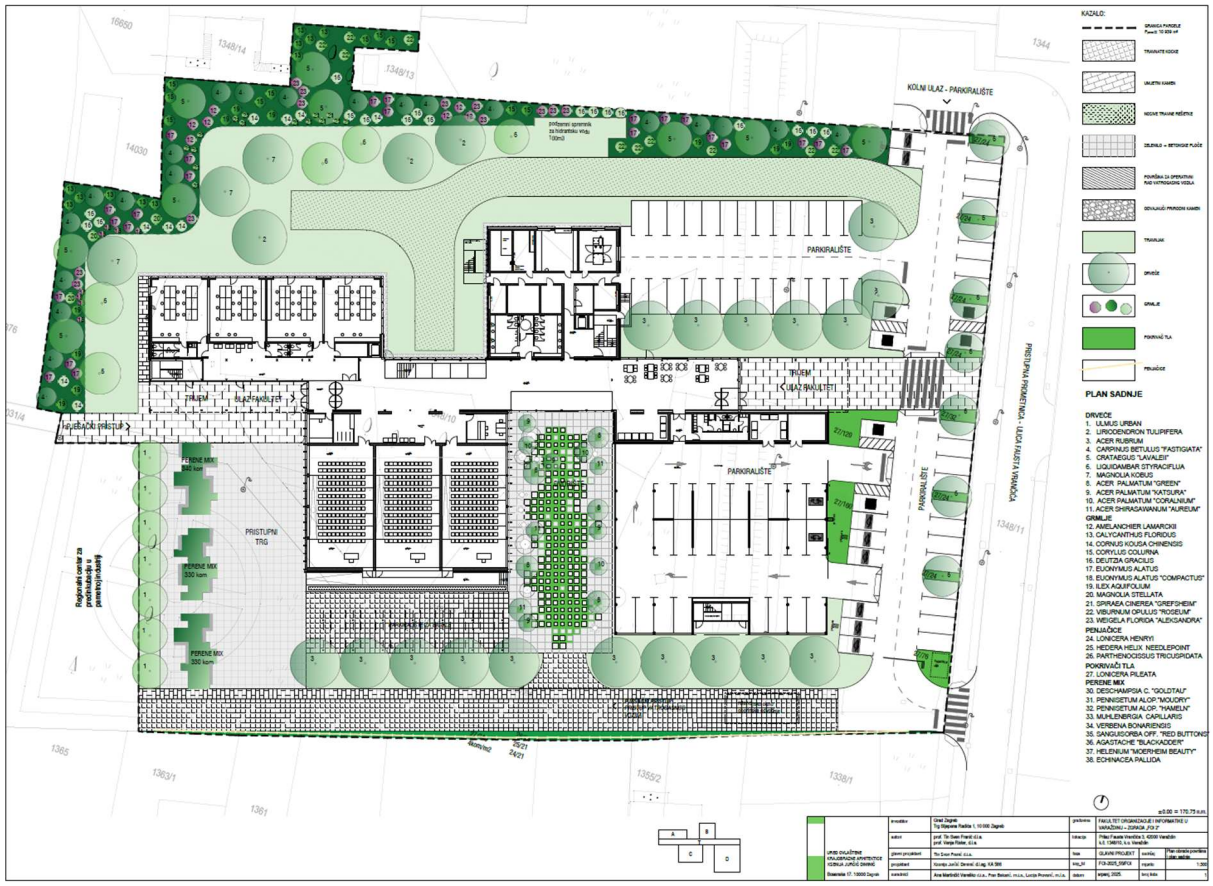

Figure 7. Landscape Design

2.1 Do No Significant Harm principles

DNSH principle identifies six criteria for determining how each economic activity substantially contributes to protecting the ecosystem, without undermining any of the environmental goals:

Climate change mitigation	An economic activity must not lead to significant emissions of greenhouse gases (GHG)

Climate change adaptation	An economic activity must not have an increased negative impact on the current and future climate, on the activity itself or on people, nature or property
Sustainable use and protection of water and marine resources	An economic activity must not be detrimental to the good health of water bodies (surface, groundwater or marine) or harm its quality or reduce its ecological potential
Transition to the circular economy, including waste prevention and recycling	An economic activity must not result in significant inefficiencies in the use of recovered or recycled materials, increase the direct or indirect use of natural resources, or significantly increase waste or the burning or disposal thereof, causing significant long-term environmental damage.
Prevention and reduction of air, water and soil pollution	An economic activity must not cause increased emissions of pollutants in the air, water or soil.
Protection and restoration of biodiversity and health of ecosystems.	An economic activity must not harm the good condition and resilience of ecosystems or the conservation status of habitats and species, including those of interest to the Union.

The Project meets all the stated requirements of the DNSH principle, meaning that it will not cause significant damage to any of the six environmental objectives listed above.

The implementation of the project will be climate and environmentally friendly, and the project is harmonized with the appropriate national and EU regulations, especially with the criteria of the EU Taxonomy. The project was prepared to be adapted to climate change, and its climate resilience was ensured during the entire life cycle. The project complies with national regulations on energy efficiency. From an energy point of view, the project defines: the possibility of increasing protection form winds (it is in an area exposed to strong north winds), effective non-flammable insulation of the building, quality of materials and the possibility of reducing energy consumption and carbon footprint, energy-efficient lighting, energy-efficient heating and similar. The buildings is designed as a nearly zero-energy smart building (nZEB) that has very high energy properties.

The design documentation was prepared in accordance with the technical guidelines for the preparation of infrastructure for climate change in the period 2021-2022 (EC, C/2021/5430) taking into account local climate conditions and future climate change. The design documentation was prepared in accordance with the identified climate risks in the National Climate Change Adaptation Strategy in the Republic of Croatia for the period up to 2040 in relation to 2070 and the Strategic Environmental Impact Study of the Climate Change Adaptation Strategy in the Republic of Croatia for the period up to 2040 with a view to the year 2070.

The project ensures sustainable use and protection of water and marine resources in accordance with Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. All relevant water devices to be installed (showers with a mixer, faucets, toilets, etc.) are classified in the first two water consumption classes of the EU Water Label (http://www.europeanwaterlabel.eu/).

The Project will implement circular economy practices in waste management from construction so that at least 70% of non-hazardous construction and demolition waste generated on site is prepared for reuse, recycling and other material use, including backfilling operations for waste replacing other materials, in accordance with waste hierarchy and the EU Protocol on construction waste management and demolition.

The Project will not lead to a significant increase in emissions of pollutants into the air, water or soil. Measures will be taken to reduce the emission of noise, dust and pollutants during construction works. The construction parts and used materials contain asbestos in small amounts which will be properly managed, but do not contain substances of very high concern, as determined on the basis of the list of substances for which approval is required in Annex XIV. Regulation (EC) no. 1907/2006.

The Project is not located in/or near areas sensitive to biological diversity (including Natura 2000, UNESCO World Heritage and Key Biodiversity Areas, as well as other protected areas under the Nature Protection Act) nor will affect them.

3 ENVIRONMENTAL CONDITIONS OF PROJECT AREA

3.1 Land use

The location is surrounded by densely populated urban areas: residential and mixed-use areas, public and business facilities.

The building is located at Faust Vrančić Street 3, Varaždin, on cadastral plot 1348/10, cadastral municipality Varaždin within the scope of the General Urban Plan of the City of Varaždin (GUP, OG of the City of Varaždin, 1/07, 7/16, 5/19, 9/22) – cultural and historical unit/zone 1C, and the subject location is located in the zone "public and social purpose" "D".

The plot currently houses a building used by the FOI - the former Music School with accompanying premises and a parking lot.

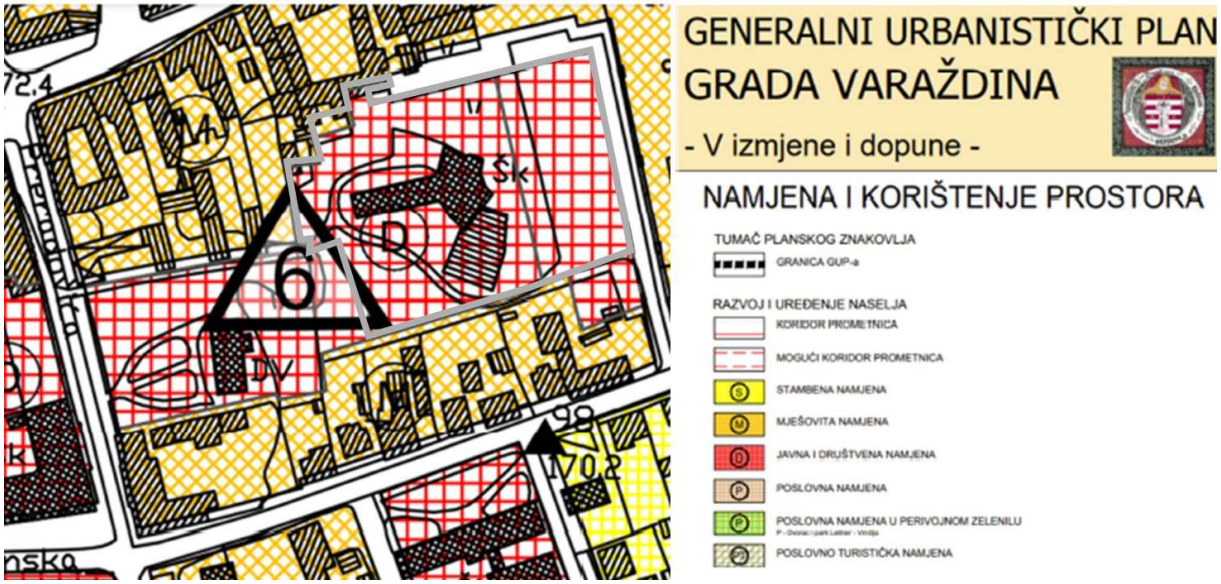

Figure 8. Land Use of the FOI 2 and the Surrounding Area of; source: General Urban Plan of the city of Varaždin

3.2 Air quality

The air quality in Varaždin is generally quite good compared to other cities in Croatia, though it can vary depending on the season and weather conditions. During the winter months, due to heating and increased use of fossil fuels, occasional issues may arise with elevated concentrations of particles (PM10, PM2.5), especially in areas with traffic congestion or local pollution sources. Overall, the air in Varaždin typically maintains moderate to good quality, with the main sources of pollution coming from traffic, heating, and localized factors.

However, during the warmer months, and given that Varaždin is not a major industrial city, the air tends to be cleaner and of higher quality. Occasionally, on days with poor winds and reduced air circulation, the air quality may decrease, but this is not a persistent issue.

According to the Decree on the designation of zones and agglomerations according to the levels of air pollution in the territory of the Republic of Croatia (OG 1/14), the location of the project is within the HR 1 The location of the project is situated within zone HR1, which covers Varaždin County as well as several other counties, including Osijek-Baranja County (excluding the HR OS agglomeration), Požega-Slavonia County, Virovitica-Podravina County, Vukovar-Syrmia County, Bjelovar-Bilogora County, Koprivnica-Križevci County, Krapina-Zagorje County, Međimurje County, Varaždin County, and Zagreb County (excluding the HR ZG agglomeration).

The nearest measuring station for air quality measurement is Varaždin-1 located in the Brezje settlement.

According to the Report on air quality monitoring on the territory of the Republic of Croatia in 2024, the air quality at the monitoring station Varaždin - 1 was assessed as I. category (clean or slightly polluted air, consistent with the limit value for 1-hourly and the limit value for 24-hour concentrations with regard to the protection of human health) for all pollutants (NO_2, O_3, SO_2, NO_2, CO, benzene, PM_{10}, $PM_{2,5}$, Pb in PM_{10}, Cd in PM_{10}, Ni in PM_{10}, As in PM_{10}).

3.3 Radon emission

Radon is a naturally occurring radioactive gas formed by the radioactive decay of radium, which is found in soil and rocks. It is present throughout the Earth's crust and can easily move from the ground into the air through various transport mechanisms. The concentration of radon in the outdoor air is generally low (between 5 and 15 Bqm^{-3}) and typically does not pose a significant health risk. However, its concentration can be much higher in indoor air (e.g., residential homes, schools, hospitals), ranging from 10 Bqm^{-3} to several thousand Bqm^{-3}, with extreme cases reaching up to one million Bqm^{-3}).

The primary sources of radon in indoor air are: the soil just beneath the building (85 - 90%), building materials (5 - 10%), groundwater (about 5%) and natural gas (less than 1%). Various factors influence radon concentration in buildings, including natural factors such as geological composition, soil structure, and climatic conditions, as well as technical factors like construction methods and human behaviors, such as ventilation and heating practices. Due to the complex interplay of these factors, it is practically impossible to develop a reliable model that predicts radon levels in every building. As a result, direct measurement remains the most accurate way to assess radon risk.

The national (and EU) reference level for radon concentration in indoor air is set at 300 Bqm^{-3}. To date, indoor radon measurements have been conducted with approximately 6,000 detectors in 8 Croatian counties (Brod-Posavina, Virovitica-Podravina, Lika-Senj, Karlovac, Istria, Požega-Slavonia, Sisak-Moslavina and Vukovar-Srijem)[5], including in 727 schools, 228 kindergartens and 1,400 residential buildings).

However, geogenic radon potential in City of Varaždin has not yet been measured.

Given the absence of radon measurements in Varaždin County, radon assessments must be conducted on a case-by-case basis, particularly during construction or renovation projects. Radon measurements can be carried out at specific locations, such as during the execution of building works, to ensure the safety and health of future occupants.

[5] http://radon.civilna-zastita.hr/

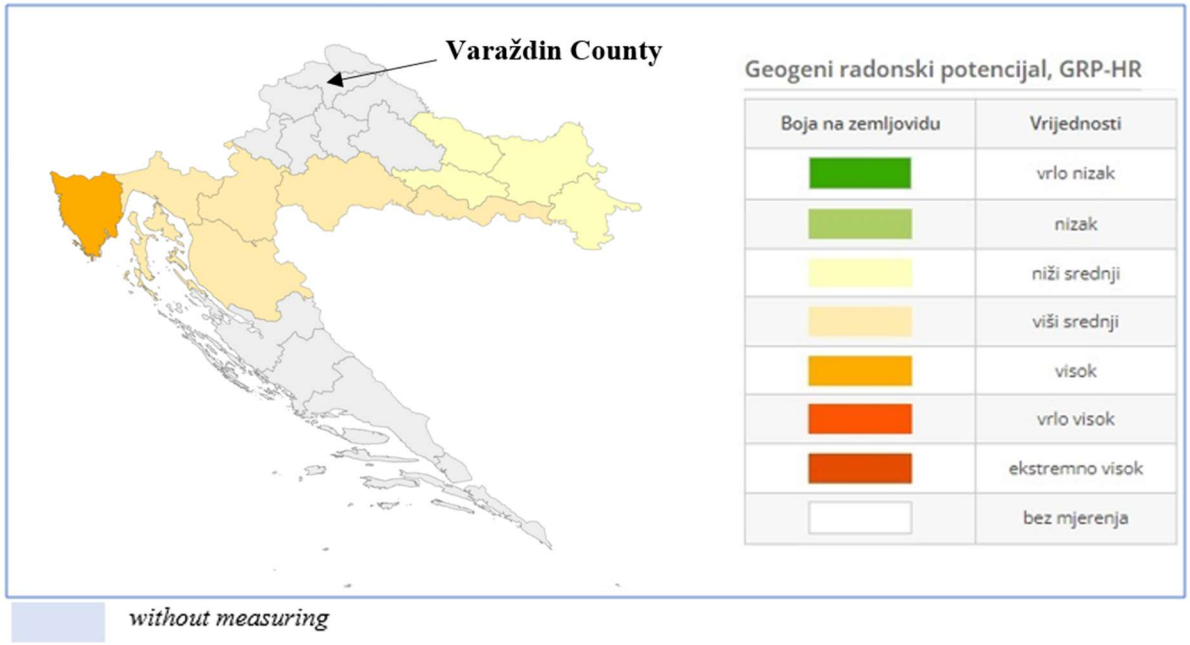

Figure 9. Geogenic radon potential in Croatia

3.4 Noise

In accordance with the Spatial Plan of the City of Varaždin, the map *"Land Use and Designation of Areas – Areas for Development and Regulation,"* the subject location is situated within the designated construction area of the settlement (developed part). In accordance with the intended land use of the subject location, pursuant to the Table 1 in Ordinance on the highest permissible noise levels with regard to the type of noise source, time and place of occurrence (OG 143/21) (Table 5.) location of FOI 2 in Varaždin Project belongs to zone 3- zone of mixed, predominantly residential use.

Table 5. Highest permitted rated noise levels for zone 2, 3 and 4 according to *Ordinance on the highest permissible noise levels with regard to the type of noise source, time and place of occurrence (OG 143/21)*

Noise zone	**Use of area**	**Highest permitted rated noise levels $L_{R,Aeq}$/ dB(A)**			
		L_{day}	**$L_{evening}$**	**L_{night}**	**L_{den}**
2	zone intended for permanent residence and/or residence, quiet areas within a populated area	55	55	40	56
3	**zone of mixed, predominantly residential use**	**55**	**55**	**45**	**57**
4	mixed, predominantly business use zone with housing, with occasional housing, predominantly agricultural holdings	65	65	50	66

Zone 3 - zone of mixed, predominantly residential use, in which the highest permitted rated noise levels $L_{R,Aeq}$ are:

- L_{day} 55 dB (A);
- $L_{evening}$ 55 dB (A);
- L_{night} 45 dB (A);

- L_{den} 57 dB (A).

The surrounding zones are also classified, in accordance with the for mentioned regulation, in noise Zone 3: Zone of mixed, predominantly residential use, and Zone 4: Mixed, predominantly business use zone with housing, with occasional housing, predominantly agricultural holdings, in which the following noise levels are allowed:

Zone 4

- L_{day}=65 dB(A);
- $L_{evening}$= 65 dB(A);
- L_{night}=50 dB(A);
- L_{den}=66 dB(A).

The maximum permissible noise levels $L_{A,eq}$ measured in enclosed special purpose spaces are determined in accordance with the Ordinance and for lecture halls, teaching rooms and similar rooms are 35 dB (A).

Permissible noise level for the construction site is determined by the provisions of the Ordinance on the maximum allowed noise levels with regard to the type of noise source, time and place of occurrence (OG 143/21). The permitted equivalent noise level of the construction site at the most exposed point of sound emission of the open living space during day and evening period is 65 dB(A). According to the mentioned ordinance, it is allowed to exceed that level for an additional 5 dB in the period from 8 to 18 hours. When performing construction works during the "night" period, the equivalent noise level must not exceed 55 dB. Exceeding the permissible noise levels shall be allowed if necessary for the technological process of the construction site and for up to three nights within a consecutive period of thirty (30) days. A minimum of two full night periods shall be provided between periods when exceeding allowable noise levels is anticipated without exceeding allowable noise levels during the night period.

3.5 Biodiversity, Nature protection areas and Natura 2000 Ecological Network

The location of the planned Project is in an urbanized area. Besides the existing Faculty buildings, the unbuilt surfaces are mainly horticulturally arranged. The surrounding area is dominated by residential and public buildings.

According to the Register of Protected Areas, the planned intervention is located outside the areas protected under the Nature Protection Act (OG 80/13, 15/18, 14/19, 127/19, 155/23).

The project is located within a MAB (Man and the Biosphere) area Mura-Drava-Dunav, within the transition zone (Figure 10.). The MAB Programme, established by UNESCO, seeks to foster a harmonious relationship between humans and the natural environment by designating biosphere reserves. These reserves are divided into three distinct zones of protection:

- Core Zone – Strictly protected area
- Buffer Zone – Area with limited activities
- Transition Zone – Area where sustainable economic and development activities are permitted

Since the project area falls within the transition zone, it is not subject to the most stringent protection measures. Nevertheless, development, economic, and infrastructure activities are allowed, provided they are in alignment with the principles of sustainable development. This entails ensuring that, throughout both the design and construction phases, the project minimizes environmental impacts, preserves natural and landscape values, optimizes resource use, and incorporates adequate environmental protection measures.

Therefore, while the location does not fall under the highest level of restriction, the project must be carefully planned and executed to ensure it does not compromise the conservation objectives of the biosphere reserve.

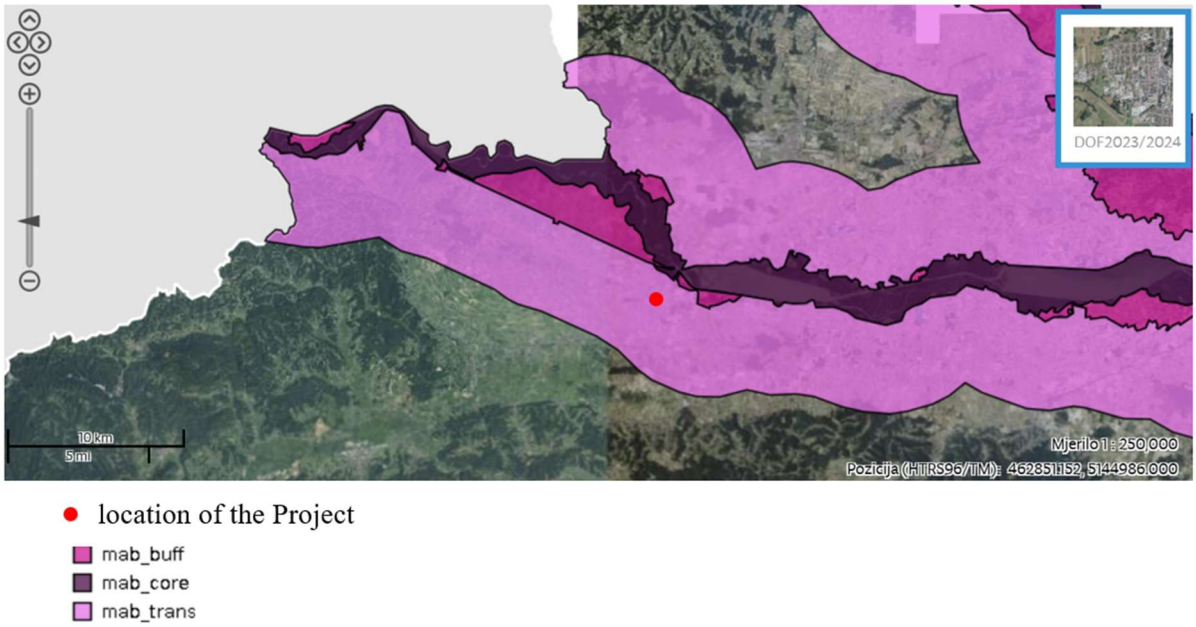

Figure 10. MaB – Man and Biosphere

According to the Regulation on the ecological network and competences of public institutions for the management of ecological network areas (OG 80/19, 119/23), the Project in question is located outside the area of the Natura 2000 ecological network. The nearest Natura 2000 ecological network is HR2001307 Dravske akumulacije (POP; conservation areas important for birds) is located northwest of the project location at a distance of about 1,3 km (Figure 11.).

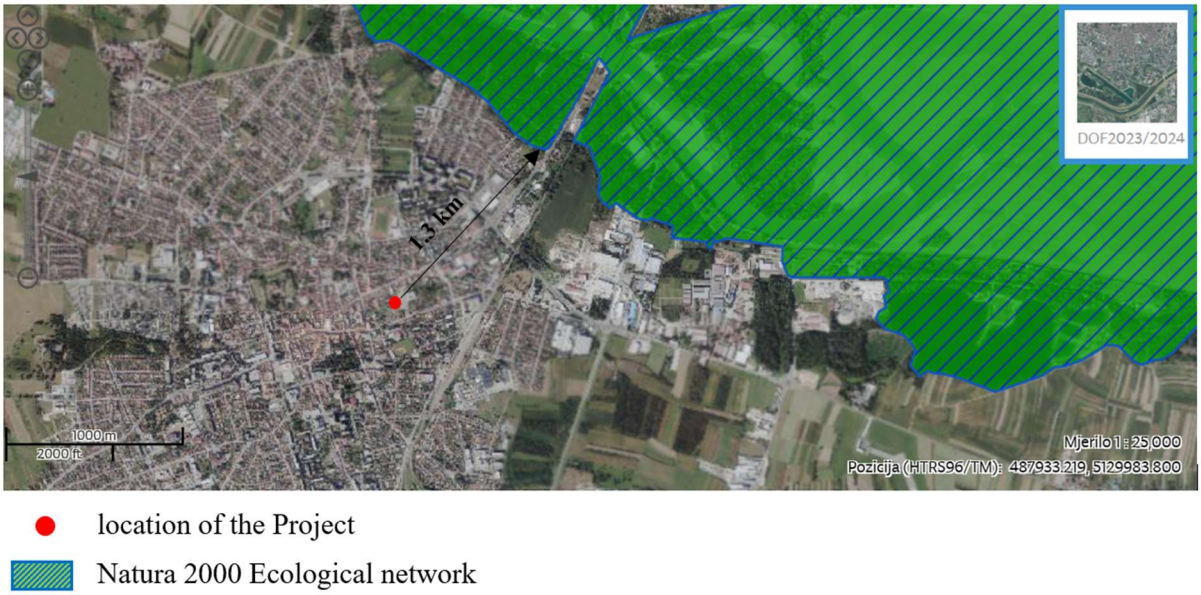

Figure 11. Natura 2000 ecological network in the wider area

3.6 Water and flood areas

According to the Croatia flood risk map, proposed Project FOI 2 is located outside the area with a probability of floods (Figure 12).

Figure 12. Flood risk map

3.7 Seismic characteristics and soil stability

According to the Seismic Map of the Republic of Croatia from 2012, for a return period of 475 years, the subject location belongs to the area with a peak acceleration of 0,155 g, where g is the acceleration of the gravity field, 9,81 m/s^2. The acceleration corresponds to V. degree of the MCS (Mercalli - Cancani - Sieberg) scale (strong earthquake). Looking at the return period of 95 years on the Seismic Map of Republic of Croatia, the peek acceleration at the location amounts 0,077 g, which corresponds to IV. level (moderate earthquake) of the MCS scale (Figure 13.).

Figure 13. Seismic map of Republic of Croatia (source: Maps of earthquake areas of the Republic of Croatia (gfz.hr))

3.8 Climate and climate change

The climate of the City of Varaždin is classified as a **moderately warm, rainy climate**, and its general characteristics (classified as **Cfwbx** climate) include warm summers, with the average temperature of the hottest month not exceeding 22°C. The temperature of the coldest month in this climate category generally ranges between –3°C and 18°C, and more than four months of the year have an average temperature above 10°C. There are no dry periods throughout the year. The annual rainfall pattern follows a continental type, with a maximum in the warmer part of the year and a secondary maximum in late autumn. The average annual air temperature is approximately 10°C. The warm part of the year, where the average temperature is higher than the annual average, lasts from mid-April to mid-October, coinciding with the growing season. The hottest month is July, while the coldest month is January – the only month with an average temperature below 0°C.

The area is relatively humid throughout the year, with a monthly average relative humidity exceeding 70%. The annual cycle of humidity reaches a minimum in April (69-74%) and a maximum in November or December (85-86%). The total annual precipitation is around 880 mm. Of the total annual precipitation, 55-60% falls during the warm part of the year (April to September), and 40-45% occurs in the cold part of the year (October to March). The frequency of rainy days with various amounts of precipitation is about 30-40% of the days in the year (115-140 days).

The dominant wind direction is from the south and southwest, as well as from the north and northeast quadrants, which occur with a probability of 20 to 35% on average throughout the year. Spring is the windiest season, while summer experiences a high frequency of weak winds (around 80%). The cloud cover cycle in the region peaks in winter and reaches a minimum in July and August. There are about 55 to 60 clear days per year, and twice as many cloudy days. Clear days are most frequent in summer, with about 8 to 9 days per month, while in the period from November to February, clear days are almost nonexistent. In December and January, half of the days are cloudy.

The solar radiation of the Varaždin area, with 1,995 hours of sunshine annually, places it in the category of moderately sunny areas in Croatia. The longest monthly duration of sunshine occurs in August (around 10

hours per day), while the shortest occurs in November and December (around 2 hours per day). There are about 40 to 60 foggy days annually, with around 10 foggy days occurring in January, while fog is rare or absent during the summer months. Fog is more frequent in lowlands and river valleys.
Frost occurs from September to April, with the most dangerous frost occurring during the growing season. Hail occurs on average once a year, most often between May and July.

With regards to climate change, expected increase in average temperature is between 1 and 1,4°C in all seasons by 2040, while by 2070, expected increase in average temperature is between 1,5 and 2,2°C. Expected increase in maximum temperature in all seasons by 2040 is between 1 and 1,5 °C, while expected maximum increase in temperature by 2070 is up to 2,2 °C in summer. By 2040 an increase in minimum temperature between 1,2 and 1,4 °C in winter is expected and by 2070 the largest increase in the minimum temperature in winter is expected between 2,1 to 2,4 °C. As for the precipitation, by the 2040 increase in precipitation is expected in winter and spring, while in summer and autumn a decrease in precipitation will prevail throughout the country. On the other hand, in the period up to 2070, a decrease in precipitation is expected in all seasons, except in winter.[6] The increase in the highest air temperature values in urban areas has the effect of creating heat islands. The annual air temperature in a city with a million inhabitants can be 1-3 °C higher than in an area outside the city. Heat islands have an impact on increasing energy consumption, they contribute to the effect of greenhouse gases and global warming and have a negative impact on water quality and human health.

[6] Seventh national report of the Republic of Croatia according to the United Nations Framework Convention in Climate Change (UNFCCC)

4 SOCIAL-ECONOMIC BASELINE OF PROJECT AREA

4.1 Population

City of Varaždin

Varaždin is a city in northwestern Croatia located on the banks of the Drava River, the historical, cultural, educational, economic, sports and tourist center of Varaždin County.

To the 2021 Census, the population in the City of Varaždin counted 43 999 residents and is 10th biggest town in Croatia. There is a trend of decrease in population since the Census from 2011 when the number of residents by 6,27%.

The total area of the City of Varaždin is 59,78 km^2. The City of Varaždin includes 10 settlements. Varaždin with 38 384 residents is the largest settlement with 87,24 % of population.

Some additional statistical data relevant for the City of Varaždin according to the 2021 Census:

- population density: the population density in the City of Varaždin is 736,02 residents/km^2
- number of households: 16 612
- average number of people in the household: 2,65.

The site is located on the border of the 2nd Local Board toward the1st Local Board 'Centar'.

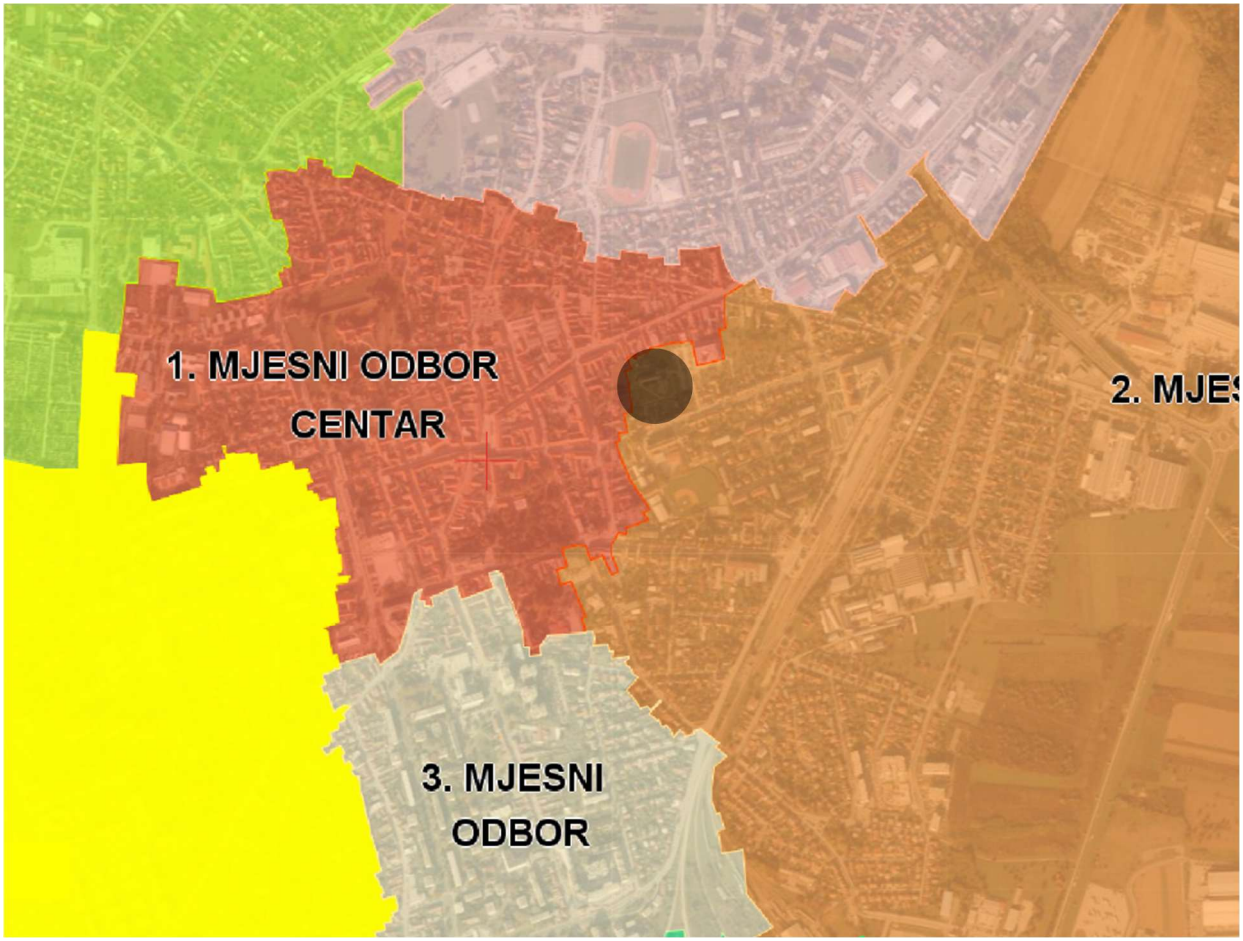

Figure 14. Site Location within the Sub-municipal Units of 1st and 2nd Local Board, source: gis.varazdin.hr

Above presented provided broader view but also, among others, some of vulnerable groups that could be eventually present within the local community, such as foreign citizens and national minorities, elderly residents, women, children, stateless, unemployed residents, people with disabilities. Accordingly, during the implementation of stakeholder engagement activities, care will be taken to ensure that the engagement of vulnerable groups (if applicable) is approached in an appropriate manner.

4.2 Socio-economic context

The City of Varaždin, as the cultural, traffic, administrative, and industrial center of northwestern Croatia, is one of the most economically active parts of Croatia. The City of Varaždin is well located at the so-called northwestern gate of Croatia and is well connected to the rest of Croatia and important traffic hubs abroad. The distance to Zagreb is only 80 km, and to the Republic of Slovenia and the Republic of Hungary is about twenty and forty kilometers, respectively.

The favorable geographical position, the quality educational structure of the population, the entrepreneurial tradition, and the existence of a quality transport infrastructure are a strong contribution to the potential for the development of economic activities in the City of Varaždin.

According to data from the Analysis of Financial Results of Entrepreneurs Based in the City of Varaždin in 2024 (Source: Fina, Register of Annual Financial Reports) ranking of the City of Varaždin in the Republic of Croatia is:

- by the criterion of the number of entrepreneurs, the City of Varaždin is ranked 8th (2,426)
- by the criterion of the number of employees of entrepreneurs, the City of Varaždin is ranked 6th (21,307)
- by the criterion of total revenue, the City of Varaždin is ranked 6th (2,740,615 EUR)
- by the criterion of profit, the City of Varaždin is ranked 6th (183,461 EUR)
- by the criterion of net profit, the City of Varaždin is ranked 6th (150,415 EUR).

4.3 Cultural Heritage

The Varaždin city center is listed in the Registry of Cultural Heritage of the Republic of Croatia as Cultural and Historical Entity of the City of Varaždin under registration number Z-5417 and the site is located on its eastern border. Existing FOI 2 building is not protected heritage.

In accordance with the Special Requirements issued 4 July 2025 by the Conservation Department in Varaždin, during earthworks, it is necessary to ensure archaeological supervision and, if necessary, protective archaeological research. The Beneficiary is obliged to sign a contract with an archaeologist or an institution authorized to carry out this type of work and to ensure the material and necessary technical means for its implementation. Based on the contract, the archaeologist is obliged to request the issuance of prior approval for archaeological works from the Conservation Department in Varaždin, in accordance with the provisions of the Ordinance on Archaeological Research (OG 102/10, 2/20). The pace and method of excavation will be determined by the archaeologist on the ground, who will conduct archaeological supervision in accordance with the actual findings. After the supervision, the archaeologist will submit a report on the supervision to the Conservation Department in Varaždin. Chance finds procedures will be applied if required. Archaeological supervision and chance find procedures will be included in contractor obligations and site method statements.

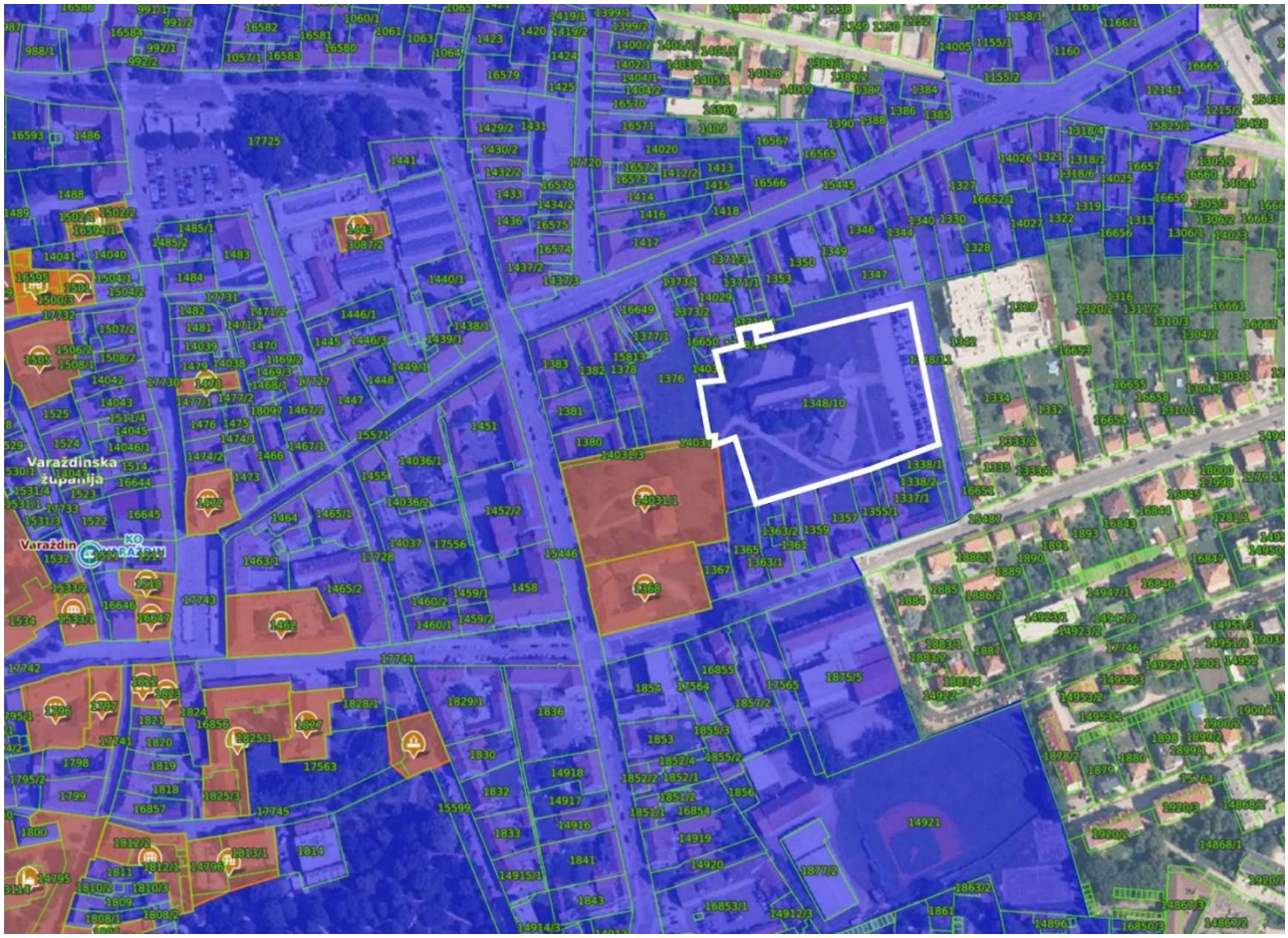

Figure 15. Site Location within the Cultural-Historical Unit of the City of Varaždin, source: Geoportal of the Registry of Cultural Properties

4.4 Buildings and Infrastructure in the Vicinity of the Project Location

The Project site is in a densely populated urban area of Varaždin in the vicinity of city center. The location is surrounded by densely populated urban areas: residential and mixed-use areas, public and business facilities.

On the west side of the site is existing Oršić Villa (FOI 3 building) recently renewed, and its annex is currently under construction. The construction works are planned to be completed by April 2027. The FOI 3 building is accessed from the Preradovićeva Street.

On the edges of the plot, on the south and north side there are the backyards of family houses located along Petra Krešimira IV Street and Kukuljevićeva Street with approx. 40 households. On the east side is the residential block with approx. 60 apartments.

Access to the location is from the south from Petra Krešimira IV Street and access to the building itself is from the east from Faust Vrančić Street, which is a dead-end street.

On the east side there is an access road with a parking lot, and the residential block.

Figure 16. Buildings and infrastructure in vicinity of the Project

4.5 Sensitive Receptors

The sensitive receptors identified are:

- FOI teaching staff, other employees and students
- residents of the housing block on the east side (approx. 60 apartments)
- residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street (approx. 40 households)
- students of the 1st Elementary School
- students of the 1st Gymnasium
- onsite construction workers

- construction workers on the FOI 3 construction site.

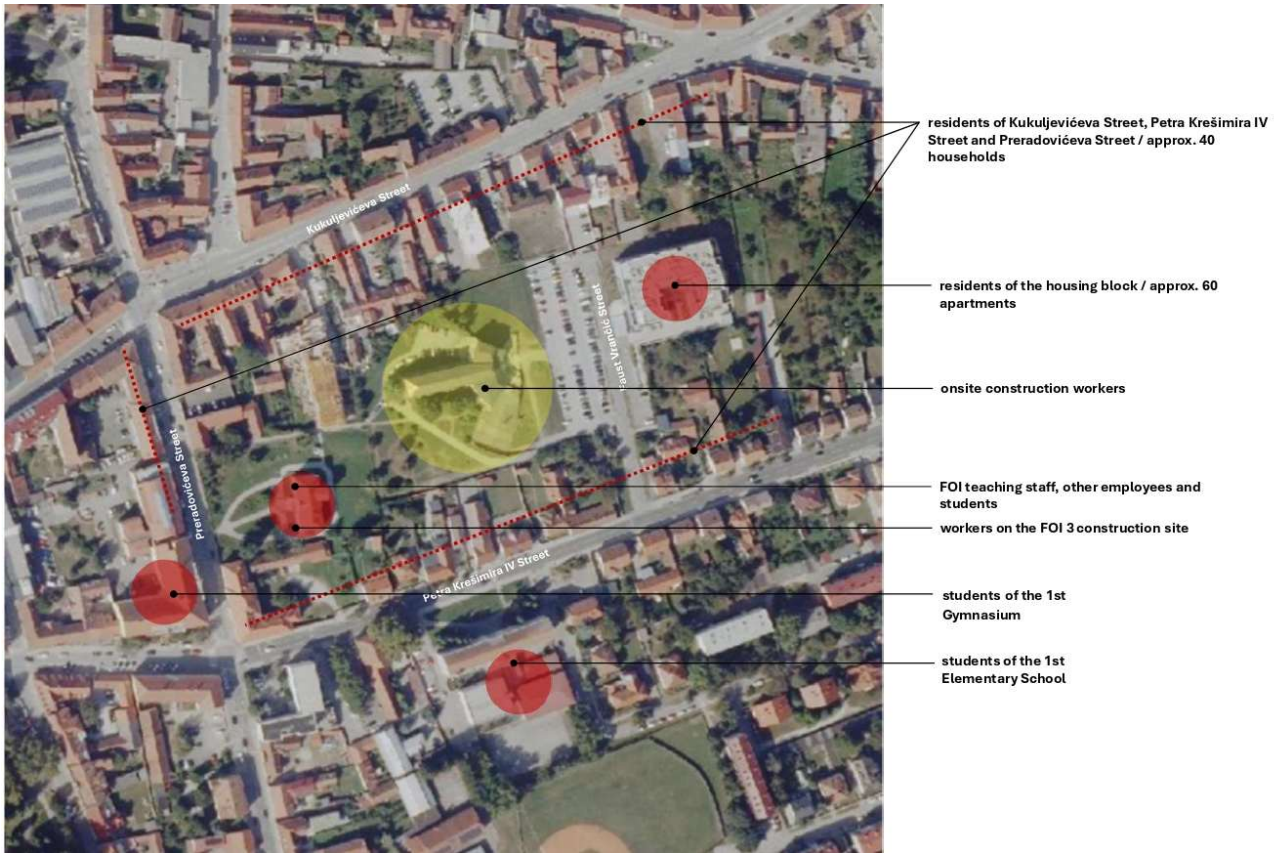

Figure 17A. Sensitive Receptors

5 STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

The Project Stakeholder Engagement Plan (Project SEP) is presented in Annex 1. It includes the stakeholder engagement activities including public presentation and information disclosure will be conducted as follows.

5.1 Previous Stakeholder Engagement Activities

The stakeholder engagement activities were conducted in an early stage of project development by conducting architectural design competition for conceptual design in 2013. FOI, local community and City of Varaždin were engaged in the preparation of the competition brief. FOI also participated in selection of the winning conceptual design by appointing two professors in the competition jury. The architectural design competition results were publicly presented giving the staff and community the opportunity to discuss the future development of the project.

Students and employees of the FOI have been informed about the temporary relocation of classes during the construction works and planned alternatives: increasing the share of online teaching and temporary use of the facilities of other University components. Cooperation with the Faculty of Geotechnics located approximately 15 minutes' walk from FOI and with the sufficient teaching area during the transitional period, is particularly highlighted.

5.2 Stakeholder Identification

Identified stakeholder groups are:

AFFECTED PARTIES	
Beneficiary (FOI)	▪ teaching staff ▪ other employees ▪ students
Local community	▪ residents of the housing block on the east side ▪ residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street ▪ 1st Elementary School ▪ 1st Gymnasium ▪ Construction workers on the FOI 3 construction site
Local self-government	▪ 1st Local Board of the City of Varaždin ▪ 2nd Local Board of the City of Varaždin ▪ City of Varaždin
Institutions	▪ Faculty of Geotechnics, Varaždin
PROJECT WORKERS	
Construction workers	-
OTHER INTERESTED PARTIES	
Media	-

If there are vulnerable groups involved, the engagement approaches will be tailored to their specific needs. For instance, for foreign citizens, national minorities and stateless persons materials will be adapted and translated into their languages, using simple and clear language. For elderly individuals, information will be distributed physically (e.g., via leaflets), as they may not regularly use the internet. For children, specifically those under 15 years of age, information will be conveyed through their parents. For people with disabilities, accessible formats will be utilized, and cooperation with dedicated organizations, associations, or caretakers will ensure effective communication. Additionally, during public consultations, the Environmental and Social Management Plan (ESMP) will also be disclosed in English.

5.3 Public Presentation

The public presentation of the FOI 2 Project and ESMP will be held before the start of the procurement of demolition and construction works.

The topics addressed at the public presentation will include but are not limited to:

- the existing building / value to the community
- design of the new building (indoor and outdoor facilities)
- value of the new building for the community
- archaeological supervision during earthworks
- objectives of the ESMP, SEP and GRM.

5.4 Information Disclosure

In pre-construction phase, following documentation, information, news and notices will be publicly disclosed on the Project's website (https://digit.mzom.hr/) and FOI website (www.foi.unizg.hr):

- ESMP
- information on the public consultation process
- invitation to the public presentation
- information about the Project and Design Documentation
- information on GRM.

The final version of the ESMP with the Public Consultations Report will be re-disclosed on the DIGIT's and the FOI website.

6 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

6.1 Overview

The Project under subcomponent 1.1. carries moderate environmental and social risks typical for construction activities. Environmental risks include dust and noise emissions, surface and groundwater pollution, soil contamination, traffic disruption, generation of construction waste, use of chemicals and hazardous materials, unsafe working conditions, poor occupational health and safety practices, fire and life safety risks, impact on protected cultural and historical sites, and potential effect on biodiversity. Social risks include community health and safety issues, chance finds, labour management, risk related to labour influx (including foreign workers), sexual exploitation and abuse/sexual harassment (SEA/SH), and intellectual property concerns.

All potential risks and impacts are (i) predictable and temporary (ii) low to medium in magnitude; (iii) site-specific, without likely effects beyond the project footprint; and (iv) low probability of serious adverse effects on human health or the environment. The Project's impacts can be effectively mitigated through proper design, planning, constructions, and operation measures.

6.2 Regulatory framework

This ESMP has been prepared in accordance with:

- The Environmental and Social Management Framework (ESMF);
- World Bank Environmental and Social Management Framework (ESF) and Environmental, Health, and Safety Guidelines (EHSG);
- World Health Organization (WHO) guidelines;
- National legislation of the Republic of Croatia;
- Good International Industry Practices (GIIP).

All design and construction activities shall comply with these requirements.

6.3 Construction phase impacts and mitigation measures

6.3.1 Potential impacts

Construction and demolition activities carry moderate risks, including:

- dust and noise emissions;
- traffic disruption;
- generation of large amounts of construction waste;
- unsafe working conditions (e.g. exposure of workers to hazardous materials such as materials containing asbestos);
- poor occupational health and safety practices;
- community health and safety risks;
- chance finds of archeological artefacts;

- labor influx impacts;
- impact on protected cultural heritage;
- disruptions of utilities (water, gas, electricity);
- risks related to relocation of existing facilities and parking areas;
- fire and life safety risks;
- demarcation between the construction site, public areas, and private land.

6.3.2 Mitigation measures (mandatory)

The following mitigation measures are mandatory and shall be fully implemented by the Designer and the Contractor (including all subcontractors, suppliers, and service providers). The PIU is responsible for monitoring compliance according to the Monitoring Plan.

Air Quality and Noise:

- Implement dust suppression measures;
- Control noise emissions through equipment selection and scheduling.

Waste Management:

- Provide designated areas for construction waste segregation and disposal;
- Ensure proper handling of hazardous substances.

Occupational Health and Safety (OHS):

- Ensure compliance with Croatian laws and international standards;
- Provide PPE and training for workers;
- Apply fire safety measures and emergency response procedures.

Cultural Heritage:

- Follow chance finds procedures in case of accidental archaeological discoveries;
- Protect nearby cultural and historical sites.

Infrastructure and Utilities:

- Minimize disruptions to water, gas, electricity, and other services;
- Ensure safe demarcation of the construction site.

Design and Structural Measures:

- Integrate radon reduction strategies in the Detailed Design;
- Apply Eurocode 8 for seismic resistance;
- Ensure noise reduction measures for new infrastructure;
- Incorporate nature-based solutions (green roofs, shading, light-colored facades, biodiversity-friendly planting) to improve microclimate, energy efficiency, and climate resilience.

6.4 Use/Operation Phase Impacts and Mitigation Measures

6.4.1 Potential impacts

During the operational phase, potential environmental and social impacts are generally low and include:

- Waste management;
- Increased indoor radon concentration;

- Minor noise impacts;
- Occupational health and community safety concerns.

6.4.2 Mitigation measures (recommended)

The following measures shall be integrated into the facility's operation and maintenance (O&M) procedures and/or relevant facility management plans, as the Project will have limited control post-handover:

- Implementation of waste management procedures;
- Maintenance of indoor air quality, including radon monitoring;
- Proper storage and handling of hazardous substances;
- Monitoring of noise levels and application of mitigation measures, if necessary;
- Maintenance of occupational health and safety (OHS) and community safety practices.

6.5 Responsibilities of involved parties

Designer	Responsible for integrating mitigation measures by conducting design supervision.
Contractor	Obliged to implement all mandatory measures during construction and ensure compliance of sub-contractors.
Supervising engineer	Supervision of the implementation of all mandatory measures during construction.
Project management	Coordination, monitoring and administrative supervision of all project activities, including reporting, financial management and compliance with applicable regulations.
PIU	Monitors implementation of mitigation measures according to the Monitoring Plan.
Beneficiary	Encouraged to adopt recommended measures during the operational phase.

6.6 Ambient air quality

POTENTIAL IMPACT

CONSTRUCTION PHASE

Dust and gaseous emissions from Project construction may temporarily reduce air quality and cause environmental nuisance on the Project site and in surrounding areas. Fugitive dust and particulate matter (PM) generated during construction activities could affect workers, FOI teaching staff, other employees, students, and nearby community members. Most dust is expected to settle within the Project site; however, some may be deposited offsite during material transport or movement of off-road vehicles.

Exhaust emissions from construction vehicles, machinery, and heavy equipment are expected to include sulfur dioxide (SO_2), nitrogen oxides (NOx), and carbon monoxide (CO). SO_2 emissions depend on the sulfur content of fuels; NOx contributes to acid rain, ozone formation, and local respiratory health impacts; while CO results from incomplete fuel combustion.

These emissions are anticipated to cause a temporary, localized reduction in air quality, primarily affecting receptors in the immediate vicinity of construction activities. The overall significance of adverse impacts is assessed as moderate and site-specific, with low likelihood of effects beyond the Project footprint.

Potentially affected receptors include:

- Construction workers on-site;
- FOI teaching staff, other employees, and students;
- Residents of the housing block to the east (approx. 60 apartments);
- Residents of Kukuljevićeva Street, Petra Krešimira IV Street, and Preradovićeva Street (approx. 40 households);
- Construction workers on the FOI 3 construction site;
- students of the 1st Elementary School;
- students of the 1st Gymnasium.

USE PHASE

No significant increase in exhaust gases and impacts on the quality of the surrounding air are expected.

MITIGATION MEASURES

DESIGN PHASE

There will be no emissions into the air during the use of building except emission of exhaust gases from the vehicles of the building occupants.

CONSTRUCTION PHASE

To minimize dust and particulate matter (PM) emissions during construction, the following measures shall be implemented:

- Regular water sprinkling on exposed surfaces;
- Installation of screens or plastic coverings around dusty areas;
- Enforcement of speed limits for vehicles moving on-site;
- Routine cleaning of the construction site to prevent dust accumulation;
- When possible, adjust timing of demolition to avoid school hours;
- Installation of mechanical barriers between the construction site and adjacent faculty buildings to protect sensitive receptors.

Gaseous emissions from vehicles, machinery, and equipment shall be mitigated by:

- Using low-sulfur fuels to reduce SO_2 emissions;
- Proper maintenance and timely servicing of all construction equipment to ensure efficient combustion;
- Minimizing the duration that materials are stored or handled on-site to reduce unnecessary emissions.

These measures are mandatory and shall be fully implemented by the Contractor during the construction phase to protect both on-site and off-site receptors.

USE PHASE

No mitigation measures are proposed in the Use Phase since no impact is expected.

6.7 Indoor air quality

POTENTIAL IMPACT

CONSTRUCTION PHASE

During construction, indoor air quality in partially enclosed spaces may be temporarily affected by dust, particulate matter (PM), and emissions from construction equipment. Sensitive receptors include construction workers and occupants of nearby buildings.

Dust and PM generated during demolition, material handling, and vehicle movement may cause temporary respiratory discomfort, while gaseous emissions (CO, NOx, SO_2, VOCs) are expected to have localized, moderate impacts.

Radon accumulation is not considered a significant risk during construction, as the building remains largely open until windows, doors, and other closures are installed.

Impacts are temporary, moderate, and site-specific, primarily affecting workers and adjacent building occupants.

Potentially affected receptors include:

- FOI teaching staff, other employees and students;
- residents of the housing block on the east side (approx. 60 apartments);
- residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street (approx. 40 households);
- students of the 1st Elementary School;
- students of the 1st Gymnasium;
- onsite construction workers;
- construction workers on the FOI 3 construction site.

USE PHASE

Every building has the potential from elevated levels of radon. The risk of getting radon-induced lung cancer increases as exposure to radon increases (either because the radon level is higher or the one lives in home longer)[7]. National (and EU) reference level is 300 Bq m^{-3}. Since no soil investigation works for measurement the concentration of radon in soil have been conducted, worst case scenario with high concentration of radon in soil is assumed. The radon protection Action plan 2019-2024 is in force in the Republic of Croatia, and all public and social facilities, especially health and educational institutions, during the phase of obtaining a usage permit, must also have a positive test result - the presence of radon in the building under prescribed limits. Radon concentrations in the soil in the Project area are currently unknown, and testing can only be carried out in the excavation phase.

Other potential pollutants typical for use of buildings include PAHs, VOCs (e.g., formaldehyde sources include furniture and cooking), dichloromethane (from solvents), and others.

MITIGATION MEASURES

DESIGN PHASE

Design documentation shall develop a radon reduction system (passive or active) in order to avoid or minimize the impact on human health (students, professors and other employees) during the use of planned faculty building. During development of design documentation, the Action plan must be analyzed and all mandatory preliminary works that have an effect on the positive examination of the constructed building must be defined.

[7] US EPA, Office of Air and Radiation, 2001: Building Radon Out, A Step-by-Step Guide On How To Build Radon-Resistant Homes

CONSTRUCTION PHASE

Radon levels should be assessed prior to the start of reconstruction and continuously monitored during the works to safeguard the health of workers and occupants. If pre-construction radon monitoring indicates elevated radon levels above applicable reference values, qualified experts shall assess the extent of the risk and define appropriate mitigation measures proportionate to the level of exceedance. Such measures may include enhancement of the planned radon protection system (e.g. upgrading from passive to active systems, additional sealing, sub-slab depressurization, or improved ventilation). Where necessary, the design documentation shall be revised accordingly to ensure compliance with applicable standards and protection of human health.

USE PHASE

The radon-elimination system will be fully functioning as soon as construction is finished. The building shall be tested (indoor air quality monitored) before use.

6.8 Soil

POTENTIAL IMPACT

CONSTRUCTION PHASE

Construction activities may temporarily affect soil properties and stability. Site clearance, grading, excavation, and the construction of access roads and foundations can physically disturb soil particles and alter the natural soil structure. Movement of heavy machinery on unpaved areas may cause soil compaction, reducing porosity and water infiltration capacity. Exposed soils during site preparation and excavation are also more susceptible to erosion, particularly during rainfall events. Temporary changes to soil cover and land use may occur as a result of these activities. Overall, these impacts are expected to be localized, temporary, and moderate in magnitude, confined to the project footprint and limited to the duration of construction works. Sensitive receptors include the construction site itself and adjacent land areas affected by machinery or material handling.

USE PHASE

No impact on soil is expected during usage phase, providing safety and good housekeeping (including waste) procedures are adhered to.

MITIGATION MEASURES

DESIGN PHASE

Protection of the construction pit is envisaged. Protective measures, including careful planning of excavation and material storage, will be integrated into the project design and applied throughout construction to safeguard soil.

CONSTRUCTION PHASE

Proposed measures to mitigate the risk of soil pollution due to spills or spill leakage include proper management of hazardous and non-hazardous liquid waste, proper use of oils and fuels on construction site, prevention of spillage coming from tanks, containers construction equipment and vehicles, adequate response measures in case of an accident etc.

Measures to prevent damage to the soil may carefully planning excavation and material storage to minimize soil compaction and disturbance.

Impacts from construction activities are expected to be localized and manageable if proper mitigation measures are applied. Where possible, excavated soil will be safely reused on site, while any remaining mineral waste will be deposited at designated locations with approval from the competent authorities. Detailed description of mitigation measures is presented in the chapter 9.1.

USE PHASE

There will be no fueling or waste dumping at the site. No specific soil protection mitigation measures were foreseen for the Use Phase.

6.9 Water Quality

POTENTIAL IMPACT

CONSTRUCTION PHASE

Impacts on groundwater and surface water quality during the construction phase may be the result of incidental spills at onsite maintenance locations, which could result in introducing organic matter, hydrocarbons (oils), coliforms or heavy metals to the groundwater aquifer.

Organic or hydrocarbon contamination could increase the biochemical oxygen demand (BOD) load on the groundwater. The impact is expected to be of localized nature (limited to the project area). Since the Project is located outside the groundwater protection zones and sanitary protection zones, no decrease in the quality of drinking water for local communities is expected. Potential impact on groundwater is considered to be minor.

There are no watercourses near the location, so negative impacts on surface water are not expected. The risk of incidental spills can be categorized as low if all mitigation measures are in place.

The water supply system of the City of Varaždin is stable, and no water shortages are expected due to watering on the dust suppression.

USE PHASE

No impact on water bodies (surface of groundwater) is expected during use phase as all waste waters from the building will be collected, treated locally if necessary, and when neutralized and safe, processed through the public sewerage system. There is a risk in the case of inadequate waste management and illegal dumping which will be prevented/monitored through system of waste manifests and records.

MITIGATION MEASURES

DESIGN PHASE

When designing the water supply system and the drainage system, it is necessary to respect the obtained Special requirements of the competent authorities.

CONSTRUCTION PHASE

Proposed measures to mitigate the risk of pollution of surface water and groundwater due to spill leakage include proper management of liquid waste, proper use of oils and fuels on construction site, prevention of spillage coming from tanks, containers construction equipment and vehicles, adequate response measures in case of an accident, isolation of wash down areas of concrete and other equipment from watercourses, with a strict prohibition on discharging wash water into the ground, streams, or rivers, ban on groundwater extraction on unregulated way, forbid discharge of contaminated waters into the ground od streams or rivers etc.

Detailed description of mitigation measures is presented in the chapter 9.1.

USE PHASE

It is necessary to ensure that the composition of sanitary, industrial and precipitation wastewater before discharge into the public drainage system of the Varaždin agglomeration is in accordance with the limit values of wastewater emissions prescribed by the Ordinance on wastewater emission limit values (OG 26/20).

6.10 Vulnerability of Project to the floods

POTENTIAL IMPACT

Since the Project is located outside the flooding areas the Project is not vulnerable to the floods.

MITIGATION MEASURES

No mitigation measures were foreseen since the Project is not vulnerable to the floods. Localized flooding must be prevented thought adequately designed and sized collection of surface runoff.

6.11 Biodiversity, Nature Protection Areas and Natura 2000

POTENTIAL IMPACT

DESIGN PHASE

Approx. ten trees have been recorded on the site as well as fragmentary modest shrubs and grass. All trees that can be preserved in relation to the planned construction will be incorporated into the landscaping. According to the Landscape Design the site is planned to be landscaped with trees, shrubs, climbing plants, ground cover plants, perennial plants and lawns.

Landscape Design ensures a positive impact on biodiversity.

CONSTRUCTION PHASE

The Project site is located within a previously developed area in the transition zone of the Drava-Mura-Danube Man and Biosphere (MaB) Reserve. The transition zone is intended for sustainable economic and urban development, including human settlements, agriculture, and infrastructure, while maintaining overall ecological integrity. Being in the transition zone means that the area may support habitats of local flora and fauna, provide ecological connectivity, and contribute indirectly to the overall biodiversity of the MaB reserve.

Although the Project site is outside the core and buffer zones of the biosphere reserve and is not part of any legally designated protected areas or Natura 2000 sites, its location within the transition zone implies the following potential considerations:

- temporary disturbance to local fauna due to construction noise, vibrations, and human presence;
- minor habitat disruption for urban-adapted species;
- possible indirect effects on ecological connectivity if natural corridors within the transition zone are modified.

However, as the site is already developed and not considered ecologically significant, no significant impacts on biodiversity, protected areas, or Natura 2000 sites are expected. Mitigation measures and careful planning will ensure that any potential minor effects are minimized.

USE PHASE

The Project site is located within an already developed urban area. As such, during the operational phase, potential impacts on biodiversity are expected to be minimal and largely confined to urban-adapted species and vegetation within the campus area. Panels of solar power plants can cause the so-called "lake effect" which implies the appearance of a water surface due to the reflection of light from the panels.

MITIGATION MEASURES

DESIGN PHASE

Use of native or drought-resistant plants to reduce irrigation needs. Select bushes and trees that are bees and bird friendly. Retain existing trees that do not interfere with the execution of the planned intervention.

CONSTRUCTION PHASE

Proposed measures to mitigate the risk of endangering flora and fauna include movement restriction of heavy machinery to the access road corridor, avoiding cutting down trees and other natural vegetation where possible etc. In order to reduce „lake effect“, Anti Reflective Coatings on the panels must be used.

Detailed description of mitigation measures is presented in the chapter 9.1.

USE PHASE

Regularly maintain landscape vegetation.

6.12 Noise exposure

POTENTIAL IMPACT

CONSTRUCTION PHASE

Noise is an unavoidable environmental and social impact during construction works. It occurs during the operation of machines and equipment at the site (transport, loading/unloading machinery etc.). This impact will be limited to the location of the site and the narrower area around the site and will cease after completion of foreseen works.

Permissible noise level for the construction site is determined by the provisions of the *Ordinance on the maximum allowed noise levels with regard to the type of noise source, time and place of occurrence (OG 143/21)* and amounts 65dB. According to the mentioned ordinance, it is allowed to exceed that level for an additional 5 dB in the period from 8 to 18 hours. The equivalent noise level of the construction site in the open or closed part of the building during the nighttime at the most exposed place of sound immission must not exceed 50 dB for the public and social zone. According to aforementioned Ordinance exceeding the permissible noise levels is allowed if necessary for the technological process of the construction site for up to three (3) nights within a consecutive period of thirty (30) days. A minimum of two full night periods shall be provided between periods when exceeding allowable noise levels is anticipated without exceeding allowable noise levels during the night period.

It is expected that increased noise levels will be local. Increased noise levels are expected to be local and will directly affect:

- workers onsite
- FOI teaching staff, other employees and students
- residents of the housing block on the east side
- residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street
- students at the 1st Elementary School
- students of the 1st Gymnasium.

USE PHASE

Expected impact during use of the new building include increase of noise level due building infrastructure (heating, ventilation, air conditioning, electric installation etc.). Given that no significant increase in noise levels are expected, the impact is considered low.

MITIGATION MEASURES

DESIGN PHASE

Noise protection measures must be incorporated into the project design (Main Design) to ensure compliance with applicable standards and minimize noise impacts.

CONSTRUCTION PHASE

Mechanisms available to monitor potential impacts and introduce mitigation measures in a timely manner include adequately informing the Project-affected parties about the Project (construction schedules, progress, and safety precautions) and GRM.
It is necessary to choose and apply adequate noise protection measures: adjustment of operating time; use of temporary movable noise barriers; use of alternative working machines with lower noise emission levels.

USE PHASE

Exceeding the permissible noise values is not expected, therefore no measures are proposed.

6.13 Vibration

POTENTIAL IMPACT

CONSTRUCTION PHASE

Since the project does not foresee activities that could affect the stability of the surrounding area, there is no risk of endangering the stability of the surrounding buildings.

Vibration from operation of the equipment/vehicles can affect workers at the site (especially workers in operating machines and equipment). It is expected that potential impact from vibration during construction will be local. Vibration from operation of the equipment/vehicles can affect:

- workers onsite
- FOI teaching staff, other employees and students
- residents of the housing block on the east side
- residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street
- students at the 1st Elementary School
- students of the 1st Gymnasium.

Given all above the impact is considered low.

MITIGATION MEASURES

CONSTRUCTION PHASE

Prior to the commencement of construction works, a baseline assessment of vibration-sensitive receptors (including nearby buildings and surrounding receptors) shall be conducted to document existing conditions and enable effective monitoring of potential impacts during construction.

During the execution of the works, it is recommended to establish GRM to submit complaints.

6.14 Traffic

POTENTIAL IMPACT

CONSTRUCTION PHASE

Delivery of construction materials and equipment to the construction site will be by road transport. The transportation of material and equipment to the construction sites will cause a temporary increase in traffic along the roads, also outside the project area. The overlap of general traffic and construction-related traffic routes poses a significant risk to traffic safety. The existing parking lot on the east border of the site with approx. 80 parking spaces will be demolished and the new parking area will be built on the east part of the site with 86 parking spaces.

Although the existing parking lot is mostly used by FOI, some of it is also used by residents of the surrounding building.

A temporary increase of heavy machinery may potentially affect:

- workers onsite
- FOI teaching staff, other employees and students
- residents of the housing block on the east side
- residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street
- students at the 1st Elementary School
- students of the 1st Gymnasium.

USE PHASE

The new parking area will be built on the east part of the site with 86 parking spaces.

A pedestrian path will be in function after the completion of the construction works.

MITIGATION MEASURES

CONSTRUCTION PHASE

A pedestrian path runs through the southern part of the plot, passing by Oršić Villa and further towards Preradovićeva Street. During construction, pedestrian traffic will be temporarily redirected from the eastern to the western side of the site, with safe alternative routes clearly marked. Access to adjacent buildings and properties will be maintained, and any temporary restrictions will be communicated in advance through SEP/notification channels.

Site-specific traffic management measures will be implemented to ensure the safe and efficient movement of pedestrians and vehicles, including appropriate temporary traffic arrangements, clear signage, adequate visibility, controlled delivery scheduling, and placement of warnings at construction sites. These measures shall be implemented in accordance with the Ordinance on Temporary Traffic Regulation and Signing and Safety of Road Works (OG 92/19) and other applicable national legislation, as well as good international industry practice.

USE PHASE

No mitigation measures are foreseen in the use phase.

6.15 Cultural Heritage

POTENTIAL IMPACT

Existing FOI 2 building is not protected heritage.

The Varaždin city center is listed in the Registry of Cultural Heritage of the Republic of Croatia as Cultural and Historical Entity of the City of Varaždin under registration number Z-5417 and the site is located on its eastern border.

MITIGATION MEASURES

In accordance with the Special Requirements issued 4 July 2025 by the Conservation Department in Varaždin, during earthworks, it is necessary to ensure archaeological supervision and, if necessary, protective archaeological research. The Beneficiary is obliged to sign a contract with an archaeologist or an institution authorized to carry out this type of work and to ensure the material and necessary technical means for its implementation. Based on the contract, the archaeologist is obliged to request the issuance of prior approval for archaeological works from the Conservation Department in Varaždin, in accordance with the provisions of the Ordinance on Archaeological Research (OG 102/10, 2/20). The pace and method of excavation will be determined by the archaeologist on the ground, who will conduct archaeological supervision in accordance with the actual findings. After the supervision, the archaeologist will submit a report on the supervision to the Conservation Department in Varaždin. Chance finds procedures will be applied if required. Archaeological supervision and chance find procedures will be included in contractor obligations and site method statements.

6.16 Land acquisition

POTENTIAL IMPACT

No land acquisition is expected for the Project.

MITIGATION MEASURES

No mitigation measures were foreseen since no land acquisition is expected.

6.17 Labor and Working Conditions and Occupational Health and Safety

POTENTIAL IMPACT

CONSTRUCTION PHASE

Potential risks in the construction phase involve general occupational health and safety hazards such as:

- working at height;
- electrocutions and electrical works;
- traffic accidents;
- lifting of heavy structures;
- accidents with exposed rebars;
- exposure to construction airborne agents (dust, etc.);
- ergonomic hazards during construction;
- vibration of heavy construction equipment;

- use of rotating and moving equipment, using heavy machinery;
- noise exposure;
- lack of workers' awareness on occupational health and safety requirements such as the use of personal protective equipment (PPE) and safe workplace practices;
- exposure to hazardous substances (e.g., paints, varnishes);
- according to BoQ for demolition, the 550 m^2 of asbestos-cement roof tiles are present in the existing building; due to the age of the existing buildings, other asbestos-containing materials may be present; during demolition, airborne asbestos fibers can pose serious health risks to construction workers if inhaled; dust containing asbestos may also settle on surfaces, creating a localized contamination hazard;
- working with heavy and dangerous machinery;
- working around pits, ditches, stacked materials, traffic, loading and unloading, etc.;
- seismic active area;
- risk of disease spreading.

Site personnel may experience heat stress (heat rush, cramps, heat exhaustion, heat stroke, etc.) due to a combination of elevated ambient temperatures and the concurrent use of PPE. This will largely depend on the type of work and the time of year. In addition, overexposure to UV radiation in sunlight can result in sunburn to exposed skin. Similarly, storms, strong wind, and other extreme weather conditions pose a risk. There is a risk of increased number of mosquitoes during the summer, but malaria or significant outbreak of other mosquito-borne diseases has not been recorded.

Also, there is a potential of labor influx, and contractor may engage migrant workers (local from outside the area or foreigners) subject to meeting national requirements for work permit or a work registration certificate and other requirements prescribed with the Act on Foreigners (OG 133/20, 114/22, 151/22, 40/25).
Given the growing presence of imported construction labor in the Republic of Croatia, we can expect foreign workers from neighboring countries as well as workers from further afield. During construction, due to potential labor influx, there is a risk of a potential sexual exploitation and abuse and sexual harassment. Although the risk exists, it is considered small due to the local context and country norms.

Potential risks regarding labor influx are also related to:

- language barriers;
- different attitudes of foreign workers toward safety and risk perception, absence or low skills for certain types of works that can lead to accidents (H&S risks);
- ineffective supervision and enforcement;
- exploitation and unfair treatment – contractual arrangements (unfair wages, excessive working hours, working in unsafe conditions, inadequate accommodation);
- integration in community: risks and impact on community related to foreign workers due to difficulty of their integration into community (e.g., the feelings of anxiety and fear for unsafe environment among the local residents when there are foreign workers living in the same building or in vicinity);
- potential cases of discrimination of foreign workers at the working place and within the community.

USE PHASE

Labor and working conditions and occupational health and safety include exposure to hazardous materials/waste and life and fire safety.

The planned equipment does not require special handling and expertise.

MITIGATION MEASURES

DESIGN PHASE

The buildings were inspected for asbestos during the Development Phase of the Design Documentation as part of investigative work on the existing structure, determining the parameters of the installed materials (walls, ceilings, roof, plaster, steel, concrete, wood, etc.).

The appropriate requirements for asbestos waste management were incorporated into the design documentation, particularly in the Bills of Quantities (BoQs). Asbestos was identified in the roof tiles.

Occupational Health and Safety in the design phase is regulated by the Occupational Health and Safety Act (OG 71/14, 118/14, 154/14, 94/18, 96/18). The Act regulates the obligation to apply the appropriate OHS rules in the Main Design, the preparation of the Safety at Work Study that includes and elaborates application of OHS rules when using buildings intended for work, the appointment of an OHS coordinator (one or more) during the design development (OHS coordinator 1) and other matters related to the occupational health and safety in the design phase. Development of project documentation must also comply with relevant legislation related to labor, working conditions and occupational health and safety such as Law on standardization (OG 80/13), Act on Fire Protection (OG 92/10, 114/22), Ordinance on fire protection measures during construction (OG 141/11), in Ordinance on the highest permissible noise levels with regard to the type of noise source, time and place of occurrence (OG 143/21), Ordinance on ensuring the accessibility of buildings for people with disabilities and reduced mobility (OG 78/13), Ordinance on conditions for fire-fighting approaches (OG 35/94, 55/94, 142/03), Ordinance on fire extinguishers (OG 101/11, 74/1) as well as with other applicable laws and regulations.

Related to the fire safety measures, all new buildings accessible to the public shall be designed, constructed, and operated in full compliance with local building codes, local fire department requirements and national (EU compliant) regulations, local legal/insurance requirements, and in accordance with an internationally accepted life and fire safety (L&FS) standard (in the absence of Croatian regulations for a specific area).

Project documentation must be developed in accordance with Special requirements issued by the Ministry of the Interior, Directorate of Civil Protection, Regional Office of Civil Protection Varaždin, Inspection Affairs Service.

Project sponsors' architects and professional consulting engineers should demonstrate that the building meets these life and fire safety objectives, those resulting from the national regulation as well as WB EHSG and GIIP, stricter ones prevailing. Life and fire safety systems and equipment should be designed and installed using appropriate prescriptive standards and/or performance-based design, and sound engineering practices.

Design documentation shall develop a radon reduction system as described in the Chapter 6.2.

CONSTRUCTION PHASE

In the construction phase, it is necessary to comply with overall relevant national legislation regulating labor, labor relations, working conditions, occupational health and safety and other related aspects (Occupational Health and Safety Act (OG 71/14, 118/14, 154/14, 94/18, 96/18), Labor Act (OG 93/14, 127/17, 98/19, 151/22, 46/23, 64/23), Anti-discrimination Act (OG 85/08, 112/12), Foreigners Act (OG 133/20, 114/22, 151/22, 40/25), Gender Equality Act (OG 82/08, 69/17), Collective Agreement for Construction (29/24), Ordinance on fire protection measures during construction (OG 141/11) and other relevant legislation).

Since asbestos was found in the existing buildings, the Contractor is required to: identify and test for asbestos; develop and implement Asbestos Removal and Management Plan fully compliant to with World Bank Environmental, Health, and Safety Guidelines (EHSG) and Good International Industry Practice (GIIP), and submit it for World Bank approval, ; use appropriate protective measures and PPE; ensure worker training and health monitoring; and safely remove and dispose of asbestos-containing materials. All activities must comply with the Regulation on the Protection of Workers from Risks Related to Asbestos Exposure (OG 15/25).

Also, it is required to implement additional measures, such as the establishment of a grievance mechanism for site workers, development of an occupational safety plan that, in addition to prescribed by the legislation such as common occupational safety measures, measures for particularly dangerous work, etc., also includes measures for the prevention of discrimination, sexual harassment, exploitation and abuse, measures and procedures for emergency situations and conducting training for all workers on measures and code of conduct. It is recommended to help foreign workers to integrate in local context. It is necessary to comply with other measures prescribed by the relevant legislation.

Detailed description of mitigation measures is presented in the Mitigation plan and subchapter 9.1.

USE PHASE

Working conditions and management of worker relationships (terms and conditions of employment, non-discrimination and equal opportunity, prohibition of child labor, etc.) must be ensured according to Labor Act (OG 93/14, 127/17, 98/19, 151/22, 46/23, 64/23). Detailed description of mitigation measures is presented in the Mitigation plan and subchapter 9.2.

6.18 Community Health and Safety

POTENTIAL IMPACT

CONSTRUCTION PHASE

Construction activities are expected to have low to medium impacts on community health and safety. Temporary disruptions may include increased dust, air emissions, noise, and vibration, which can affect the mental and physical well-being of students, staff, and local residents. Traffic congestion and increased construction vehicle movements may also pose safety risks for pedestrians and nearby community members.

The risk of exposure to hazardous materials is limited and short-term, related to the handling of construction materials and waste. Proper management of these materials will be essential to minimize potential health risks. Due to the potential influx of foreign labor, there is a small risk of sexual exploitation, abuse, or harassment within the community; this risk is considered low but requires awareness and preventive measures: codes of conduct, awareness for both workers and communities, SEA/SH sensitive GRM.

Temporary pedestrian traffic rerouting will be implemented to ensure safe access across the site. Clear signage and alternative routes will be provided, and access to adjacent buildings and facilities will be maintained. Communication with the community regarding temporary restrictions will be ensured through the Stakeholder Engagement Plan (SEP) and other notification channels.

The site is in a densely populated urban area, surrounded by residential and mixed-use buildings. Sensitive receptors include FOI teaching staff, students, and employees; residents of nearby housing blocks; and students at the 1st Elementary School and 1st Gymnasium. The ESMP will also consider cumulative nuisance impacts, such as noise, dust, and traffic, due to overlapping construction activities within the FOI campus i.e. FOI 3 building currently under construction.

During demolition and construction of the FOI2 building, teaching activities will continue with minimal disruption through measures such as increased online teaching and temporary use of alternative University facilities, including cooperation with the Faculty of Geotechnics. Students and staff have been informed of these arrangements.

Temporary redirection of existing pedestrian traffic from the east to the west of the site toward the city center will be in place during the construction. Safe alternative pedestrian routes and clear signage will be provided. Access arrangements for adjacent buildings/users will be maintained, and any temporary restrictions will be communicated in advance through SEP/notification channels.

Sensitive receptors include:

- FOI teaching staff, other employees and students

- residents of the housing block on the east side
- residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street
- students at the 1st Elementary School
- students of the 1st Gymansium.

Students and employees of the FOI have been informed about the temporary relocation of classes during the construction works and planned alternatives: increasing the share of online teaching and temporary use of the facilities of other University components. Cooperation with the Faculty of Geotechnics located approximately 15 minutes' walk from FOI and with the sufficient teaching area during the transitional period, is particularly highlighted.

Sensitive receptors include:

FOI teaching staff, other employees and students.It can be expected that the existing FOI parking area on the east side of the site will be used for construction site purposes, thus temporarily reducing the number of parking spaces. Although, the parking area is the property of FOI it is to some extent used by the local community.

Sensitive receptors include:

- residents of the housing block on the east side
- residents of the Kukuljevićeva Street, Petra Krešimira IV Street and Preradovićeva Street.

USE PHASE

Regarding the health of the local community, no significant impacts on the quality of the surrounding air are expected (no polluting substances are expected to be released into the air. No impacts on the soil are expected nor on water quality, biological diversity, protected nature areas and Natura 2000 areas.

Regarding the safety of the local community, no significant impacts are expected. The Project is not located in a flooding area.

Reconstruction of the building will be in accordance with EC8 (Eurocode 8) requirements and, for rehabilitation works, with safety provisions under the Act on Reconstruction of Earthquake Damaged Buildings in the City of Varaždin, Krapina-Zagorje County, Varaždin County, Sisak-Moslavina County and Karlovac County. Combined, these standards will enhance the current functional safety performance of building.

MITGATION MEASURES

DESIGN PHASE

Application of Eurocode 8: Design of structures for earthquake resistance. Mitigation measures for public safety risks regarding demolition and construction must be integrated into design documentation as part of design solutions and/or construction methods.

Fire safety measures during development of design documentation as described in the chapter 2.6.

The Design Documentation ensures that the building meets the essential and other requirements according to the Construction Act: Mechanical Resistance and Stability; Fire Safety; Hygiene, Health and Environmental Safety; Accessibility; Noise Protection; Energy Efficiency and Sustainable Use of Natural Resources.

CONSTRUCTION PHASE

During the construction phase, potential community health and safety (CHS) risks related to site activities, traffic, environmental nuisance, and interaction with the local population shall be managed through the implementation of specific mitigation measures defined in this ESMP.

Relevant competent authorities (e.g. police, state inspectorate, firefighters) shall be notified prior to the commencement of works. Local communities shall be informed in advance of construction activities that may cause disturbances, including demolition works, transport of materials, and activities with increased CHS risks. This includes timely communication of any disruptions to utility services (e.g. electricity, water supply), particularly during periods of increased demand. Communication shall be carried out in line with the Stakeholder Engagement Plan (SEP), and a publicly available Grievance Redress Mechanism (GRM) shall be established and accessible for receiving and addressing community concerns, including SEA/SH-related grievances.

During construction, although the risk of SEA/SH is low, measures shall be implemented to prevent any potential sexual exploitation and abuse and sexual harassment within the community, including implementation of the Code of Conduct, worker training, and access to GRM mechanisms.

The construction site shall be properly fenced, secured, and clearly marked, with safety signage provided in appropriate languages. Access of unauthorized persons shall be restricted. Safe pedestrian routes shall be maintained at all times, and temporary traffic regulation shall be implemented to ensure safe movement of pedestrians and vehicles, in accordance with the Ordinance on Temporary Traffic Regulation and Signing and Safety of Road Works (OG 92/19) and other applicable national legislation.

In case of power shortages or other disruptions in utility services (water, gas, etc.), the local community shall be informed in advance in line with the SEP.

Potential environmental impacts affecting the community, such as increased levels of noise, dust, air pollution, and waste generation, shall be minimized through the application of appropriate mitigation measures. The surrounding area shall be kept clean, and improper storage of materials or waste outside designated areas shall be avoided.

All construction activities shall be planned and organized to minimize disturbance to the surrounding community, including appropriate scheduling of high-impact activities (e.g. demolition works, transport of materials, use of heavy machinery).

Other measures for potential risks such as increased levels of noise, dust, temporary traffic disruptions, risk of road accidents for pedestrians, poor occupational health and safety practices, waste generation, possible decrease in air quality, and issues related to labor influx are addressed through specific mitigation measures presented in Chapter 9.1

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Regarding the temporary relocation of classes, the students and employees of the FOI shall be timely informed, the facilities used shall be in line with the OHS standards and, if applicable, will be accessible to people with disabilities and reduced mobility.

Regarding the possible reduction in the number of parking spaces during the construction, it is recommended to organize the construction site to minimize it.

USE PHASE

The fire alarm and fire systems must be regularly maintained and certified. Risk assessment and Operational plan of legal entities that perform activities using dangerous substances will be developed according to Law on the Civil Protection System (NN 82/15, 118/18, 31/20, 20/21, 114/22) if needed.

The Beneficiary is responsible for the maintenance of the building according to the Construction Act. The Beneficiary is obliged to adhere to the unified program and method of maintenance of the building and installed equipment and ensure the maintenance of the building in such a way that the basic requirements for the building are maintained throughout its life and to improve the fulfillment of the basic requirements for the building, the energy properties of buildings and unhindered access and movement in the building.

6.19 Waste Management

POTENTIAL IMPACT

CONSTRUCTION PHASE

Main waste types from the following waste groups are expected to occur:

- group 08 - wastes from the manufacture, formulation, supply and use of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks;
-
- group 13 - oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19 of waste catalogue);
- group 15 - waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified;
- group 17 - construction and demolition wastes (including excavated soil from contaminated sites);
- group 16 - waste not specified elsewhere (waste from electrical and electronic equipment);
- group 20 - municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions (paper, plastics, glass, food waste etc.).

During the construction works, asbestos waste will be present due to 550 m^2 of asbestos-cement roofing tile and also other asbestos containing materials can occur during demolition.

USE PHASE

The planned Project is expected to generate several groups of waste, including hazardous (marked with *) during use phase:

- group 13 - oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19);
- group 15 - waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified;
- group 16 - waste not specified elsewhere (waste from electrical and electronic equipment);
- group 20 - municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions (paper, plastics, glass, food waste, discarded electrical and electronic equipment etc.).

MITGATION MEASURES

DESIGN PHASE

A separate area must be designed for separate collection of municipal and other types of waste. On each floor there must be adequate places for sorting, collecting and recycling waste and any other waste management measures prescribed by Waste Management Act (OG 84/21, 142/23) and Ordinance on waste management (OG 106/22, 138/24, 108/25) must be implemented.

CONSTRUCTION PHASE

Each type of generated waste on the location must be temporarily stored in separate waste containers which have to be labelled with waste type name and waste code. All waste, including construction waste, asbestos waste, soil, must be disposed exclusively at the licensed construction waste landfills and processing plants. Whenever feasible the contractor should reuse and recycle appropriate and viable materials. Burning or illegal dumping of waste is strictly prohibited. Records (waste manifests, landfill/processing receipts, etc.) must be kept and checked.

Furniture and ICT equipment in the existing building should be reused as much as possible (by donations and/or use in other Beneficiary's facilities).

Work and handling with asbestos must be performed by a licensed Contractor with appropriate qualifications and experiences and with not-defaulted proven past performance references, adequate tools and protection for the safe removal of asbestos cover. The same will apply for weakly bound asbestos.

Before the commencement of any works, the Contractor must prepare and have in place both a Waste Management Plan and an Asbestos Removal and Management Plan. These plans must clearly define procedures for the safe handling, storage, and disposal of all construction waste, including asbestos-containing materials, in full compliance with applicable legislation and safety standards. They must also align with the World Bank Environmental, Health, and Safety Guidelines (EHSG) and Good International Industry Practice (GIIP), and be approved by the World Bank.USE PHASE

Beneficiary must ensure separate collection of waste at the place of origin, keep records, store waste in appropriate containers and temporarily store waste in a specially separated area until processing or until handing over to an authorized person.

6.20 Intellectual Property Rights

POTENTIAL IMPACT

PRE-CONSTRUCTION PHASE

Regarding the Project activities include demolition of the existing building, i.e. architectural work potential social impact related to the intellectual property could be expected.

The building was designed by architect Andrija Mutnjaković (1929.) probably at the end of the 70s and built at the beginning of the 80s.

MITGATION MEASURES

PRE-CONSTRUCTION PHASE

The potential impact related to the intellectual property rights can be mitigated by following the Article 114 (4) of the Copyright and Related Rights Act (OG 111/21); *The owner of an architectural work is only obliged to notify the author of the destruction and allow the author, at his request, to photograph or record the work and to hand over a copy of the design of the work, if any.*

6.21 Use of AI

POTENTIAL IMPACT

USE PHASE

As the research activities in the renovated facility will include use of AI in the Laboratory for Artificial Intelligence the identified potential operational risks are related to the ethical use of AI, including risks to fundamental rights, bias, transparency, and accountability.

MITGATION MEASURES

USE PHASE

The Project shall incorporate measures that align with and build upon the relevant EU legal and ethical framework. This includes compliance with the Artificial Intelligence Act (Regulation (EU) 2024/1689), and adherence to supporting EU guidelines on trustworthy AI (see: https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai). Also, it is recommended to consider the OECD AI Principles, which provide internationally recognized standards on AI transparency, robustness, and human oversight (see: https://www.oecd.org/en/topics/ai-principles.html).

7 INSTITUTIONAL ARRANGEMENT

To ensure the effective implementation of this ESMP, there is need for clear roles, responsibility and reporting procedure by various institutions. As part of environmental and social management, MSEY must ensure that this ESMP is part and parcel of the contract documents for the Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics (FOI 2).

MSEY, through the PIU will have the responsibility to ensure that the ESMP and the monitoring plan for design phase are implemented. They must ensure that all stakeholders in the process (the Contractor, sub-contractors, goods supplier, service provider or others engaged or employed by the Contractor), are familiar with the contents of the ESMP and their roles, that they understand and adopt ESMP, that resources are available and key staff for implementing the activities are adequately trained.

Contractor will be required to develop the following Contractor Environmental and Social Plan (C-ESMP) to manage key environmental and social risks if awarded the contract. C-ESMP will consist of the following plans and procedures:

Waste Management Plan

- defines waste management procedures at the construction site for each category of waste generated during construction, method and place of storage of individual categories of waste; must be in line with national legislation and EU Construction and Demolition Waste Management Protocol.

Asbestos Removal and Management Plan (subject to WB approval)

- defines procedures for removing materials containing asbestos before proceeding with the removal of the building structures, describes application of necessary measures to protect workers health and safety, all according to Ordinance on the Protection of Workers from Risk related to Exposure to Asbestos (OG 15/25) and Ordinance on Construction Waste and Waste containing Asbestos (OG 69/16); in line with World Bank Environmental, Health, and Safety Guidelines (EHSG) and Good International Industry Practice (GIIP).

Plan for establishing Grievance Redress Mechanism (GRM)

- describes action for planning the establishment of protocols for receiving and resolving complaints and managing incidents and accidents, internal (within the contractor's company) and external (receiving and resolving complaints from the community). GRM should ensure special referral pathways for grievances on GBV and SEA/SH.

Safety at Work Plan

- measures to reduce health hazards and to ensure safety at work during the execution of works according to Ordinance on occupational safety at temporary construction sites (OG 048/18), WB EHSG and GIIP);
- includes Occupational Health and Safety (OHS) measures during the execution of construction works, accommodation conditions, food and transportation of workers, sanitary facilities and wardrobe, organization of first aid, personal protective equipment, workplaces with special working conditions and medical examination of workers, training of workers in occupational safety, safety measures in the work of subcontractors.

Emergency Preparedness and Response Plan

- actions that must be taken to ensure staff safety in an emergency (spills, accidents, fire, explosion, earthquake…), including a list of all emergency equipment at the construction site (such as fire extinguishing systems, spill control equipment, communications), and alarm systems (internal and external), and decontamination equipment, contacts of responsible persons, competent authorities, other emergency numbers, communication procedures and evacuation plan.

Fire Safety Plan

- includes a list of major workplace fire hazards, including the ones caused by flammable and explosive technical gases (oxygen, hydrogen), their proper handling and storage procedures, potential ignition sources and control procedures, and a description of fire protection, trainings documentation, and systems, as well as maintenance and plans for safety drills.

Contractor ESMP (C-ESMP) will be developed and continuously updated (minimum every 6 months) to enable implementation of mitigation measures.

In addition to regular activities of professional supervision of construction, the activities of Site Supervising Engineers will also include:

- regular monitoring and assessment of measures to prevent and/or mitigate negative environmental and social impacts of the Project in accordance with the ESMP;
- regular submission of monthly reports on monitoring carried out to the E&S Specialists and/or E&S Experts;

The following monitoring reports will be produced:

- Contractor will prepare monthly reports according to the requirements defined in the chapter 10 and contract for works, and Supervising Engineer will review and approve Contractor's monthly reports on the implementation of the ESMP for the PIU Environmental and Social Specialists. The monthly report will include information on monitoring and the implementation of the ESMP on the location of Project;
- Semiannual Progress Reports on ESMP compliance until differently agreed. Project progress reports will be prepared by the E&S Specialists at PIU, by combining monthly reports and the results of review meetings. The progress report shall report in detail on progress in preparation and the quality and success of ESMP implementation and highlights the environmental and social issues resulting from the activities supported by the Project, the status of mitigation measures and the necessary follow-up steps. The status of mitigation measures and the follow-up steps will be submitted to the World Bank (Environmental & Social Experts) for review. In case non-compliances are noted in the implementation of the ESMP and the World Bank policies and procedures, ESMP measures and / or national legislation, the PIU will suggest corrective measures. If the non-compliances are significant, they will notify the World Bank Environmental & Social Specialists without a delay. **In the event of major non-compliances or failure to implement corrective measures, financial measures against the contractor are also possible, including withholding payments (until acceptable E&S report), which in the worst case include the termination of the contract;**
- Notification Reports on incidents and accidents during construction: E&S Specialists at PIU will prepare and implement an incident reporting procedure, indicating details of the incident, institutional responsibilities, immediate measures to address the reported incident and information requirements to be provided by the Supervising Engineer. Supervising Engineer will have to fulfil the Notification Report and promptly notify the PIU E&S Specialists and/or E&S Experts within the 12 hours of any incident or accident related to the construction works activities which have, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers including health and safety serious injuries and road accidents. E&S Specialists will then notify the WB within 48 hours after learning of the incident or accident. In accordance with the Environmental and Social Commitment Plan (ESCP), the PIU shall ensure that all such incidents are subject to a detailed investigation to determine root causes, and that appropriate corrective and preventive measures are identified and implemented. A follow-up report on the investigation, including findings and actions taken, shall be submitted to the World Bank within the timeframe defined in the ESCP.

Table 6. Capacity building plan for implementation of the ESMP

Activity	**Target Group/ Participants**	**Responsibility**	**Timeline**
In line with ESCP, organise training on mitigation, monitoring and reporting under ESF, waste management, GRM, OHS, and asbestos management when deem needed	Contractor workers and Beneficiary	PIU	Once Project is awarded and prior to implementation of the Project
Specific training on directing the complaints from the community to Project GRM	Contractor's employees	PIU Social Expert	Prior to commencement of the construction works
Training on Contractor's GRM and protocol in case of any incidents and accidents	Contractors and sub-contractors' workers	Contractor	Prior to commencement of the construction works
Training on the Code of Conduct (part of which is SEA/SH sensitization)	Contractors and sub-contractors' workers	Contractor	Prior to commencement of the construction works and when deem needed

8 GRIEVANCE REDRESS MECHANISM

The main objective of the Grievance Redress Mechanism (GRM) is to allow the Project's stakeholders and public to submit complaints, feedback, queries, suggestions, or even compliments related to the overall project management and implementation. The GRM should address issues and complaints reported by the stakeholders in an efficient, timely, and cost-effective manner. It should ensure transparent and credible processes for fair, effective and lasting outcomes. It should build trust and cooperation as an integral component of broader community inclusion that facilitates corrective actions.

The grievance mechanism(s) should be accessible to use and communicated to local community, public and/or site workers. Also, the grievance mechanism(s) should ensure anonymity in raising and addressing grievances, transparency and credibility as well, and that the grievances are addressed in an efficient, timely, and cost-effective manner.

8.1 Project GRM

The Project's GRM is available:

- by using dedicated e-mail address (grmdigit@mzom.hr)
- by phone (+385 1 4594 341)
- by postal delivery (Ministarstvo znanosti, obrazovanja i mladih, Donje Svetice 38, 10000 Zagreb).

Information on GRM is published on the Project's website. It will also be communicated on the Beneficiary's website and by its various communication materials, including through flyers at the construction site. The local community will submit their complaints only through Project GRM. As part of the GRM training for the contractor's workers, the workers will be trained to direct members of the local community, who want to submit complaints, to the Project's GRM.

8.2 Contractor's GRM

Labor GRM

The Contractor will be required to prepare and enforce a Code of Conduct for workers and report on regularly basis all related incidents that might occur during the construction works.

Contractor will establish Contractor's GRM as part of the C-ESMP, Plan for establishing Grievance Redress Mechanism (GRM) where the protocol for receiving and resolving complaints and administering incidents and accidents and training program for contractor and all subcontract workers will be defined.

Finally, C-ESMP will be developed containing a detailed description of Contractors GRM. After establishment of Contractor's GRM, Contractor will also provide training for all sub-workers on Contractor's GRM. A list of all complaints received, and corrective actions taken will be included in monthly reports for the PIU E&S Specialists and/or E&S Experts.

Community GRM

The Contractor and all sub-contractors will direct complaints received from the local community to the PIU (Project GRM). GRM training will be held by the PIU Social Specialist for the Contractor's employees to educate them on directing the complaints to Project GRM.

Both Project and Contractors GRM will ensure special referral pathways for grievances on GBV and SEA/SH.

9 ENVIRONMENTAL AND SOCIAL MITIGATION AND ENHANCEMENT PLAN

This section considers mitigation of the potential impacts resulting from the realization of Construction and Equipping of Research Infrastructure of the University of Zagreb Faculty of Organization and Informatics (FOI 2) in Varaždin that were identified and evaluated in Chapter 6.

The main objective of the mitigation measures is to reduce the significance of the potential impacts to an acceptable level for all aspects of the Project in relation to the receiving environment and community.

Mitigation measures for construction and use phase defined with this ESMP are mandatory measures for contractor and Beneficiary to follow.

Impacts and mitigation measures are grouped according to the various receptors (air, soil, water, and human environment).

9.1 Environmental and social mitigation plan – Construction Phase

Environmental and social mitigation plan is presented in Table 7.

Table 7. Environmental and social mitigation plan

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
General conditions				
Intellectual Property Rights	1. Notify the author of the existing building, architect Andrija Mutnjaković, and allow, at his request, to photograph or record the work and to hand over a copy of the design of the work, if any.	-	Beneficiary	PIU
Permits and certificates; Design	2. All required permits must be acquired prior to works and kept on site (e.g., building permit).	Included in project cost	Building contractor, PIU	Supervising Engineer, PIU
	3. Contractor and subcontractors must have valid operating licenses.	Included in project cost	Building contractor	Supervising Engineer, PIU
	4. The state inspectorate must be notified of upcoming activities and the copy of notification must be available at the construction site.	Included in project cost	Building contractor	Supervising Engineer, PIU
	5. Materials quality certificates, vehicles attest, certificates for working at heights, health and safety certificates for workers (e.g. to operate heavy machinery and vehicles) must be in place before works commence.	Included in project cost	Building contractor	Supervising Engineer, PIU
Site organization	6. Construction Work Plan must be available at the construction site (in case that two or more contractors perform construction activities).	Included in project cost	Building contractor	Supervising Engineer, PIU
	7. All occupational health and safety measures must be ensured.	Included in project cost	Building contractor	Supervising Engineer, PIU
	8. Contractor must develop Environmental and Social Management Plan (C-ESMP), to enable implementation of mitigation measures for environmental and social risks. C-ESMP comprises Waste Management Plan, Asbestos Removal and Management Plan, Plan for establishing Grievance Redress Mechanism (GRM), Safety at Work Plan, Emergency Preparedness and Response Plan, Fire Safety Plan.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	9. Emergency Preparedness and Response Plan must be prepared for works (as part of C-ESMP) and it must cover actions that must be taken to ensure staff safety from emergencies. It shall include, but it is not limited to a list of all emergency equipment at the construction site (such as fire extinguishing systems, spill control equipment, communications), and alarm systems (internal and external), and decontamination equipment (where this equipment is required), contacts of responsible persons, competent authorities, other emergency numbers, communication procedures and evacuation plan. EPR must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	Included in project cost	Building contractor	Supervising Engineer, PIU
	10. Staff shall be trained/instructed in all emergencies, waste management, first aid and firefighting and other relevant procedures. Procedures shall be available at the site.	Included in project cost	Building contractor	Supervising Engineer, PIU
	11. Temporary material storage on the construction site should be clearly marked.	Included in project cost	Building contractor	Supervising Engineer, PIU
	12. There shall be no temporary storage of construction materials and waste within any type of private property.	Included in project cost	Building contractor	Supervising Engineer, PIU
	13. The surrounding area near the project must be kept clean and good maintenance practices must be applied at the site. Works must be carried out in a safe way.	Included in project cost	Building contractor	Supervising Engineer, PIU
	14. Stockpiles must be located away from drainage lines, natural waterways and places susceptible to land erosion.	Included in project cost	Building contractor	Supervising Engineer, PIU
	15. Stockpiles must not exceed 2 m in height to prevent dissipation and risk of fall. Materials to be lifted by forks, cranes cannot be placed under or in the vicinity of overhead transmission lines.	Included in project cost	Building contractor	Supervising Engineer, PIU
	16. Producer of asphalt, gravel, concrete must possess all necessary concessions, working and OHS permits, and emission permits, quality certifications and labour and working conditions requirements.	Included in project cost	Building contractor	Supervising Engineer, PIU
	17. During earthworks (and where applicable) utility providers must be consulted to avoid damages to other infrastructure. In areas where other infrastructure is present, only manual work shall be applied.	Included in project cost	Building contractor	Supervising Engineer, PIU
	18. All transportation vehicles and machinery must be equipped with appropriate emission control equipment, regularly maintained and attested.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	19. There shall be no unlicensed borrow pits, quarries, or waste dumps in adjacent areas, especially not in protected areas.	Included in project cost	Building contractor	Supervising Engineer, PIU
Occupational Health and Safety				
Worker's safety	20. Safety at Work Plan (as part of the C-ESMP) must be prepared and shall include: a. measures to reduce health hazards and to ensure safety at work during the execution of works according to Ordinance on occupational safety at temporary construction sites (OG 048/2018), this ESMP, WB Environmental, Health and Safety Guidelines (EHSG) and Good International Industrial Practice (GIIP), stricter ones prevailing; b. occupational health and safety (OHS) measures during the execution of all construction works, accommodation conditions, food and transportation of workers, sanitary facilities and wardrobe, organization of first aid, personal protective equipment, workplaces with special working conditions and medical examination of workers, training for workers and visitors of construction site in occupational safety, safety measures in the work of subcontractors. c. measures for identified risks from weather extremes such as strong winds, excessive heat, storms, etc.	Included in project cost	Building contractor	Beneficiary, PIU
	21. Staff must be properly trained (and certified if applies) for the positions and work performed, workers must hold valid workers certificates for e.g., certificates for electrical safety (for licensed electrician), working with asbestos materials, working at heights, operating dangerous machinery, etc.	Included in project cost	Building contractor	Supervising Engineer, PIU
	22. Engaged workers must use protective equipment, workers' personal protective equipment and safety procedures comply with legislation and international good practice (ESH and safety glasses, safety boots, harnesses when needed, personal hearing protection equipment when needed, and other work specific protective equipment, appropriate masks or respirators when dealing with the asbestos, etc.). Contractor must ensure that sufficient quantities and quality of equipment is available.	Included in project cost	Building contractor	Supervising Engineer, PIU
	23. Appropriate informative and warning signposting of the sites shall inform workers (and authorized visitors) of key rules and regulations to follow.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	24. Pedestrian routes on the construction site must be clearly marked, safe, and separated from vehicle traffic. Appropriate signage and barriers should be in place to ensure the safety of pedestrians at all times	Included in project cost	Building contractor	Supervising Engineer, PIU
	25. Appropriate marking in and out of the construction sites /section by section and speed-reduction signs must be ensured.	Included in project cost	Building contractor	Supervising Engineer, PIU
	26. All dangerous spots in the working sites such as pits, trenches, etc. must be clearly marked and fenced.	Included in project cost	Building contractor	Supervising Engineer, PIU
	27. The transportation routes outside the construction areas (local, county and state roads) must be kept clean.	Included in project cost	Building contractor	Supervising Engineer, PIU
	28. Machines must be handled only by experienced and appropriately trained personnel, certified in line with the national regulation (where applicable), thus reducing the risk of accidents.	Included in project cost	Building contractor	Supervising Engineer, PIU
	29. Fire Safety Plan (as part of C-ESMP) must be prepared and shall include a list of major workplace fire hazards, their proper handling and storage procedures, potential ignition sources and control procedures, and a description of fire protection, trainings documentation, equipment, and systems.	Included in project cost	Building contractor	Supervising Engineer, PIU
	30. Devices, equipment and fire extinguishers must be attested and functional, so in case of need they could be used rapidly and efficiently.	Included in project cost	Building contractor	Supervising Engineer, PIU
	31. Constant presence of attested firefighting devices must be ensured on sites in case of fire or other damage. Their position must be communicated to workers and marked. The level of fire-fighting equipment must be assessed and evaluated through a typical risk assessment.	Included in project cost	Building contractor	Supervising Engineer, PIU
	32. First aid kits shall be available on the site and personnel trained to use it.	Included in project cost	Building contractor	Supervising Engineer, PIU
	33. Procedures for cases of emergency (including spills, accidents, etc.) as part of the Emergency Preparedness and Response Plan must be available at the construction site and conveyed to all workers.	Included in project cost	Building contractor	Supervising Engineer, PIU
	34. Adequate sanitary facilities (toilets and washing areas) must be provided at the construction site with adequate supplies of hot and cold running water and soap.	Included in project cost	Building contractor	Supervising Engineer, PIU
	35. Work must be aligned with weather conditions which can factor in safe organization of works and OHS measures.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
Worker's health due to improper asbestos handling	According to Ordinance on the protection of workers from risk related to exposure to asbestos (OG 15/25) contractor must: - assess the risks of asbestos exposure on-site - develop detailed asbestos remediation plan (Asbestos Removal and Management Plan as part of C-ESMP) that includes procedures for removing materials containing asbestos before proceeding with the removal of the building structures, describes application of necessary measures to protect workers health and safety - provide appropriate protective equipment and measures for workers - provide specific training on asbestos safety and exposure risks for workers - implement measures to control asbestos dust, including wetting materials and using air filtration systems - informed workers about the presence of asbestos and associated risks - conduct regular medical examinations for workers exposed to asbestos	Included in project cost	Building contractor	Supervising Engineer, PIU
Labor and Working Conditions				
Discrimination against women/vulnerable groups in the hiring process of workers and during Project implementation	36. The workers have to be explicitly informed of their rights and also on all available GRM channels.	Included in project cost	Building contractor	Supervising Engineer, PIU through GRM
	37. Wages and contract conditions offered to all staff should be in keeping with Croatian labour laws or higher set standards which should be competitive in all categories of workers including foreign workers.	Included in project cost	Building contractor	Supervising Engineer, PIU through GRM
	38. Access to safe GRM for workers (Contractor GRM) must be ensured for all project workers, including those hired by contractor(s) and their sub-contractors and also other grievance mechanisms (unions, arbitration).	Included in project cost	Building contractor	Supervising Engineer, PIU
Labor influx / Foreign workers –	39. Information regarding the Worker Code of Conduct and availability of the Grievance Redress Mechanism (GRM) shall be provided in a language understood by all workers, including foreign workers.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
Communication and information	40. Workers shall be hired through formal employment procedures to avoid informal recruitment practices. For foreign workers, employment conditions shall be fair, transparent, and provided in a language they understand, in accordance with national legislation and the World Bank ESF (ESS2).	Included in project cost	Building contractor	Supervising Engineer, PIU
	41. The Contractor shall ensure that all foreign workers receive clear information, instructions, and communication in a language they understand.	Included in project cost	Building contractor	Supervising Engineer, PIU
Labor influx / Foreign workers – Employment conditions and training	42. Workers shall be hired through formal employment procedures to avoid informal recruitment practices. For foreign workers, employment conditions shall be fair, transparent, and provided in a language they understand, in accordance with national legislation and the World Bank ESF (ESS2).	Included in project cost	Building contractor	Supervising Engineer, PIU
	43. The Contractor shall ensure that foreign workers have equal access to training, including Code of Conduct, SEA/SH awareness, and occupational health and safety training.	Included in project cost	Building contractor	Supervising Engineer, PIU
Labor influx / Foreign workers – GRM and accommodation	44. The Contractor shall ensure that foreign workers have access to the GRM, with procedures explained in a language they understand.	Included in project cost	Building contractor	Supervising Engineer, PIU
	45. The Contractor shall ensure that accommodation for foreign workers, where provided, complies with national legislation and the International Finance Corporation Workers' Accommodation: Processes and Standards.	Included in project cost	Building contractor	Supervising Engineer, PIU
Labor influx / Contractual obligations	46. All requirements related to foreign workers shall be incorporated into contractual obligations of the Contractor and subcontractors and enforced throughout Project implementation.			
Sexual Exploitation and Abuse (SEA)/ Sexual Harassment (SH)	47. Contractor's Personnel shall not engage in Sexual Harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel.	Included in project cost	Building contractor	Supervising Engineer, PIU
	48. Workers shall not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	49. Workers shall not engage in Sexual Abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions.	Included in project cost	Building contractor	Supervising Engineer, PIU
	50. Workers shall not engage in any form of sexual activity with individuals under the age of 18.	Included in project cost	Building contractor	Supervising Engineer, PIU
	51. Grievance Redress Mechanism shall be available to for receiving and resolving complaints. Complaints received must be dealt with in accordance with the article 134. of Labor Act (OG 93/14, 127/17, 98/19, 151/22, 46/23, 64/23), WB ESF and Project GRM.	Included in project cost	Building contractor	Supervising Engineer, PIU
	52. SEA/SH sensitization (education for contract workers) shall be performed as part of the Code of Conduct training. All workers shall sign a code of conduct on SEA/SH.	Included in project cost	Building contractor	Supervising Engineer, PIU
Compliance	53. The PIU shall have the right to monitor and verify compliance of contractors and subcontractors with labour and working conditions requirements, including reviewing documentation and conducting inspections. Contractors shall ensure that workers are recruited through verified employment channels, and procedures shall be in place for reporting and addressing labour-related grievances and violations, including referral to the competent labour inspection authorities where necessary.	Included in project cost	Supervising Engineer, PIU	-
Community Health and Safety				
Communication and coordination	54. All relevant competent authorities shall be notified of commencement of works (police, state inspectorate, firefighters, etc.).	Included in project cost	Building contractor	Supervising Engineer, PIU
	55. Local communities shall be informed in advance of construction activities that may cause disturbances, including demolition works, transport of materials, and activities with increased community health and safety risks. This includes advance notification of any disruptions to services (e.g. electricity, water supply), particularly during periods of increased demand (e.g. summer months). Information shall be disseminated in line with the Stakeholder Engagement Plan (SEP).	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	56. The public Grievance Redress Mechanism (GRM) shall be available, accessible, and communicated to local communities for receiving and resolving concerns related to construction activities.	Included in project cost	Building contractor	Supervising Engineer, PIU
	57. Targeted stakeholder engagement activities shall be conducted for affected groups, particularly those located in the immediate vicinity of the construction site, in line with the SEP.	Included in project cost	Building contractor	Supervising Engineer, PIU
	58. Continuous coordination shall be established with the FOI 3 building contractor due to overlapping of construction activities.	Included in project cost	Building contractor	Supervising Engineer, PIU
	59. High-impact activities (e.g. demolition, major concrete pours) shall be staggered in coordination with the FOI 3 construction activities to prevent simultaneous peak disruption.	Included in project cost	Building contractor	Supervising Engineer, PIU
	60. Traffic management shall be coordinated with FOI 3 building contractor.	Included in project cost	Building contractor	Supervising Engineer, PIU
Site safety and access control		Included in project cost	Building contractor	Supervising Engineer, PIU
	61. Entry of unauthorized persons into the construction site shall be prohibited (through warning tapes, fencing, and other appropriate measures).	Included in project cost	Building contractor	Supervising Engineer, PIU
	62. Scaffolds and other protective installations shall be installed in accordance with applicable regulations and good international industry practice (GIIP), taking into account extreme weather conditions (e.g. strong winds).	Included in project cost	Building contractor	Supervising Engineer, PIU
Traffic and pedestrian safety	63. Safe passages shall be provided for pedestrians, and alternative traffic routes and regulations shall be timely communicated	Included in project cost	Building contractor	Supervising Engineer, PIU
	64. The construction site shall be organize to minimize the reduction in the number of parking spaces on the east side of the site.	Included in project cost	Building contractor	Supervising Engineer, PIU
Vibration	65. Prior to the commencement of construction works, a baseline assessment of vibration-sensitive receptors (including nearby buildings and surrounding	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	receptors) shall be conducted to document existing conditions and enable effective monitoring of potential impacts during construction			
Environmental protection (community exposure)	66. The surrounding area near the construction site shall be kept clean. Temporary storage of construction materials and waste shall not occur on private property. .	Included in project cost	Building contractor	Supervising Engineer, PIU
	67. Waste management shall be carried out in accordance with national legislation, this ESMP, World Bank EHSG and GIIP, with the stricter requirements prevailing.	Included in project cost	Building contractor	Supervising Engineer, PIU
	68. Measures to minimize dust, noise, and water and soil pollution shall be implemented	Included in project cost	Building contractor	Supervising Engineer, PIU
	69. To reduce the impact of noise, dust and vibrations, when possible, adjust timing of demolition to avoid school hours.	Included in project cost	Building contractor	Building contractor
Temporary Relocation of the Classes	70. FOI Students and employees shall be timely informed of the relocation of the classes.	Included in project cost	Beneficiary	PIU
	71. The facilities used for temporary relocation of the FOI classes shall be in line with the OHS standards.	Included in project cost	Beneficiary	PIU
	72. If applicable, the facilities used for temporary relocation of the FOI classes shall be accessible to people with disabilities and reduced mobility.	Included in project cost	Beneficiary	PIU
Air quality				
Radon emission	73. Plan for Radon Emission Reduction (as part of the C-ESMP) must be prepared and shall include procedures for implementing measures during construction to reduce radon emissions prescribed in ESMP (examination of the concentration of radon in the soil during the demolition and excavation phase, testing of building materials (by the Institute for Medical Examinations and Occupational Medicine from Zagreb), before the installation of individual materials, measurement of radon concentration upon completion of the building (a mandatory positive result is a condition for obtaining a use permit).	Included in project cost	Building contractor	Supervising Engineer, PIU
	74. Examination of the concentration of radon in the soil at the construction site of the planned building during the demolition and excavation phase.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	75. In case elevated radon levels are identified, appropriate mitigation measures shall be defined by qualified experts and the design revised as necessary.	Included in project cost	Building contractor	Supervising Engineer, PIU
	76. Testing of building materials (concrete, bricks, ceramic tiles, etc.) by the Institute for Medical Examinations and Occupational Medicine from Zagreb before the installation of individual materials in order not to install materials with radioactive particles.	Included in project cost	Building contractor	Supervising Engineer, PIU
	77. Measurement of radon concentration before obtaining the Use Permit.	Included in project cost	Building contractor	Supervising Engineer, PIU
Reduced air quality in the nearby construction area and access road due to emission of dust and particulates	78. Sprinkle water at the construction materials and non-asphalted roads where appropriate and when needed (e.g., during dry and/or windy periods). Use water where and when appropriate to reduce dust at land clearing, grubbing, scraping, excavation, land levelling, grading, cut and fill and demolition activities which may cause dusting and particles emissions.	Included in project cost	Building contractor	Supervising Engineer, PIU
	79. Cover load (surfaces) with plastic coverings during material storage and transportation to avoid dust spreading. Cover bulk materials were not in use.	Included in project cost	Building contractor	Supervising Engineer, PIU
	80. Adequate locations for storage, mixing and loading of construction materials should be established.	Included in project cost	Building contractor	Supervising Engineer, PIU
	81. Limit vehicles speed (30 km/h) in the construction area and on the access roads near the residential houses.	Included in project cost	Building contractor	Supervising Engineer, PIU
	82. Construction site and access roads must be regularly cleaned from debris.	Included in project cost	Building contractor	Supervising Engineer, PIU
	83. Prevent offsite spread of dust using appropriate screens - a mechanical barrier between the work site and the functional part.	Included in project cost	Building contractor	Supervising Engineer, PIU
	84. Avoid unnecessary journeys.	Included in project cost	Building contractor	Supervising Engineer, PIU
Reduced air quality in the	85. Use modern attested construction machinery to minimize emissions, provided with mufflers and maintained in good and efficient operation condition.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
nearby area due to gaseous emissions	86. Use low Sulphur content fuel, when possible, for machinery and equipment to reduce SO_2 emissions from engines whenever possible. Fuel is purchased only from licensed distributors.	Included in project cost	Building contractor	Supervising Engineer, PIU
	87. Machinery and equipment should be switched off when not in use (idle mode).	Included in project cost	Building contractor	Supervising Engineer, PIU
	88. Regularly maintain, service and tune the engines and service construction equipment. All vehicles and machinery must be attested.	Included in project cost	Building contractor	Supervising Engineer, PIU
	89. To minimize dust (mainly PM_{10}) from construction material collection, material retention time at the site should be reduced to a minimum, in order to minimize exposure to wind.	Included in project cost	Building contractor	Supervising Engineer, PIU
	90. Burning of waste at the site (or elsewhere) is strictly forbidden.	Included in project cost	Building contractor	Supervising Engineer, PIU
	91. Sheltered parking of bicycles shall be planned and carried out before the end of works.	Included in project cost	Building contractor	Supervising Engineer, PIU
Noise				
Increased noise level in the nearby area	92. Ensuring that generated noise levels do not exceed the maximum permitted noise levels defined in Ordinance on the maximum allowed noise levels with regard to the type of noise source, time and place of occurrence (OG 143/21).	Included in project cost	Building contractor	Supervising Engineer, PIU
	93. The Project-affected parties, shall be adequately informed about the Project and contractors' GRM. The Project-affected parties shall be kept informed about construction schedules, progress, and safety precautions. It is necessary to choose and apply adequate noise protection measures during construction phase: adjustment of operating time; use of temporary movable noise barriers; use of alternative working machines with lower noise emission levels.	Included in project cost	Building contractor	Supervising Engineer, PIU
	94. Plan heavy construction works as much as possible outside of working hours and during the summer and winter holidays, if this would not cause the unwanted impact on the dynamics of construction works.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	95. All equipment must be maintained in good operating condition and be attested.	Included in project cost	Building contractor	Supervising Engineer, PIU
	96. During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far as possible from the residential houses.	Included in project cost	Building contractor	Supervising Engineer, PIU
	97. When necessary, night work shall be scheduled carefully. Noise during night work must not exceed the limit values defined in the Ordinance on the maximum allowed noise levels with regard to the type of noise source, time and place of occurrence (OG 143/21).	Included in project cost	Building contractor	Supervising Engineer, PIU
Water and groundwater quality / Soil quality				
Risk of pollution of surface water, groundwater and soil due to spill leakage	98. Hazardous liquid waste must be collected separately (by type), managed by authorized companies and treated/disposed only at licensed sites. Collection containers should have secondary containment system (e.g., double walled or bunded containers) with sufficient volume to contain a spill from the largest fuel tank in the structure (minimum 110 %) and should be protected from impact of weather conditions.	Included in project cost	Building contractor	Supervising Engineer, PIU
	99. Containers with hazardous substances must be kept closed, except when adding or removing materials/waste. They must not be handled, opened, or stored in a manner that may cause them to leak.	Included in project cost	Building contractor	Supervising Engineer, PIU
	100. Non-hazardous liquid waste must not be discharged into nature without a prior treatment.	Included in project cost	Building contractor	Supervising Engineer, PIU
	101. It is necessary to designate a special and limited area for refueling construction vehicles to avoid spillage. Fuel and oil handling shall be performed on impermeable surfaces with retention in a safe and responsible manner. Avoid storing fuel and other hazardous liquids and materials on construction site. If installation of fuel storage tanks is needed, they should be secondary tanks with sufficient volume to contain a spill from the largest fuel tank in the structure (minimum 110%) and shall be protected from impact of weather conditions.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	102. Handling and management of all materials must be in accordance with instructions included in Material Safety Data Sheets (MSDS) and Technical Data Sheets (TDS) which must be available at the construction site.	Included in project cost	Building contractor	Supervising Engineer, PIU
	103. Material storage areas must be organized and covered.	Included in project cost	Building contractor	Supervising Engineer, PIU
	104. Hazardous spillage coming from tanks, containers (mandatory secondary containment system, e.g., double walled or bunded containers), construction equipment and vehicles (regular maintenance and check-ups of oil and gas tanks) must be prevented.	Included in project cost	Building contractor	Supervising Engineer, PIU
	105. It is necessary to comply with measures and standards for construction machinery.	Included in project cost	Building contractor	Supervising Engineer, PIU
	106. Digging foundation and demolition shall be carried out in the way that it does not jeopardize or disturb stability of surrounding buildings.	Included in project cost	Building contractor	Supervising Engineer, PIU
	107. In case of an accident, hazardous liquid must be removed from the soil using adsorption materials such as sand, sawdust or mineral adsorbents. Such waste material must be collected in tanks, stored in the space provided for hazardous waste storage and handed over to authorized companies for hazardous waste. This waste shall be managed and treated/disposed as hazardous waste.	Included in project cost	Building contractor	Supervising Engineer, PIU
	108. Wash down areas of concrete and other equipment must be isolated from watercourse by selecting areas for washing that are not free draining directly or indirectly into watercourse as well as those that are placed on impermeable surfaces and equipped with/connected to municipal water collection system.	Included in project cost	Building contractor	Supervising Engineer, PIU
	109. It is forbidden to extract groundwater on unregulated way, or discharge cement slurries, or any other contaminated waters into the ground or adjacent streams or rivers.	Included in project cost	Building contractor	Supervising Engineer, PIU
Soil protection / Topsoil management	110. In case of on-site storage of topsoil, stockpiles shall be formed up to 1.5–2.0 m in height, placed on well-drained ground, and shaped with gentle slopes to ensure proper drainage.	Included in project cost	Building contractor	Supervising Engineer, PIU
	111. Stockpiles shall be protected from compaction and degradation by prohibiting trafficking by construction machinery and by keeping the material separate from other materials (waste, clay, aggregates).	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	112. The surface shall be protected against erosion by covering (geotextile or sheeting) or by temporary grass seeding.	Included in project cost	Building contractor	Supervising Engineer, PIU
	113. Storage duration shall be minimized and the material shall be used as soon as practicable.	Included in project cost	Building contractor	Supervising Engineer, PIU
	114. In case of on-site storage of topsoil, stockpiles shall be formed up to 1.5–2.0 m in height, placed on well-drained ground, and shaped with gentle slopes to ensure proper drainage.	Included in project cost	Building contractor	Supervising Engineer, PIU
Biodiversity (flora and fauna)				
Risk of endangering flora and fauna by removing vegetation and polluting water and soil	115. Prior to demolition and earthworks, a site walkover inspection shall be conducted to confirm that no protected species or sensitive habitats are present within the project area. If any such features are identified, appropriate mitigation measures shall be implemented in accordance with national legislation and good international industry practice.	Included in project cost	Building contractor	Supervising Engineer, PIU
	116. Restrict the movement of heavy machinery to the access road corridor. Construction sites should take up only necessary space.	Included in project cost	Building contractor	Supervising Engineer, PIU
	117. Cutting down trees and other natural vegetation should be avoided, where possible. In the case of removing vegetation, the areas from which the vegetation will be removed should be clearly marked to prevent unnecessary loss of vegetation in the project area. Removal of larger numbers of trees is not envisaged under the Project.	Included in project cost	Building contractor	Supervising Engineer, PIU
Bird protection (PV panels)	118. In order to reduce the impacts of photovoltaic panels, anti-reflective coatings shall be applied to minimize glare and reflection, thereby reducing the risk of bird collisions caused by the “lake effect” (misinterpretation of reflective surfaces as water).	Included in project cost	Building contractor	Supervising Engineer, PIU
Climate change adaptation				
Heat islands	119. See measures for Biodiversity.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
Water consumption	120. In order to reduce water consumption in the face of water scarcity as a consequence of climate change, Detail design shall implement the technical solution to collect the rainwater for irrigation of landscape areas.	Included in project cost	Building contractor	Supervising Engineer, PIU
Risk of environmental pollution through inadequate handling of dangerous substances	121. The subcontractor must have all the necessary skills and experience and precautionary systems in place to prevent a wash off of bituminous materials (primer or primer binder).	Included in project cost	Building contractor	Supervising Engineer, PIU
	122. Water in bitumen emulsion production or concrete should not be contaminated (however, technological water is preferred).	Included in project cost	Building contractor	Supervising Engineer, PIU
	123. Equipment shall be cleaned in areas where there will be no impact to the environment or danger of surface run-off (e.g., areas where water is collected to retention basins and transported to proper water treatment, and waste is separated and appropriately disposed).	Included in project cost	Building contractor	Supervising Engineer, PIU
	124. All materials have to be approved by the Supervising Engineer.	Included in project cost	Building contractor	Supervising Engineer, PIU
	125. Materials temporarily stored on site shall be protected and separated. HDPE pipes are not to be in touch or stored next to oil, coatings, solvents, etc.	Included in project cost	Building contractor	Supervising Engineer, PIU
Light pollution	126. Installed site's lighting system should minimize light pollution.	Included in project cost	Building contractor	Supervising Engineer, PIU
Traffic disturbance				
Increased road traffic	127. Traffic management has to be conducted in accordance with provisions of traffic legislation and ESF (e.g., appropriate lighting, traffic safety signs, barriers and flag persons that are seen easily or are easy to follow, road speed shall be clearly posted).	Included in project cost	Building contractor	Supervising Engineer, PIU
	128. Traffic must be organized in a safe manner. Access road speed must not exceed 30 km/h. Major transport activities should be avoided during rush hours.	Included in project cost	Building contractor	Supervising Engineer, PIU
	129. Safe passages and crossings for pedestrians and workers where construction traffic interferes must be ensured.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	130. All materials prone to dusting and susceptible to weather conditions must be protected from atmospheric impacts either by windshields, covers, watered or other appropriate means.	Included in project cost	Building contractor	Supervising Engineer, PIU
	131. Roads must be regularly swept and cleaned at critical points. Spilled materials should be immediately removed from the road and cleaned. Access roads must be well maintained.	Included in project cost	Building contractor	Supervising Engineer, PIU
	132. Access of the construction and material delivery vehicles must be strictly controlled, especially during the wet weather.	Included in project cost	Building contractor	Supervising Engineer, PIU
	133. In an event where the traffic will be interrupted the Contractor needs to organize alternative routes and timely announce alternative traffic regulation to the local communities in line with the SEP.	Included in project cost	Building contractor	Supervising Engineer, PIU
	134. Adequate organization of temporary traffic arrangements must be performed according to Ordinance on Temporary Traffic Regulation and Signing and safety of road works (OG 92/19).	Included in project cost	Building contractor	Supervising Engineer, PIU
	135. Temporary pedestrian routes shall be established and clearly marked, including redirection from the eastern to the western side of the site during construction.	Included in project cost	Building contractor	Supervising Engineer, PIU
	136. Access to adjacent buildings and properties shall be maintained at all times, and any temporary restrictions communicated in advance in line with the SEP.	Included in project cost	Building contractor	Supervising Engineer, PIU
Waste generation and management				
Waste generation	137. A Waste Management Plan shall be prepared by the Contractor (as part of the C-ESMP), defining site-specific waste management procedures for each category of waste generated during construction, including methods and designated locations for the storage of each waste stream. The Plan shall be developed in accordance with the EU Construction and Demolition Waste Protocol, ensuring alignment with best practices, and shall be subject to approval by the World Bank.	Included in project cost	Building contractor	Supervising Engineer, PIU
	138. Each type of generated waste on the location must be temporary stored in separate waste container which have to be labelled with waste type name and waste code and located at the solid surface foreseen for that purpose on the construction site.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	139. Mineral (soil) waste must be disposed exclusively at the designated locations, approved by competent authorities, or be reused. Records of this must be kept.	Included in project cost	Building contractor	Supervising Engineer, PIU
	140. Records on waste streams and amounts must be kept for each type of waste generated at the location. Keeping records of waste generated is the obligation of the contractor. Records shall be shared with PIU upon request.	Included in project cost	Building contractor	Supervising Engineer, PIU
	141. All waste must be handed over with appropriate documentation to the companies authorized for the waste management (companies that have adequate waste management permit). Waste can be disposed/processed only at licensed landfills/processing plants.	Included in project cost	Building contractor	Supervising Engineer, PIU
	142. For all waste, information on handing over waste to the final destination must be obtained.	Included in project cost	Building contractor	Supervising Engineer, PIU
	143. Whenever feasible the contractor shall reuse and recycle appropriate and viable materials (except asbestos).	Included in project cost	Building contractor	Supervising Engineer, PIU
	144. Mineral (natural) construction and demolition wastes have to be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and temporarily stored in appropriate containers. Depending on its origin and content, mineral waste has to be reapplied to its original location or reused.	Included in project cost	Building contractor	Supervising Engineer, PIU
	145. Excess soil should be adequately disposed of at the designated location, i.e. act in accordance with the Ordinance on the treatment of surplus excavation, which represents mineral raw material when carrying out construction works (OG 79/14).	Included in project cost	Building contractor	Supervising Engineer, PIU
	146. Transportation of hazardous substances and waste conduct in line with Act on the Transport of Dangerous Goods (OG 79/07, 70/17) and other relevant national legislation and World Bank EHSG and GIIP.	Included in project cost	Building contractor	Supervising Engineer, PIU
	147. Burning or illegal dumping of waste is strictly prohibited.	Included in project cost	Building contractor	Supervising Engineer, PIU
	148. The Contractor shall develop and implement an Asbestos Removal and Management Plan fully compliant with the World Bank Environmental, Health, and Safety Guidelines (EHSG) and Good International Industry Practice (GIIP), and submit it for approval by the World Bank.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
	149. Asbestos located on the Project site must be marked clearly as hazardous material. 150. The strong-bound asbestos prior to removal must be treated with a wetting agent to minimize asbestos dust. In case of soft-bound asbestos is found, specific measures for asbestos removal shall be applied in line with the national legislation and best practices. Asbestos Removal and Management Plan must be prepared, subject to the WB approval.	Included in project cost	Building contractor	Supervising Engineer, PIU
	151. After removal, asbestos waste must be properly stored at the location and handed over to the authorized waste collector/waste treatment facility as early as possible in accordance with the waste management regulations.	Included in project cost	Building contractor	Supervising Engineer, PIU
	152. Asbestos waste must be stored in a covered container or tightly closed bags (for construction rubble), thus preventing spreading, dispersing and spillage of that waste out of construction site due to weather conditions.	Included in project cost	Building contractor	Supervising Engineer, PIU
	153. It is forbidden to dispose asbestos waste into the mixed municipal waste and mixing with other waste and other non-waste materials.	Included in project cost	Building contractor	Supervising Engineer, PIU
	154. The removed asbestos must not be reused. It shall be disposed to a licensed landfill before closing of the Project.	Included in project cost	Building contractor	Supervising Engineer, PIU
	155. Furniture and waste from electrical and electronic equipment (WEEE) in the existing building should be reused as much as possible (by donations and/or use in other Beneficiary's facilities).	Included in project cost	Building contractor	Supervising Engineer, PIU
	156. Waste from electrical and electronic equipment (WEEE), considering current delays in collection, must be properly stored and collected before the end of the Project.	Included in project cost	Building contractor	Supervising Engineer, PIU
	157. The Contractor shall maintain complete and up-to-date records of all waste streams generated on site, including waste transfer notes and supporting documentation demonstrating transport and final disposal at licensed facilities	Included in project cost	Building contractor	Supervising Engineer, PIU
	158. The Contractor shall submit monthly reports on waste management as part of the regular progress reporting to the Supervising Engineer and the PIU, including quantities, types of waste, and destination of disposal or recovery.	Included in project cost	Building contractor	Supervising Engineer, PIU

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
Accidents and emergencies				
Accident/ incident	159. Emergency Preparedness and Response Plan (as part of the C-ESMP) must be prepared and shall include actions that must be taken to ensure staff safety in an emergency (collapse, spills, accidents, fire, explosion, earthquake…), including a list of all emergency equipment at the construction site (such as fire extinguishing systems, spill control equipment, communications), and alarm systems (internal and external), and decontamination equipment, contacts of responsible persons, competent authorities, other emergency numbers, evacuation plan.	Included in project cost	Building contractor	Supervising Engineer, PIU
	160. In the case of significant accident/incident (fatality, serious injury, larger spilling, fire, and similar) Supervising Engineer shall notify the PIU (E&S specialists) without delay and fulfil the Notification report. Activities shall be carried out in accordance with the Project's Incident/Accident Procedure.	Included in project cost	Building contractor	Supervising Engineer, PIU
Cultural heritage				
Chance finds	161. During earthworks (both demolition and construction phase), it is necessary to ensure archaeological supervision and, if necessary, protective archaeological research. After the supervision, the archaeologist will submit a report on the supervision to the Conservation Department in Varaždin. Chance finds procedures will be applied if required.	Included in the Project	Building Contractor	Supervising engineer, PIU
	162. In case of chance finds, works must stop immediately, PIU and competent authorities must be notified without delay and their instruction followed. Works can re-commence only upon approval of the competent authority (Ministry of Culture and Media, the Conservation Department in Varaždin).	Included in the Project	Building contractor	Supervising engineer, PIU
	163. In case of chance finds, the archaeological research works shall be conducted i.e. documentation and potential protective research.	Included in the Project	Building Contractor	Supervising engineer, PIU
Stakeholder engagement				

Environmental and Social aspect	Proposed mitigation measure	Cost	Responsibility	
			Implementation	Supervision
Engagement of Local Community	164. Public is informed on the works through appropriate notification in the media and/or at publicly accessible communication channels (including the site of the works) according to Project SEP.	Included in project cost	Building contractor, Beneficiary and PIU	PIU
	165. The PIU team established Project Grievance Redress Mechanisms for local community for receiving and resolving complaints. Complaints from the local community that will be addressed to Contractor GRM shall be redirected to Project GRM.	Included in project cost	PIU	-
Social conflicts arising from presence of construction personnel and construction works	166. Code of Conduct for Workers to be prepared, disseminated, signed and enforced. Training courses on the Code of Conduct are organized for all workers.	Included in project cost	Building contractor	PIU, Supervising Engineer
	167. Stakeholders' engagement shall be conducted prior, during and after construction works, all in accordance with Project SEP developed by the PIU Team.	Included in project cost	Beneficiary with the support of the PIU	PIU
	168. A Contractor Grievance Redress Mechanism will be prepared and implemented. Plan for establishing Grievance Redress Mechanism (GRM) as part of the ESMP must be prepared by the Contractor and must include action for planning the establishment of protocols for receiving and resolving complaints and managing incidents and accidents, internal (within the Contractor's company) and external (direct complaints to the PIU team).	Included in project cost	Building contractor	PIU, Supervising Engineer
	169. Person who oversees communication with and receiving requests/complaints must be assigned (communication with and receiving requests/complaints from construction workers).	Included in project cost	Building contractor	Supervising Engineer, PIU

9.2 Environmental and Social Mitigation Plan - Use Phase

Recommended environmental and social mitigation recommendation measures for use phase are presented in Table 8.

In the use phase Beneficiary will be responsible for the implementation of ES mitigation measures, and the City of Varaždin and State Inspectorate will be responsible for supervising the implementation of ES mitigation measures.

Table 8. Environmental and social mitigation plan for use phase

Environmental and Social aspect	Recommended mitigation measure (Use Phase)
Occupational Health and Safety and Community Safety	
Worker's health and safety and labor and working conditions	It must be ensured that indoor levels of natural radon during the use phase are in line with Act on Radiological and Nuclear Safety (OG 141/13, 39/15, 130/17, 118/18, 21/22, 114/22) and its by-laws (less than 300 Bqm^{-3}). The building must be tested before use (measure radon emission).
	Use and occupation of the premises must be preceded by obtaining the use permit.
	The fire alarm and fire systems must be regularly maintained and certified.
	Safety and maintenance plan for all equipment will be prepared before use and regularly implemented.
	Space will be reserved for access of fire protection vehicles to the building at any time.
	Ensure working conditions and management of worker relationships (terms and conditions of employment, non-discrimination and equal opportunity, prohibition of child labor, etc.) according to Labor Act (OG 93/14, 127/17, 98/19, 151/22, 46/23, 64/23)
Waste management	
Waste generation, collection and storage	Waste will be collected separately, kept and temporarily stored in the safe manner and handed over for processing and disposal to licensed companies, all in line with the EU regulation and best practices.
	It must be ensured that the local municipal company regularly collects waste for recovery or disposal in authorized facilities.
	The oil and grease separator must be regularly maintained and emptied. The emptied sludge must be disposed of in accordance with the waste legislation and secondary regulations.
	Manage EE waste according to Ordinance on the Management of Special Categories of Waste in the Fund System (OG 124/23).
Water quality	
Wastewater	It is necessary to ensure that the composition of sanitary, industrial and precipitation wastewater before discharge into the public drainage system of the Varaždin agglomeration is in accordance with the limit values of wastewater emissions prescribed by the Ordinance on wastewater emission limit values (OG 26/20).
Community health and safety	

Environmental and Social aspect	Recommended mitigation measure (Use Phase)
Fire safety Management of dangerous substances	The fire alarm and fire systems must be regularly maintained and certified. In case of hazardous substances use or storage in quantities exceeding those prescribed by the Regulation on the prevention of major accidents involving dangerous substances (OG 44/14, 31/17, 45/17), it is necessary to prepare a Risk Assessment of legal entities that perform activities using hazardous substances and a Plan of legal entities that perform activities of used hazardous substances.
Maintenance	The Beneficiary is obliged to adhere to the unified program and method of maintenance of the building and installed equipment and ensure the maintenance of the building in such a way that the basic requirements for the building are maintained throughout its life and to improve the fulfillment of the basic requirements for the building, the energy properties of buildings and unhindered access and movement in the building.
Stakeholder engagement	It is recommended to engage the stakeholders in accordance with the recommendations provided in the Annex 1.
	It is recommended that the publicly available grievance mechanism remains available for few months after beginning of use.
Noise	
Increased noise emission	It must be ensured that the noise does not exceed the permitted levels during regular day and night work. In case that generated noise levels exceed the maximum permitted noise levels, it is necessary to choose and apply adequate noise protection measures (design of noise barriers around major noise sources).
Biodiversity	
Vegetation	Regularly maintain landscape vegetation.
Use of AI	
Legislation	The Project shall incorporate measures that align with and build upon the relevant EU legal and ethical framework. This includes compliance with the Artificial Intelligence Act (Regulation (EU) 2024/1689), and adherence to supporting EU guidelines on trustworthy AI (see: https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai). Also, it is recommended to consider the OECD AI Principles, which provide internationally recognized standards on AI transparency, robustness, and human oversight (see: https://www.oecd.org/en/topics/ai-principles.html).

10 ENVIRONMENTAL AND SOCIAL REPORTING AND MONITORING PLAN

PIU Environmental and Social Specialists are responsible for monitoring and supervision of implementation of mitigation measures for EHSHccording to the Monitoring plan and reporting to the WB on the results.

Table 9. Environmental and social monitoring plan Construction Phase

	What (is the parameter to be monitored?)	Where (is the parameter to be monitored?)	How (is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)	
							Implementation/reporting	Monitoring
CONSTRUCTION PHASE								
GENERAL CONDITIONS								
1.	Obtaining permits and certificates	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	At the start of construction works	To ensure workers safety and minimize the risks of accidents	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
2.	Site organization	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To ensure workers safety and minimize the risks of accidents	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
OCCUPATIONAL HEALTH AND SAFETY AND COMMUNITY SAFETY								
3.	Worker's health and safety(on-site amenities, accommodations, training, information availability, first aid, etc.)	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Daily	To ensure workers safety	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
4.	Discrimination against women/vulnerable	On construction site	By inspecting the site and keeping written	Monthly	To ensure workers and community safety	Included in project budget	Building contractor/ Building contractor and	PIU's Environmental

	What (is the parameter to be monitored?)	Where (is the parameter to be monitored?)	How (is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)	
							Implementation/reporting	Monitoring
	groups in the hiring process of workers		records, Supervising Engineer report				Supervising Engineer	and Social Specialists
5.	Worker's health due to improper asbestos handling	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To ensure proper handling with asbestos and workers safety	Included in project budget	Building con Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
6.	Labor influx	On construction site	By inspecting the site and employment records, keeping written records, Supervising Engineer report	Monthly	To ensure workers and community safety	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
7.	Sexual Exploitation and Abuse (SEA)/ Sexual Harassment (SH)	On construction site	By inspecting the site and keeping written GRM records, Supervising Engineer report	Monthly	To ensure workers and community safety	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
8.	Training on the Code of Conduct (part of which is SEA/SH sensitization) and OHS.	On construction site	By inspecting the site, keeping written records, Supervising Engineer report	Prior to commencement of the construction works and when deem needed	To ensure workers and community safety	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists

	What (is the parameter to be monitored?)	Where (is the parameter to be monitored?)	How (is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)	
							Implementation/reporting	Monitoring
9.	Community safety	On construction site	By inspecting the site, GRM records, and keeping written records, Supervising Engineer report	Monthly	To ensure community safety	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
10.	Temporary relocation	Facility used for classes of FOI	By inspecting the site and keeping written records, Beneficiary report	At the beginning of relocation and when deem needed	To ensure community health and safety	Included in project budget	Beneficiary	PIU's Environmental and Social Specialists
AIR QUALITY								
11.	Radon emission	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	During excavation works	To ensure indoor air quality	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
12.	Reduced air quality in the nearby construction area and access road due to emission of dust and particulates	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To ensure air quality	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
13.	Reduced air quality in the nearby area due to gaseous emissions	On construction site	By inspecting the site and keeping written records,	Monthly	To minimize the impact on air quality	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists

	What (is the parameter to be monitored?)	Where (is the parameter to be monitored?)	How (is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)	
							Implementation/reporting	Monitoring
			Supervising Engineer report					
NOISE								
14.	Increased noise level in the nearby area	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To minimize the noise emission	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
WATER AND GROUNDWATER QUALITY / SOIL QUALITY								
15.	Risk of pollution of surface water, groundwater and soil due to spill leakage	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To minimize the risks of air, soil, groundwater and surface water pollution	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
BIODIVERSITY (FLORA AND FAUNA)								
16.	Risk of endangering flora and fauna by removing vegetation and polluting water and soil	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To minimize the risks on biodiversity by introducing alien invasive species	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
MATERIAL MANAGEMENT								
17.	Risk of environmental pollution through inadequate handling of dangerous substances	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To ensure workers and community safety and minimize the risks of accidents	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
TRAFFIC DISTURBANCE								

	What (is the parameter to be monitored?)	Where (is the parameter to be monitored?)	How (is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)	
							Implementation/reporting	Monitoring
18.	Increased road traffic	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To ensure traffic safety, to ensure workers and community safety	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
WASTE MANAGEMENT								
19.	Waste generation and management	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To ensure proper waste management	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
ACCIDENT AND EMERGENCIES								
20.	Accident/incident	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	Monthly	To ensure workers and community safety	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
CULTURAL HERITAGE								
21.	Potential chance finds	On construction site	By inspecting the site and keeping written records, Supervising Engineer report	During excavation works	To protect cultural heritage	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
STAKEHOLDER ENGAGEMENT								
22.	SEP implementation	N/A	By interviewing stakeholders, the Contractor and Supervising	Quarterly	To ensure community health and safety	Included in project budget	Building contractor, Supervising Engineer, Beneficiary	PIU's Environmental and Social Specialists

	What (is the parameter to be monitored?)	Where (is the parameter to be monitored?)	How (is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)	
							Implementation/reporting	Monitoring
			Engineer, Beneficiary and keeping written records					
23.	Social conflicts arising from presence of construction personnel and construction works	On construction site	By interviewing the Contractor and Supervising Engineer and keeping written records	During demolition and construction	To keep records of all complaints / indicator: number of complaints	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Social Specialist
24.	Contractor's GRM	On construction site	The Contractor will be required to prepare and enforce a Code of Conduct for workers and report on regularly basis all related incidents that occur during the construction works.	During demolition and construction	To raise workplace concerns	Included in project budget	Building contractor/ Building contractor and Supervising Engineer	PIU's Environmental and Social Specialists
25.	Project GRM	N/A	Through e-mail, telephone, post, and Contractor monthly report	During demolition, construction on daily basis	To keep records of all complaints. / indicator: number of complaints	Included in project budget	PIU's Environmental and Social Specialists	/

ANNEX 1. PROJECT STAKEHOLDER ENAGAGEMENT PLAN (PROJECT SEP)

STAKEHOLDERS		PRE-CONSTRUCTION PHASE			DEMOLITION AND CONSTRUCTION PHASE			POST-CONSTRUCTION PHASE		
		Concerns	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**
PROJECT AFFECTED PARTIES										
BENEFICIARY - FOI	Teaching staff Other employees Students	Informing on Detailed Design and engaging in the development of ESMP Relocation of the teaching activities during demolition and construction	Methods: Internal communication channels: information board, electronic means of communication Public consultations & Public presentation of the Detailed Design and draft ESMP Indicators: Participation in Public consultations & Public presentation of the Detailed Design and draft ESMP	Timeframe: May 2026 Responsibility: FOI with the support of the PIU	Timely informed on the start and end date of the construction works. Concerns about the potential dust, noise and accessibility impacts and related protection/mitigation options. The grievance mechanism process.	Method: Internal communication channels: information board, electronic system used to inform the staff, regular meetings with the staff. Indicators: Information is accessible continuously	Timeframe: Information will be provided at the start and during the whole period of the construction works. Responsibility: FOI with the support of the PIU	Information on the completion of the construction works Options for using the new facility Level of satisfaction.	Method: Internal communication channels: information board, electronic system used to inform the staff, regular meetings. Survey Indicators: Information is accessible to all	Timeframe: After the completion of the construction works and equipment installment. Responsibility: FOI with the support of the PIU
LOCAL COMMUNITY	Residents of housing block on the east side	Informing on Detailed Design and engaging in the development of ESMP The impact of the Project on living conditions. The grievance mechanism process.	Methods: Public consultations & Public presentation of the Detailed Design and draft ESMP Indicators: Participation in Public consultations & Public presentation of the Detailed Design and draft ESMP	Timeframe: May 2026 Responsibility: FOI with the support of the PIU	Timely informed on the start and end date of the construction works. Concerns about the potential dust and noise impacts, potential traffic disturbances and temporary traffic arrangements, possible interruptions in water supply and power supply and related protection/mitigation options. The grievance mechanism process.	Methods: DIGIT website & FOI's website, social networks, press-releases, media. Public presentation immediately before the start of construction works Direct communication: posting notes in building premises. Safety notices at construction site. Indicators:	Timeframe: Information will be provided at the start and during the whole period of the construction works. Responsibilities: FOI through direct communication and with support of contractor & supervising engineer .	Information on the completion of the construction works Options for using the new facility	Method: DIGIT website & FOI's website. Public presentation Indicators: Number of stakeholders timely informed	Timeframe: After the completion of the construction works and equipment instalment. Responsibility: FOI with the support of the PIU

STAKEHOLDERS		PRE-CONSTRUCTION PHASE			DEMOLITION AND CONSTRUCTION PHASE			POST-CONSTRUCTION PHASE		
		Concerns	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**
						Number of stakeholders timely informed				
	Residents of the Kukuljevićeva, Petra Krešimira IV Street and Preredovićeva Street	Informing and engaging in the Detailed Design and draft ESMP The grievance mechanism process.	Methods: Public consultations & Public presentation of the Detailed Design and draft ESMP Indicators: Participation in Public consultations & Public presentation of the Detailed Design and draft ESMP	Timeframe: May 2026 Responsibilities: FOI with the support of the PIU	Timely informed on the start and end date of the construction works. Concerns about the potential dust and noise impacts, potential traffic disturbances and temporary traffic arrangements, possible interruptions in water supply and power supply and related protection/mitigation options. The grievance mechanism process.	Public presentation immediately before the start of construction works. Direct communication: posting notes on building premises. Safety notices at construction site. Indicators: of the stakeholder timely informed	Timeframe: Information will be provided at the start and during the whole period of the construction works. Responsibilities: FOI through direct communication with support from contractor & supervising engineer.	Information on the completion of the construction works Options for using the new facility	Method: DIGIT website & FOI's website. Public presentation Indicators: Number of stakeholders timely informed	Timeframe: After the completion of the construction works and equipment instalment. Responsibility: FOI with the support of the PIU
	1st Elementary School teachers 1st Gymnasium teachers	Informing on Detailed Design and engaging in the development of ESMP The impact of the Project on living conditions. Students' safety when leaving and coming from school The grievance mechanism process	Methods: Public consultations & Public presentation of the Detailed Design and draft ESMP Indicators: Participation in Public consultations & Public presentation of the Detailed Design and draft ESMP	Timeframe: May 2026 Responsibilities: FOI with the support of the PIU	Timely informed on the start and end date of the construction works. Concerns about the potential dust and noise impacts, potential traffic disturbances and temporary traffic arrangements, possible interruptions in water supply and power supply and related protection/mitigation options. The grievance mechanism process	DIGIT website & FOI's website, social networks, press-releases, media. Public presentation immediately before the start of construction works Direct communication: posting notes on building premises. Safety notices at construction site. Indicators: Number of stakeholders timely informed	Timeframe: Information will be provided at the start and during the whole period of the construction works. Responsibilities: FOI with support from contractor & supervising engineer.	Information on the completion of the construction works Options for using the new facility	Method: DIGIT website & FOI's website. Public presentation Indicators: Number of stakeholders timely informed	Method: DIGIT website & FOI's website. Public presentation Indicators: Number of stakeholders timely informed

STAKEHOLDERS		PRE-CONSTRUCTION PHASE			DEMOLITION AND CONSTRUCTION PHASE			POST-CONSTRUCTION PHASE		
		Concerns	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**
	Workers on the FOI 3 construction site	Informing on Detailed Design and engaging in the development of ESMP The impact of the Project on working conditions. The grievance mechanism process	Methods: Public consultations & Public presentation of the Detailed Design and draft ESMP Indicators: Participation in Public consultations & Public presentation of the Detailed Design and draft ESMP	Timeframe: May 2026 Responsibilities: FOI with the support of the PIU	Timely informed on the start and end date of the construction works. Concerns about the potential dust and noise impacts, potential traffic disturbances and temporary traffic arrangements, possible interruptions in water supply and power supply and related protection/mitigation options. The grievance mechanism process	DIGIT website & FOI's website, social networks, press-releases, media. Public presentation immediately before the start of construction works Direct communication: posting notes on building premises. Safety notices at construction site. Indicators: Number of stakeholders timely informed	Timeframe: Information will be provided at the start and during the whole period of the construction works. Responsibilities: FOI with support from contractor & supervising engineer.	-	-	-

	STAKEHOLDERS	PRE-CONSTRUCTION PHASE			DEMOLITION AND CONSTRUCTION PHASE			POST-CONSTRUCTION PHASE		
		Concerns	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**
LOCAL SELF-GOVERMENT	1st Local Board of the City of Varaždin 2nd Local Board of the City of Varaždin City of Varaždin	Informing on Detailed Design and engaging in the development of ESMP The impact of the Project on living conditions. The grievance mechanism process.	Methods: Public consultations & Public presentation of the Detailed Design and draft ESMP Indicators: All tenants participating in the focus group Participation in Public consultations & Public presentation of the Detailed Design and draft ESMP	Timeframe: May 2026 Responsibilities: FOI with the support of the PIU	Timely informed on the start and end date of the construction works. Concerns about the potential dust and noise impacts, potential traffic disturbances and temporary traffic arrangements, possible interruptions in water supply and power supply and related protection/mitigation options. The grievance mechanism process	DIGIT website & FOI's website, social networks, press-releases, media. Public presentation immediately before the start of construction works Direct communication: posting notes on building premises. Safety notices at construction site. Indicators: Number of stakeholders timely informed	Timeframe: Information will be provided at the start and during the whole period of the construction works. Responsibilities: FOI with support from contractor & supervising engineer	Information on the completion of the construction works Options for using the new facility	Method: DIGIT website & FOI's website. Public presentation Indicators: Number of stakeholders timely informed	Method: DIGIT website & FOI's website. Public presentation Indicators: Number of stakeholders timely informed

STAKEHOLDERS		PRE-CONSTRUCTION PHASE			DEMOLITION AND CONSTRUCTION PHASE			POST-CONSTRUCTION PHASE		
		Concerns	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**
INSTITUTIONS	Faculty of Geotechnics, Varaždin	Informing on Detailed Design and engaging in the development of ESMP Use of their facilities for FOI teaching activities during demolition and construction Benefits of the Project The grievance mechanism process	Methods: Public consultations & Public presentation of the Detailed Design and draft ESMP Indicators: Participation in Public consultations & Public presentation of the Detailed Design and draft ESMP	Timeframe: May 2026 Responsibility: FOI with the support of the PIU	Timely informed on the start and end date of the construction works and implementation progress.	Method: DIGIT website & FOI's website. Public presentation immediately before the start of construction works Indicators: Number of stakeholders timely informed	Timeframe: Information will be provided at the start and during the whole period of the construction works. Responsibilities: FOI with the support of the PIU	Information on the completion of the construction works Options for using the new facility	Method: DIGIT website & FOI's website. Public presentation Indicators: Number of stakeholders timely informed	Timeframe: After the completion of the construction works and equipment installment. Responsibility: FOI with the support of the PIU
PROJECT WORKERS										
	Construction Workers	-	-	-	Informed on their rights, timely noted of all work and safety related procedures, as well as informed on potential specific cultural issues (in case of labour influx), implementation of Code of Conduct, but also how to use the project's GRM and contractors' workers GRM. The initial training should be provided in cooperation of the contractor and FOI with the support of PIU, before the start of the works	Information provided at the start of the construction works and during the whole period of construction works	Timeframe: During the whole period of the construction works Responsibilities: FOI, Contractor (by use of their websites, social networks, trainings and other forms of information dissemination, as well as regular reports and reports on eventual incidents)	-	-	-
OTHER INTERESTED PARTIES										
	Media and Journalists	Informing on Detailed Design and engaging in the development of ESMP	Methods: Public consultations & Public presentation of draft ESMP	Timeframe: May 2026 Responsibilities:	Timely informed on the start and end date of the construction works. Concerns about the potential project's risks,	Method: DIGIT website & FOI's website. Press-releases	Timeframe: Information will be provided at the start and during the whole	Information on the completion of the construction works Options for using the new facility	Method: DIGIT website & FOI's website. Press-releases	Timeframe: After the completion of the construction works and

STAKEHOLDERS		PRE-CONSTRUCTION PHASE			DEMOLITION AND CONSTRUCTION PHASE			POST-CONSTRUCTION PHASE		
		Concerns	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**	**Concerns**	**Methods / Indicators**	**Timeframe / Responsibilities**
		Benefits of the Project The impact of the Project on the living conditions of the local community The grievance mechanism process	Indicators: Participation of at least 2 at the Public presentation of the Detailed Design and draft ESMP Information is accessible to all media in Varaždin County.	FOI with the support of the PIU	impacts and mitigation measures The impact of the Project on the living conditions of the local community The grievance mechanism process	Public presentation immediately before the start of construction works Indicators: Information is accessible to all media in Varaždin County.	period of the construction works Responsibilities: FOI with the support of the PIU		Public presentation Indicators: Information is accessible to all media in Varaždin County	equipment installment. Responsibility: FOI with the support of the PIU

Approaches for engaging vulnerable groups

If there are vulnerable groups involved, the engagement approaches will be tailored to their specific needs. For instance, for foreign citizens, national minorities and stateless persons materials will be adapted and translated into languages understandable to them, using simple and clear language. For elderly individuals, information will be distributed physically (e.g., via leaflets), as they may not regularly use the internet. For children, specifically those under 15 years of age, information will be conveyed through their teachers. For people with disabilities, accessible formats will be utilized, and cooperation with dedicated organizations, associations, or caretakers will ensure effective communication. Additionally, during public consultations, the Environmental and Social Management Plan (ESMP) will also be disclosed in English.