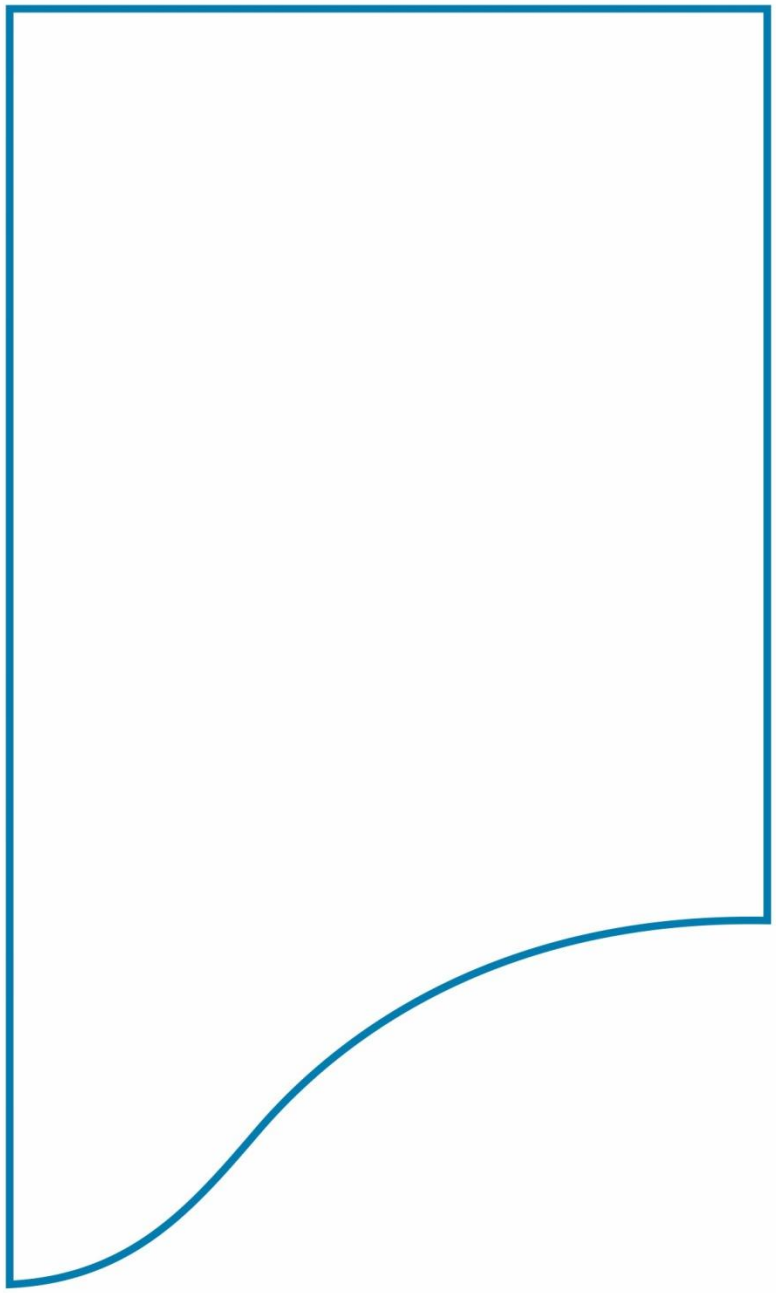
ENVIRONMENTAL MANAGEMENT PLAN



ODRA - VISTULA
FLOOD MANAGEMENT PROJECT

Projekt Ochrony Przeciwpowodziowej w Dorzeczu Odry i Wisły

Państwowe Gospodarstwo Wodne **Wody Polskie**

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Projekt Ochrony Przeciwpowodziowej w Dorzeczu Odry i Wisły

Państwowe Gospodarstwo Wodne Wody Polskie

ENVIRONMENTAL MANAGEMENT PLAN

METEOROLOGICAL RADAR STATION IN BRZUCHANIA

ODRA - VISTULA

FLOOD MANAGEMENT PROJECT

ENVIRONMENTAL CATEGORY B – IN ACCORDANCE WITH OP 4.01 WB

COMPONENT 4:
INSTITUTIONAL STRENGTHENING AND MODERNISATION OF THE FORECASTING SYSTEM

SUB-COMPONENT 4A:
EXTENSION AND MODERNISATION OF THE MONITORING SYSTEM FOR FLOOD AND DROUGHT RISKS

CONTRACT 4A.3.1:
POLRAD WEATHER RADAR MODERNISATION
TASK 4A.3.1/g.2:
BRZUCHANIA - CONSTRUCTION OF A METEOROLOGICAL RADAR STATION

EMPLOYER: Institute of Meteorology and Water Management – National Research Institute

Warsaw – April 2022

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LIST OF BASIC DEFINITIONS AND ABBREVIATIONS USED IN DEMP

Name	Description
CEDB	Council of Europe Development Bank *https://coebank.org/en/*
Contract 4A.3.1 Contract	4A.3.1 Contract POLRAD Weather Radar Modernization
Contractor	Consortium INSTAL WARSZAWA S.A. and Leonardo Germany GmbH
DEMP	Detailed Environmental Management Plan
EHS Guidelines	World Bank Guidelines on Environment, Health and Safety *https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/PoliciesStandards/EHS-Guidelines/*
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
Environmental decision (ED)	Decision on environmental conditions
ES Policy	World Bank Policy Environmental and Social – ES, on environmental and social issues (i.e., environmental protection, occupational health and safety and social issues, including gender equality, protection of minors, vulnerable people (including the disabled), sexual harassment, sexual violence, HIV awareness and prevention /AIDS)
ESMF	Environmental and Social Management Framework https://odrapcu.pl/projekt-opdow/popdow-dokumenty/
GDEP	General Directorate for Environmental Protection
GEMP	General Environmental Management Plan
GWB	Body of Groundwater
IMGW-PIB	Institute of Meteorology and Water Management - National Research Institute
LSDP	Local Spatial Development Plan

MUWR	Main Underground Water Reservoir
OHS	Occupational health and safety
PAD	Project Appraisal Document developed for the needs of the World Bank in order to grant a loan to the Polish Government for the implementation of the ORFPP http://documents.worldbank.org/curated/en/2015/07/24763021/poland-odra-vistula-flood-management-project
PCU/OVFM PCU	Odra-Vistula Flood Management Project Coordination Office www.*odrapcu.pl*
PGW WP	National Water Holding Polish Waters
PIO/PIO OVFM	OVFM (Odra-Vistula Flood Management Project) Project Implementation Office
PIO/Investor/Employer/	Institute of Meteorology and Water Management – National Research Institute
PIU	Project Implementation Unit – a separate organizational unit established within the PIO responsible for the performance of the Contract
POLRAD	Polish meteorological radar network
POM	Project Operational Manual prepared by the Odra -Vistula Flood Management Project Coordination Office, Wroclaw 2015 https://odrapcu.pl/projekt-opdow/popdow-dokumenty/
Project/ OVFMP / OVFM Project	Odra-Vistula Flood Management Project
RDEP	Regional Directorate for Environmental Protection in Olsztyn
Road administrator	An organizational unit that performs the duties of managing public roads within the meaning of the Act on Public Roads
RWMA	Regional Water Management Board
SHP Plan	The safety and health plan drawn up pursuant to Art. 21a paragraph. 4 of the Act of July 7, 1994 - Construction Law
State of epidemic	The legal situation introduced in a given area in connection with an epidemic, in order to take anti-epidemic and preventive measures to minimize the effects of the epidemic specified in the act on combating infectious diseases
State of epidemic threat	The legal situation introduced in a given area due to the risk of an epidemic, in order to take anti-epidemic measures specified

	in the act on combating infectious diseases
SWB	Body of Surface Water
Task / Task 4A.3.1/g.2	Task 4A.3.1/g.2 Brzuchania- construction of a meteorological radar station
VIEP	Provincial Inspectorate of Environmental Protection
World Bank (WB)	International Bank for Reconstruction and Development *http://www.worldbank.org/*

LIST OF ABBREVIATED NAMES OF LEGAL ACTS USED IN DEMP

The following table presents the titles, publication references and abbreviations of the legal acts referred to in the text of this DEMP.

Abbreviation	Full title (including publication reference)
Regulation on SHP	Regulation of the Minister of Infrastructure of 23 June 2003 on information concerning safety and health protection and the safety and health protection plan (Journal of Laws of 2003, No. 120, item 1126)
Regulation on EIA	Regulation of the Council of Ministers of 10 September 2019 on undertakings likely to have a significant impact on the environment (consolidated text: Journal of Laws of 2019, item 1839)
Nature Conservation Act	Act of 16 April 2004 on nature conservation (consolidated text: Journal of Laws of 2022, item 916 as amended)
Public Roads Act	Act of 21 March 1985 on public roads (consolidated text: Journal of Laws of 2021, item 1376 as amended)
EIA Act	Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments (consolidated text: Journal of Laws of 2022, item 1029, as amended)
Amendment to the EIA Regulation	Regulation of the Council of Ministers of May 5, 2022 amending the Regulation on projects that may significantly affect the environment (Journal of Laws 2022 item 1071)
Control of Communicable Diseases Act	Act of 5 December 2008 on prevention and control of infections and infectious diseases in humans (consolidated text: Journal of Laws of 2021, item 2069 as amended)
Aviation law	Act of 3 July 2002. Aviation Law (consolidated text: Journal of Laws of 2022, item 1235 as amended)
Resolution of the Council of the Małopolskie Voivodeship	Resolution No. XVII/230/20 of the Council of Małopolskie Voivodeship of 27 January 2020 on the Protected Landscape Area of Miechowska Upland (Official Journal of the Małopolskie Voivodeship 2020.1095)

EXECUTIVE SUMMARY

This Detailed Environmental Management Plan (DEMP) relates to Contract Task 4A.3.1 *POLRAD weather radar modernization*. The DEMP refers to the task of Contract 4A.3.1/g.2 *Construction of the meteorological radar station in Brzuchania*.

Contract 4A.3.1 is part of Sub-Component 4A implemented within the framework of *the Odra-Vistula Flood Management Project* (OVFMP), co-financed by the International Bank for Reconstruction and Development (World Bank), the Council of Europe Development Bank, the European Union Cohesion Fund and the state budget.

This DEMP includes, but is not limited to, the following:

- Brief description of the OVFM Project (Chapter 1.1);
- Description of the Contract 4A.3.1 and Task 4A.3.1/g.2, which is the subject of this DEMP (Chapter 2);
- Institutional, legal and administrative conditions for the implementation of the aforementioned Contract, including the applicable acts of national law in the field of environmental protection, the main stages of the EIA procedure and the current status of administrative procedures for the aforementioned Task (Chapter 3.);
- Description of the various elements of the environment in the vicinity of the area of implementation of the aforementioned Task (Chapter 4.);
- Summary of the environmental impact assessment (Chapter 5.);
- Description of mitigation measures to eliminate or reduce the potential negative impact of the planned realization of the aforementioned Task on the environment (Chapter 6), together with a tabular listing of these measures (Appendix 1 - Mitigation Action Plan);
- Description of the environmental monitoring activities applicable to the aforementioned Task (Chapter 7), together with a tabular listing of these activities (Appendix 2 - Monitoring Action Plan);
- Description of the course of public consultations carried out at the various stages of developing environmental documentation for the above Task (Chapter 8);
- Description of the organizational structure for the implementation of the DEMP (Chapter 9);
- Schedule of implementation and description of reporting procedures (Chapter 10);
- Source materials (Chapter 11), a list of photographs (Chapter 12), figures (Chapter 13), tables (Chapter 14), and a list of appendices (Chapter 15).

The appendices to this DEMP are a tabular summary of the Mitigation Action Plan (Appendix 1) and the Monitoring Action Plan (Appendix 2), a List of legal acts related to environmental protection (Appendix 3), copies of administrative decisions (Appendix 4), graphic appendices: the Map of the Location of the Project (Appendix 5), the Map of the Location against Protected Areas (Appendix 6), and the Report on Public Consultation (Appendix 7).

Characteristics of the Contract and Task 4A.3.1/g.2

Contract 4A.3.1 concerns the modernization of the POLRAD meteorological radar network. The existing POLRAD system consists of 8 radar towers located in Legionowo, Rzeszów, Brzuchania, Ramża, Pastewnik, Poznań, Świdwin and Gdańsk. As part of the work undertaken, the 6 existing towers will be renovated and modernized, and the operating radars will be replaced with new ones. The current tower in Gdańsk will be demolished and replaced by a new one in another location (Szemud municipality), 2 new towers will be built in Użranki and Góra Świętej Anny.

In addition, the tower in Brzuchania will be demolished and a taller, reinforced concrete tower will be built in its place. Task 4A.3.1/g.2 concerns the construction of a new radar tower in Brzuchania. Its demolition is covered by an individual checklist.

The scope of Task 4A.3.1/g.2

The scope of Contract Task 4A.3.1/g.2 includes, but is not limited to, the following:

- design and build a new radar station, with complete technical and ancillary infrastructure and landscaping of the entire radar station site;
- widen and deepen the trench left by the foundations of the previous, demolished radar tower;
- make a new foundation that takes into account the parameters of the new tower;
- build a reinforced concrete structure for the tower using the slip-form method;
- build an internal staircase for communication without the use of a lift and as emergency communication;
- construct an internal lift shaft;
- deliver and install an internal goods and passenger lift;
- build a ground floor building integrated with the tower, including a UPS room, generator room, storage room, utility room, toilet;
- undertake finishing works on the tower and the ground floor building with the supply of joinery, floor and wall finishes;
- construct the internal electrical and lighting installations;
- construct the tele-technical installation and connect it to the external optical fibre;
- deliver and commission a new UPS;
- supply and install the following systems: electric heating, ventilation, air conditioning of technical and auxiliary premises;
- install new radar, apparatus, domes;
- construct a paved access road and an internal maneuvering area;

- drill a well for the water supply and its connection to the sanitary facilities;
- install an unlined septic tank and install and connect the sewage system from the sanitary facilities;
- construct a new fence around the station area with an entrance gate;
- construct the external electrical installation and external lighting;
- implement systems
  - burglar-proof system,
  - fire alarm system,
  - video surveillance systems.

Necessity of realization of the Contract 4A.3.1 and Task 4A.3.1/g.2

The purpose of the contract is to improve the ability to visualize in real time the weather situation and detect threatening phenomena such as thunderstorms, hail, torrential downpours, etc. sufficiently in advance to issue warnings to threatened areas and, if the situation requires it, to activate flood protection elements.

Aging technical equipment, resulting in frequent breakdowns and the need to shut down the radar stations in question for repairs, and the inadequate resolution of the existing system, together with the apparent climatic changes that are causing a significant increase in the frequency of extreme events in the country, are forcing modernization and expansion of the system.

Data acquired from the upgraded system, thanks to its high accuracy and resolution, will also improve the accuracy of digital weather simulations for short-, medium- and long-term forecasts.

Institutional, legal and administrative conditions

The task of Contract 4A.3.1/g.2, with respect to its characteristics, anticipated potential environmental impacts and location in relation to protected areas, is being implemented in accordance with relevant national environmental regulations and in compliance with relevant World Bank policies.

Status of administrative procedures

As of 2022, the following environmental administrative decisions have been issued for the Task in question:

- Decision of the Regional Director for Environmental Protection in Krakow dated January 21, 2022 (sign: OO.420.4.5.2021.AMi - Appendix 4 to the DEMP) on environmental conditions.

Due to the change in the regulation described in Section 3.5, which occurred during the course of obtaining a permit for the realization of the investment, the above environmental decision

will not be taken into account in the further administrative process, however, its provisions have been taken into account in the DEMP, especially the list of mitigation measures.

Current state of the environment in the vicinity of the area of implementation of the Task

As a result of the work related to the identification of natural and cultural environmental assets, it was found that the implementation area of Task 4A.3.1/g.2 and its surroundings are characterized by the following environmental conditions, among others:

- The area of implementation of the aforementioned Task is located within the boundaries of the surface water body (SWB) RW200072139816 Nidzica to Nidka, as well as within the boundaries of the groundwater body (GWB), code PLGW2000114.
- In the area of implementation of the aforementioned Task and in its close vicinity there are no Natura 2000 areas or other areas and objects protected under the Law on Nature Protection, except for the Miechowska Upland Protected Landscape Area (PLA). However, the investment will not affect any of the protection objectives of this OChK, and the demolished tower structure existed here for about 17 years.
- No protected species of plants, fungi and animals have been found in the area of implementation of the aforementioned Task or in its immediate vicinity.
- In the area of implementation of the aforementioned Task and in its close vicinity there are no historical objects protected under the provisions on the protection and care of historical monuments.

Summary of environmental impact assessment

Impact on the land surface and landscape

The implementation of the planned Task involves the occupation of land that was already occupied by the existing radar station. No more tree and shrub cutting will be carried out at the construction stage. Related activities may be planned at the stage of demolition. A taller object in the environment (51 m.a.s.l.) will be erected, painted in shades of gray and green reducing visibility in the environment. Therefore, there will be no significantly negative impacts on the land surface and landscape.

Impact on climate

The implementation of the planned Task has no impact on the state of the climate. In addition, the completed implementation will increase the accuracy of monitoring the effects of climate change.

Impact on air sanitation

The impact of the implementation of the Task on air sanitation is limited in time to the construction stage, will cease with its completion, and is not significant.

Impact on soil and land

Implementation of the planned Task involves permanent transformation of the land surface (including soil and land) for the construction of the radar station. However, due to the construction of a new tower to replace the old one, which is subject to demolition, the newly occupied area will be negligible. During the operation stage, the radar station will not have any impact on the condition of soils and land. If the conditions specified in Appendix 1 of this DEMP are properly fulfilled, the implementation of construction works will not have a negative impact on the condition of soils and ground.

Impact on surface water and groundwater

The planned radar tower station is not located near any surface water. The implementation of construction works is associated with the potential possibility of surface and/or groundwater contamination at the construction stage. During the operation stage, the operation of the station does not have a negative impact on surface and groundwater conditions. If the conditions specified in Appendix 1 of this DEMP are properly fulfilled, the implementation of construction works will not have a negative impact on the status of surface and groundwater.

Impact on acoustic climate

The impact of the implementation of the planned Task on the acoustic climate is limited temporarily to the construction stage and is not significant.

Impact on animate nature

The implementation of the planned Task is associated with the occurrence of impacts on the vegetation and fauna of the area limited to the plot (primarily scaring). These impacts, resulting primarily from the necessary extent of land occupation, vehicle and machinery traffic during the construction period, will be reduced in part due to the planned mitigation measures. No cutting of trees and shrubs is planned during the construction phase. In sum, the investment will not have a significant negative impact on the status of the resources of protected habitats and species, either on a local or regional scale. Implementation of the planned Task does not affect the status of Natura 2000 areas or other protected areas.

Impact on cultural monuments and material assets

Implementation of the planned Task does not have a negative impact on cultural monuments or material goods. The operation stage is associated with a positive impact on material assets, through improved flood safety due to the modernization of the weather monitoring system.

Impact on human health and safety

Implementation of the planned Task does not generate significant risks to human health and safety. They may arise only in the event of accidents, disasters and other fortuitous events (such as leakage of contaminants, fire, finding of unexploded bombs and unexploded ordnance). Although the radar emits electromagnetic impact during operation, the negative impact is only in the zone inaccessible to people (a radius of about 59 meters at the height of

the center of the radar antenna). In addition, thanks to safety procedures, it is impossible to enter the radar room during its operation. The operation stage is associated with positive impacts on human health and safety, through improved flood safety.

Other ES risks

Notwithstanding the aforementioned, other types of ES problems or risks may also occur during the implementation of the Task, such as accidents and near misses, manifestations of sexual harassment or mobbing, violations of labor laws, cases of infection with sexually transmitted diseases (including HIV/AIDS) and other infectious diseases (including those caused by coronaviruses, e.g. COVID-19), and others. The DEMP has defined appropriate conditions to counter such risks and to respond effectively when they occur.

Mitigation and monitoring activities

A set of mitigation and monitoring measures to eliminate or reduce the negative environmental impacts of the implementation of the planned Task and to ensure effective implementation of the conditions of the DEMP are described and presented at Chapter 6 and 7 and also in Appendix 1 and 2 of this DEMP in tabular form. These measures include the conditions set forth in the current decision on environmental conditions, as well as additional conditions formulated at the stage of work on the DEMP.

Public consultation

Chapter 8 of the DEMP provides an account of the public consultations conducted as part of the EIA procedures for the planned Task, including:

- Public consultation of the document entitled Environmental and Social Management Framework (ESMF) for the OVFM Project (2015).

- Public consultation conducted at the stage of issuing the environmental decision for the project including the planned Task (2021-2022).

- Public consultation of this Detailed Environmental Management Plan (2022).

1. INTRODUCTION

1.1 Odra-Vistula Flood Management Project

The main objective of the OVFM Project is to protect people in floodplains within selected parts of the basins of Poland's two largest rivers, the Vistula and Odra, against threats caused by extreme floods. The OVFMP provides for the implementation of the most urgent tasks in the field of flood protection.

The OVFM project consists of the following 5 Components:

- Component 1 – Flood Protection of the Middle and Lower Odra;
- Component 2 – Flood Protection of the Kłodzko Basin;
- Component 3 – Flood Protection of the Upper Vistula River;
- **Component 4 – Institutional strengthening and modernisation of the forecasting system;**
- Component 5 – Project Management and development of further studies.

Component 4, under which the Contract 4A.3.1, which is the subject of this DEMP, is implemented, is divided into the following two Sub-Components:

- **Sub-Component 4A – Extension and modernisation of the monitoring system for flood and drought risks;**
- Sub-Component 4B – Construction of operational centres at RWMA Wrocław and RWMA Cracow.

Detailed information on the Project can be found in the developed Environmental and Social Management Framework Plan, published, among others, on the websites of the World Bank[1] and the Odra-Vistula Flood Management Project Coordination Office[2]. A detailed description of the Project is also included in the PAD[3] and in the Project Operations Manual document[4].

Due to the extensive scope of the work, their location at remote sites and the long lead time of the Contact, an overall Environmental Management Plan – Guidelines for the Contractor was developed, where the whole Contact is described in general terms. With reference to this document, as Environmental Decisions are obtained, site-specific EMPs are prepared in the form of Detailed Environmental Management Plans or Checklists. This document concerning the meteorological radar station in Brzuchania is the DEMP.

[1] *http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework*
[2] *http://odrapcu.pl/*
[3] *http://documents.worldbank.org/curated/en/320251467986305800/Poland-Odra-Vistula-Flood-Management-Project*
[4] *https://odrapcu.pl/projekt-opdow/popdow-dokumenty/*

2. DESCRIPTION OF THE CONTRACT 4A.3.1 AND TASKS RELATING TO THE BRZUCHANIA METEOROLOGICAL RADAR STATION

2.1 General description of the Contract 4A.3.1

The Contract 4A.3.1 is fully complementary with the other Contracts and together with them concerns the strengthening of the flood protection system in the Odra and Vistula basin. The Contract 4A.3.1 complements the activities undertaken so far by IMGW-PIB in the field of flood protection.

The aim of the contract is to improve the ability to visualise in real time the weather situation and detect dangerous phenomena such as storms, hail, torrential downpours, etc. sufficiently in advance to issue warnings to endangered areas and, if the situation so requires, to activate elements of flood protection. The data acquired from the system, thanks to its high accuracy and resolution, will also improve the accuracy of digital weather simulations for short, medium and long-term forecasts.

The POLRAD system in use so far consists of 8 radar towers located in Legionowo, Rzeszów, Brzuchania, Ramża, Pastewnik, Poznań, Świdwin and Gdańsk. The system operates older generation Meteor radars of various sizes.

The Contact is described in detail in the General Environmental Management Plan –Guidelines for the Contactor for Contact 4A.3.1. in Chapter 2. Only the most important information relevant to understanding this document is presented below.

The radar stations will be uniformly equipped with METEOR 735CDP10 radar equipment manufactured by LEONARDO Germany GmbH with the following technical parameters:

Frequency tuning range:	5430-5800MHz
Operating frequency used:	5635 – 5645MHz
Pulse duration:	0.33 –3.3µs
Pulse repetition rate:	250-2000Hz
Impulse power:	400KW
Average power:	20W
Antenna polarisation:	Dual polarisation
Horizontal beam width:	1°
Vertical beam width:	1°
Upward beam deflection from the line horizontal facade:	+0.5°
Directional gain:	45dB

The selected units make it possible to recognize the type of precipitation that forms in cloud clusters, i.e. to distinguish between rain, hail or snow. The older generation of radars currently in use in the POLRAD network do not have this capability.

As part of the investment, the Terrestrial Remote Sensing Department at IMGW-PIB will be equipped with new computer hardware and full software to support the data stream transmitted by individual stations. On their basis the system creates in real time an interactive weather map of Poland. It also makes it possible to generate short-term (of the order of a few hours) meteorological forecasts useful in various branches of the economy.

The investment will end with an Operational Test lasting 30 days. During the test, the reliability of the entire system, the consistency of the transmitted data, the interoperability of each component, the quality of the generated weather maps will be checked. According to the contract provisions, the Operational Test is expected to be completed in August 2023.

In accordance with the Investor's requirements, during the execution of the works, due to the necessity of ensuring continuous weather monitoring, the sequence of switching off individual operating radars should be agreed with IMGW-PIB. The Contractor has prepared and agreed with the Employer the General Schedule of Contract Execution, which constitutes Attachment no. 7 to the GEMP. The schedule will be updated if changes are required, but this will not affect the terms of the DEMP.

2.2 Brzuchania - construction of a meteorological radar station

The planned project will be located on the plot no. 63, precinct Brzuchania, Miechów Commune and Town, miechowski poviat, małopolskie voivodeship. The area under the radar tower with infrastructure will cover approximately 0.052 ha, the rest of the site will be unpaved area, i.e. approximately 0.039 ha. The new tower will reach a height of 54.35 m above ground level. Due to the existing infrastructure of the Brzuchania radar station, an alternative location for the new tower was not considered.

The subject of the investment is the construction of a meteorological radar station of the METEOR 735 CDP10 type. The station constitutes a unified whole and will be executed as a one-stage construction preceded by the demolition of the existing radar station with a lower tower with the antenna centre at a height of 35 m.a.s.l. (according to a separate study).

The planned meteorological radar station will be included in the Polish POLRAD weather radar network and will constitute an element of the Country Monitoring and Protection System of the Polish national hydrological and meteorological service. During the execution of the works it is envisaged that temporary buildings will be erected for the organisation of the construction facilities for the construction, access, transport and assembly. They will be mostly located on the plot 64, if an appropriate agreement with the owner is signed for the duration of construction and/or on the plot 63 belonging to IMGW-PIB. As part of the implementation of the investment, the existing, remaining in good technical condition, exit from the public road

(national road No. 7 - Warsaw-Cracow relation) and the energy connection will be used. The connection is made via an overhead power line to a pole located on the plot no. 63.

The planned investment is intended to monitor and observe meteorological phenomena, process this data and then make weather data available to other entities. The planned building is an unmanned structure in which the stay and access to the equipment located in the tower is of a service character, periodically resulting from the needs signalled by the ICT system. The building will be equipped with METEOR 735CDP10 radar with an antenna mounted at a height of 51 m.a.s.l. The radar room will be located directly under the dome with the antenna. Technical rooms are planned on the ground floor of the building. The planned building consists of two parts connected with each other at the ground level.

The first part is the tower, which is circular in plan. It has a constant diameter over the entire height of the shaft, which increases from 6.20 m to 10.0 m at radar room level. The second part consists of technical rooms located on the ground floor in the tower extension, which are planned on a rectangular plan. The roof of the lower part is monopitch covered with tar paper or membrane with a slope to the north side of the plot. The roof slope angle is 8.5°(14.95%). The designed facility will serve a research and scientific function.

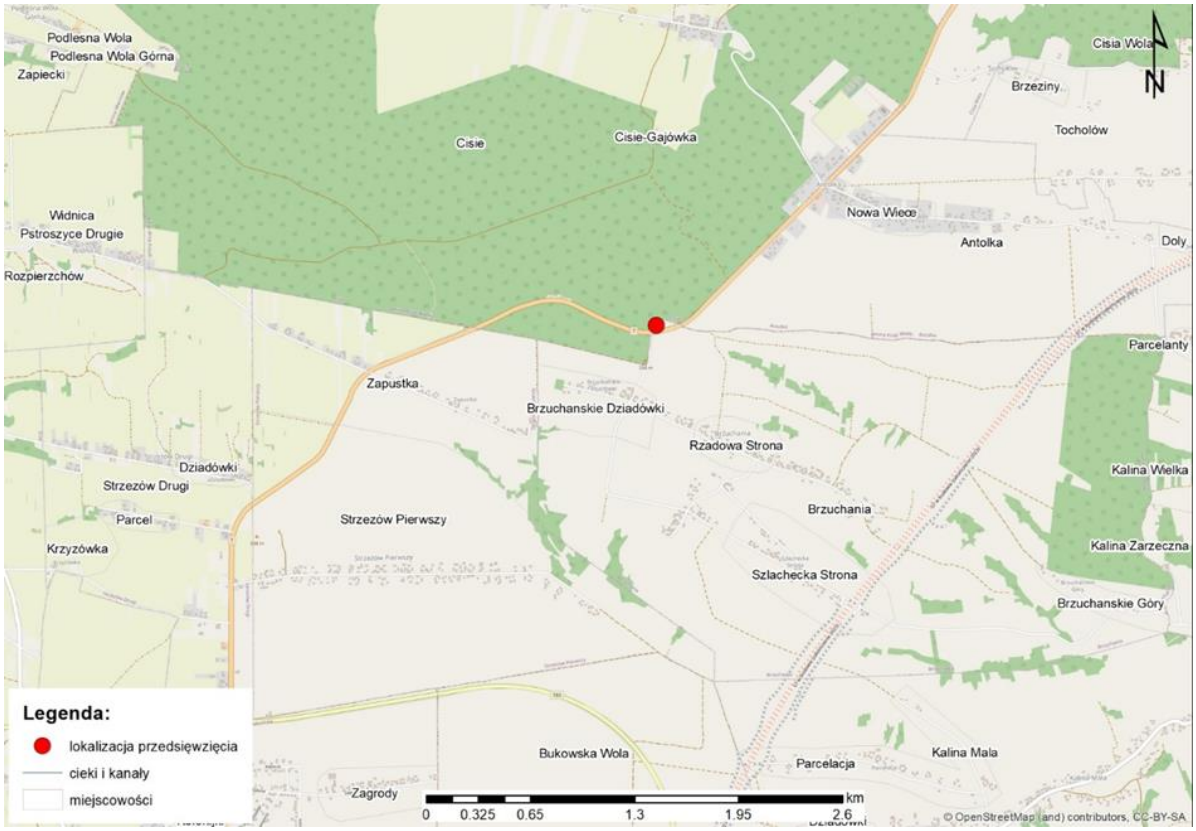


Figure 1 Location of Brzuchania radar station

Photograph 1 Location of the Brzuchania radar station - general view

Under Contract Task 4A.3.1/g.2, the Contractor shall, among other things:

- design and build a new radar station, with complete technical and ancillary infrastructure and landscaping of the entire radar station site;
- widen and deepen the trench left by the foundations of the previous, demolished radar tower;
- make a new foundation that takes into account the parameters of the new tower;
- build a reinforced concrete structure for the tower using the slip-form method;
- build an internal staircase for communication without the use of a lift and as emergency communication;
- construct an internal lift shaft;
- deliver and install an internal goods and passenger lift;
- build a ground floor building integrated with the tower, including a UPS room, generator room, storage room, utility room, toilet;
- undertake finishing works on the tower and the ground floor building with the supply of joinery, floor and wall finishes;
- construct the internal electrical and lighting installations;
- construct the tele-technical installation and connect it to the external optical fibre;
- deliver and commission a new UPS;

- supply and install the following systems: electric heating, ventilation, air conditioning of technical and auxiliary premises;
- install new radar, apparatus, domes;
- construct a paved access road and an internal maneuvering area;
- drill a well for the water supply and its connection to the sanitary facilities;
- install an unlined septic tank and install and connect the sewage system from the sanitary facilities;
- construct a new fence around the station area with an entrance gate;
- construct the external electrical installation and external lighting;
- implement systems
  - burglar-proof system,
  - fire alarm system,
  - video surveillance systems.

2.3 Technologies and materials used

The following table shows the estimated quantity of the main materials that will be used in the construction of the radar tower in Brzuchania. The materials used for the finishing work will be environmentally friendly and will not contain hazardous substances. As their quantities are incomparably smaller than those of building materials, they are not listed here.

Table 1 Materials to be used in the construction phase

Scope	Description of main materials	Estimated quantity
Brzuchania		
Main tower structure	concrete	236 m^3
	reinforcing steel	23 t
Tower foundations	concrete	146 m^3
	reinforcing steel	15 t
Staircase	Structural steel	10 t
Platform	Structural steel	5 t
Lift shaft	Structural steel	10 t
	PUR sandwich panels	355 m^2
Tower ceiling	concrete	19.5 m^3
	Reinforcing steel	7 t
	polystyrene	61 m^2
	Roofing felt	61 m^2
Main structure of the ground floor building	Ceramic hollow blocks	174 m^2
Foundations of the ground floor building	Concrete blocks	6 m^3
Ceiling of the ground floor building	Structural steel	2 t
	Trapezoidal sheet	57 m^2
	Mineral wool	9 m^3
	Roofing felt	57 m^2
Road system	Jomb slabs	388 m^2
	Broken aggregate	116 m^3

The technologies foreseen to be used during the project do not generate hazardous waste, therefore it will not be necessary to determine their storage places and to develop plans for their management.

The inventory of the existing tower to be demolished did not reveal the presence of asbestos, so there was no need to develop procedures for the demolition and disposal of this hazardous waste. A spill procedure for oil spills will be developed for the site.

A Waste Management Plan will also be prepared, to be approved by the Employer, which will describe the types of waste that will be generated, how they will be disposed of and the principles of segregation.

3. INSTITUTIONAL, LEGAL, ADMINISTRATIVE CONDITIONS

3.1 Institutions involved in the implementation of the Contract

The Investor of the Task is the Institute of Meteorology and Water Management – National Research Institute, represented by the Director of the Institute of Meteorology and Water Management – National Research Institute (IMGW-PIB), acting on behalf and for the benefit of the State Treasury.

Additionally, at the stage of construction and operation, the implementation of the Task may require the involvement of public administration bodies at the central, regional and local level. For the day-to-day coordination of the Project's implementation by the PIO, an organisational unit called the Odra -Vistula Flood Management Project Coordination Office was established.

3.2 Existing national legislation on environmental protection

According to Polish law, the investment process in the field of environmental protection is regulated by at least several dozen laws and regulations, which are related to or result from provisions in European law. A list of selected basic national and European legal acts related to the above-mentioned scope and applicable in the period of work on the DEMP was presented in Appendix 3 to this DEMP - List of legal acts related to environmental protection.

The number and content of the legal acts listed there may change as a result of changes in environmental regulations applicable in Poland. The Contractor is obliged, in addition to applying the principles specified in this DEMP, to comply with all current environmental legislation.

3.3 The EIA procedure in Poland

A description of the environmental impact assessment procedure applicable in Polish legislation is included in the Environmental and Social Management Framework (ESMF), published, among others, on the websites of the World Bank (WB)[5] and the Odra-Vistula Flood Management Project Coordination Office[6]. In addition, the EIA procedure is governed by the legislation listed in Appendix 3 to this DEMP – List of legal acts related to environmental protection.

3.4 World Bank guidelines

This Contract will be co-financed among others by the International Bank for Reconstruction and Development (World Bank). Therefore, its environmental conditionality must be consistent with the Bank's Operational Policies and Procedures on environmental protection, including but not limited to policies and procedures OP/BP 4.01 (on environmental impact assessment), OP/BP 4.04 (on natural habitats) and OP/BP 4.11 (on cultural resources). A description of the above World Bank policies is included in the Environmental and Social Management Framework (ESMF), published, among others, on the websites of the World Bank[7] and the Odra-Vistula Flood Management Project Coordination Office[8]. Reference texts for these policies and procedures can be found on the World Bank's website[7].

3.5 The current status of administrative procedures for the Task 4A.3.1/g.2

Due to the fact that, according to the definition of the Regulation of the Council of Ministers of 10 September 2019 on projects likely to have a significant impact on the environment, the averaged equivalent isotropic radiated power exceeds the limit value, all activities of the Contract related to the installation of new radars are classified as projects likely to always have a significant impact on the environment. For this reason, they require the preparation of Project Environmental Impact Assessment Reports (hereinafter referred to as environmental reports) and obtaining a Decision on Environmental Conditions of Approval for the project issued by the Regional Directorate for Environmental Protection. In the event of the construction of a tower in Brzuchania it is the RDEP in Cracow. The proceedings were initiated on 20 July 2021. Decision of RDEP ref: OO.420.4.5.2021.AMi was obtained on 21.01.2022.

[5] *At: http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework*

[6] *https://odrapcu.pl/projekt-opdow/popdow-dokumenty/*

[7] *At: https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx#S3-2 (in the section entitled: Inwestment Project Financing / Environmental and Social Safegurard Policies).*

[8] *https://odrapcu.pl/projekt-opdow/popdow-dokumenty/*

Ultimately, the administrative decision authorising the commencement of works and commissioning of the radar installation will be obtained by means of the Act of 8 July 2010 on special principles of preparation for the implementation of investments in flood control structures. The investment permit is issued in this case by the Provincial Office in Cracow.

In the course of the development permit procedure, the Regulation of the Council of Ministers of May 5, 2022, amending the Regulation on projects that may significantly affect the environment, entered into force. This amendment repeals the provisions of §2 (1) pt. 7 and §3 (1) pt. 8 of the Regulation of the Council of Ministers of September 10, 2019 on projects that may significantly affect the environment concerning radio-communication, radio-navigation and radio-location installations, excluding radiolinks, emitting electromagnetic fields at frequencies from 0.03 MHz to 300,000 MHz, whose radiated power isotropically exceeds specified limits.

As the meteorological radar in Brzuchania is among these devices, and the procedure for obtaining a permit for the project is pending, the environmental decision in accordance with the law will not be considered in the further administrative process.

Within the framework of the Contract there is also a task which does not require obtaining an environmental decision, i.e. the demolition of the existing radar tower in Brzuchania, for which a separate checklist has been prepared. A demolition permit has been obtained for this activity[9].

However, taking into account the DEMP, the provisions of the environmental decision were retained to minimize negative environmental impacts. Copy of environmental decision is included in Appendix 4 of this study.

3.6 Complaints and requests mechanisms

All persons affected by the execution of the Contract 4A.3.1 will be provided with access to appropriate and accessible complaint and grievance mechanisms. Everyone has the right to submit a complaint and a request. There is no charge for submitting complaints and requests. In addition, according to the provisions, the complainant or requester must not be subjected to any prejudice or accusation by reason of making the complaint or request.

Complaints, requests and opinions on non-compliance, by the Project Implementation Units of the World Bank Operational Policies, principles described in the Project documents (Environmental Management Plans, Property Acquisition and Resettlement Plans, Project Operational Manual, etc.), environmental procedures, laws, regulations, safety principles, conditions of conducted construction works and other matters, can be addressed to the OVFM PCU at the address indicated below:

Project Director
Odra -Vistula Flood Management Project Coordination Office

[9] *Decision No. 350/2021 of the Miechów Starost dated August 17, 2022. Demolition permit*

8 Karkonoska St., Building BF (II floor)
53-015 Wrocław
Polska/Poland

or by e-mail to: pcu@odrapcu.pl

For more information on the complaint and request mechanisms applicable to the Contracts co-financed with World Bank funds, please refer to the OVFM Project Operational Manual (POM), available on the Project Coordination Office website[8]. In addition, a complaint and request form is available on the OVFM Project website[10].

4. DESCRIPTION OF ENVIRONMENTAL, CULTURAL AND LANDSCAPE BASELINE

At the site of the meteorological radar station in Brzuchania, the existing meteorological radar tower will be demolished first, followed by the construction of a new, taller radar station tower. New radar equipment and radar station equipment will be installed in the constructed facility. For activities related to the construction of a higher tower and the installation of new radar equipment, an environmental impact report has been prepared in accordance with the provisions of the Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments and other applicable legislation.

The data used to describe the environmental elements come from local offices, government office portals, CSO and scientific studies. Data availability is good, it is up to date and has a sufficient level of detail.

4.1 Elements of the environment protected under the Nature Conservation Act of 16 April 2004 and information on ecological corridors and biodiversity

National Park

There is no National Park within a 10 km radius of the planned investment.

Natura 2000 area

The planned investment is not located in any Natura 2000 area. The nearest areas within a 10 km radius are:

- Widnica – PLH120076 (at a distance of approximately 3.1 km);

[10] *At: https://odrapcu.pl/kontakt/*

- Kalina Mała – PLH120054 (at a distance of approximately 4.0 km);
- Pstroszyce – PLH120073 (at a distance of approximately 4.6 km);
- Giebułtów – PLH120051 (at a distance of approximately 5.8 km);
- Kalina-Lisiniec – PLH120007 (at a distance of approximately 6.2 km);
- Poradów – PLH120072 (at a distance of approximately 6.9 km);
- Komorów – PLH120055 (at a distance of approximately 7.0 km);
- Opalonki – PLH120071 (at a distance of approximately 8.0 km);
- Grzymałów – PLH120053 (at a distance of approximately 8.1 km);
- Chodów - Falniów – PLH120063 (at a distance of approximately 8.5 km);
- Sławice Duchowne – PLH120074 (at a distance of approximately 8.6 km);
- Dolina Górnej Mierzawy – PLH260017 (at a distance of approximately 8.7 km);
- Dąbie – PLH120064 (at a distance of approximately 9.0 km);
- Sterczów-Ścianka – PLH120015 (at a distance of approximately 9.1 km);
- Biała Góra – PLH120061 (at a distance of approximately 9.5 km);
- Kaczmarowe Doły – PLH120062 (at a distance of approximately 9.6 km);

Landscape park

There is no landscape park within a 10 km radius of the planned investment.

Protected landscape area

The investment is located within the Protected Landscape Area of Miechowska Upland. Currently, Resolution No. XVII/230/20 of the Council of Małopolskie Voivodeship of 27 January 2020 on the Protected Landscape Area of Miechowska Upland is in force. The area was established in 1995 with a total area of 51,010.10 ha.

The Miechowska Upland Protected Landscape Area is located in Miechów County, within the boundaries of the municipalities: Charsznica, Kozłów, Książ Wielki, Racławice, Słaboszów and on a fragment of Miechów municipality.

The Miechowska Upland Protected Landscape Area is an extremely valuable area in terms of nature and landscape. The area is largely in agricultural use, with most of the land used as fields, meadows and pastures. A very characteristic thing for these regions is the occurrence of many springs in Kamieńczyce or Sławice Szlacheckie.

There are also many reserves protecting the remnants of undegraded nature. Multispecies stands with thermophilous undergrowth and many protected species (goldenseal lily,

wolfsbane, European cornflower and numerous orchids) constitute protected plant communities. In addition to these, numerous dry and thermophilous communities occur in open and forestless areas, steep slopes and ravines. Among others, spring lovers, large-flowered anemones, thyme, large-flowered cephalopods and golden flax. Also observed in July are mulleins, sages, narrow-leaved oman and carnations. In one of the reserves there is also one of the four sites in Poland of the tawny-leaved thistle.

Among the bushes we can find hawthorn, dogwood, viburnum and arborvitae.

The diversity of vegetation results in a great variety among the fauna of the area. Insects are very numerous, including butterflies such as the swallowtail, mantis warbler, six-spotted warbler, and the wolf's-foot trefoil.

Water-bound habitats are inhabited by amphibians: the fire-bellied toad, great newt, ground coot, tree frog, three species of toads and many species of frogs. Reptiles such as lizards, snakes and vipers prefer drier, sunnier areas. Valuable bird species, including white herons, golden eagles, black storks, hobbies, Barn Owls, tawny owls, middle and great spotted woodpeckers, as well as kingfishers, hoopoes and crested coppices, can be found in the protected area. There are also larger mammals: wild boar, roe deer, badgers, as well as foxes, martens, weasels, ermine, bats and beavers.

In the Resolution No. XVII/230/20 of the Council of Małopolskie Voivodeship of 27 January 2020 on the Protected Landscape Area of Miechowska Upland it is prohibited:

1. Implementation of projects likely to have a significant impact on the environment within the meaning of the Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments.
2. Liquidation and destruction of mid-field, roadside and waterside plantings, unless they are necessary for flood protection and road or water traffic safety or for the construction, reconstruction, maintenance, repairs or renovation of water facilities.
3. The extraction, for economic purposes, of rocks, including peat, and of fossils, including fossilised plant and animal remains and minerals.
4. Earthworks which permanently deform the relief of the terrain, with the exception of works related to flood control or landslide protection, or to the maintenance, construction, reconstruction, repair or renovation of water facilities.
5. Make changes to water relations where these serve purposes other than nature conservation or the sustainable use of agricultural and forestry land and rational water or fisheries management.
6. Removal of natural water bodies, oxbow lakes and wetlands.
7. Construction of new buildings in designated zones as shown on the map enclosed as Appendix 4 to the resolution, and in relation to other watercourses and water reservoirs in a 10 m wide strip of land:

a) the coastlines of rivers and natural water bodies,

b) the extent of the water surface in artificial water reservoirs located on flowing waters at the normal level of accumulation specified in the water permit referred to in Article 389(1) of the Act of 20 July 2017. Water Law - with the exception of water devices and facilities for rational agricultural, forestry or fishing management.

At the same time, the prohibition referred to in point 1 does not apply to the execution of projects likely to have a significant impact on the environment, for which the environmental impact assessment procedure conducted showed that there was no negative impact on the nature protection of the Area, or for which the Regional Director for Environmental Protection in Cracow did not state the need to conduct an environmental impact assessment, and also, pursuant to paragraph 1 point 7, the prohibition does not apply to areas for which: the studies of conditions and directions of spatial development binding as at the date of entry into force of the resolution allow the construction of new buildings - to the extent to which such construction was allowed in these documents.

Nature reserves

The planned investment is not located within a nature reserve. There is no nature reserve within a 5 km radius.

Ecological corridors

The planned investment is not located in an ecological corridor. There is no ecological corridor within a 20 km radius.

Nature monuments

These are individual items of living and inanimate nature or their concentrations of particular natural, scientific, cultural, historical or landscape value, as well as trees or bushes with individual characteristics that distinguish them from other items.

There are no nature monuments in the area of the planned investment and within a radius of 5 km.

Documentation sites

A documentation site is a form of inanimate nature protection covering places of scientific and didactic importance for the occurrence of geological formations, accumulations of fossils or mineral formations and fragments of exploited or inactive surface or underground excavations. The establishment of a documentation site shall take place by means of a regulation of the provincial governor or a decision of the municipal council.

There are no documentary sites in the area of the planned investment and within a radius of 5 km.

Ecological grounds

Ecological grounds are remnants of ecosystems important for the preservation of biodiversity – natural water reservoirs, mid-field and mid-forest ponds, tree and bush clusters, swamps, peat bogs, dunes, patches of uncultivated vegetation, oxbow lakes, rock outcrops, escarpments, rocky outcrops, natural habitats and stands of rare or protected plant, animal and fungi species, their refuges and places of breeding or seasonal residence. Since 15 November 2008, ecological grounds have been established only by resolution of the municipal council.

There are no ecological grounds in the area of the planned investment and within a radius of 5 km.

Nature and landscape complexes

A natural and landscape complex is a form of nature protection defined as “fragments of the natural and cultural landscape deserving protection due to their scenic and aesthetic values”.

A nature and landscape complex is designated to protect exceptionally valuable fragments of the natural and cultural landscape, to preserve its natural, cultural and aesthetic values. Activities in the areas covered by this form of protection are conditioned by the development of a spatial management plan for them, which will take into account the demands of naturalists and historians.

There are no natural and landscape complexes in the area of the planned investment and within a radius of 10 km.

Biodiversity

Miechów municipality belongs to Miechów County. As an urban-rural municipality it is characterised by a proportionally high share of agricultural land.

The territory of the municipality and the city is characterised by a low share of forests and woodland. High grade soils are found throughout the municipality. It is an area of intensive agricultural development, providing a rich base for agro-food processing. High-class soils with the most favourable agro-ecological conditions are found here.

The area of Miechów municipality totals 14,839 ha, of which agricultural land covers 13,271 ha, which accounts for 89% of the total area.

The largest share of agricultural land in Miechów municipality is occupied by:

- arable land – 12,102 ha, which accounts for 91% of agricultural land,
- orchards – 196 ha, which accounts for 1.48% of agricultural land,
- permanent meadows – 242 ha, which accounts for 1.82% of agricultural land,
- permanent pastures – 245 ha, which accounts for 1.85% of agricultural land.

Despite the predominantly agricultural character of the commune, which reduces biodiversity, there are many areas of natural value on its territory, being habitats of valuable plant species, some of which are protected by the establishment of Natura 2000 habitat areas, others as Miechów Protected Landscape Area. The landscape of the municipality is described in more detail in chapter 4.8.

4.2 Nature

Fenced part of plot No. 63 is overgrown with synanthropic low vegetation, free of trees and bushes. It has been used since 2004 as a radar observation site and its purpose will not change. The unfenced part of the plot is overgrown with single self-sown trees, mainly hazel and beech. Their trunk circumference at a height of 5 cm above the ground is from 3 to 30 cm.

There is an extensively used meadow on the adjacent plot (No. 64) where the facilities for the construction works are planned to be located. If the plot of land is used for this purpose, it will be restored to its current state once the development is complete. No valuable species of plants, animals and fungi and their habitats were found on the two plots.

A detailed description of the conducted nature inventory is included in chapter 4.8.

4.3 Physical-geographical division and geology

According to the physical-geographical regionalisation of Professor Jerzy Solon (modification of J. Kondracki's division, conducted in 2018), the investment area lies within the Miechowska Upland mesoregion (342.22), the Nida Basin macroregion, the Małopolska Upland subprovince.

It is a typically agricultural area with small patches of forest, covering 963 km². Its topography is very varied, with extensive hills made up of flat-topped chalk marls covered by loess formations (particularly conducive to cultivation) and characteristic depressions, known as paddies. The paddies are 2–8 km long, 1–2 km wide and 30–50 metres deep and are filled with Miocene clays.

Geological structure of the Miechów sheet was analyzed on the basis of The Detailed Geological Map of Poland 1:50,000, Miechów sheet (Rutkowski, Mądry, 1994 a[11], 1994 b[12]).

In geological-structural terms, the area of the sheet is situated in western part of the Nida Basin. The Nida Basin is a syncline with a northwest-southeast axis. The basin is filled with sandy-carbonate sediments of the Lower Cretaceous and carbonate sediments of the Upper Cretaceous.

[11] *Rutkowski J, Mądry S. 1994 - The Detailed Geological Map of Poland 1:50,000 Miechów sheet. Geol. Publishing House, Warsaw*

[12] *Rutkowski J, Mądry S. 1994 - Explanations to the Detailed Geological Map of Poland 1:50,000 Miechów sheet. Geol. Publishing House, Warsaw.*

The formations of the Upper Cretaceous are predominantly rock and marl, with less frequent calcareous geyses with intergrowths of sandy and marly limestone. The total thickness of these sediments is about 430 m. The Upper Cretaceous rocks are exposed in many places under the cover of Quaternary formations.

The Tertiary is represented by Palaeogene quartz sands with inset clays and concretions of quartzitic sandstone and Miocene sandy siltstone and marl-limestone facies sediments.

Quaternary (Pleistocene-Holocene) sedimentary cover, ranging in thickness from a few metres to about 20 metres, is present in much of the area. Formations of the Southern Poland Glaciation represented by loess-like silts, glacial sands and gravels and boulder clays occur in the north-western part of the area and locally in the vicinity of Moczydła, Książ Mały and Kalina. Sand and gravel from the Moczydła and Wolica regions were included in the sediments of the Central Poland glaciation. Loess and fluvio-periglacial sands and gravels were formed after the northern glaciations. In the Holocene, fluvial deposits developed as loess silts, organic and loess muds, sands and gravels and peats. These formations fill the bottoms of valleys and ravines, which are particularly numerous in the Miechowska Upland.

There are no significant rock formations within the Miechów municipality that could be used industrially. Minimal amounts of mineral resources are used on a small scale by the surrounding population (mainly sand and marl quarries). In the Miechów municipality there are small deposits of: sand (only for the landowner's own needs) – in Pojałowice, limestone (residents' own needs) – in Strzeżów, marl (not in use) – in Szczepanowice, Dziewięcioły, Poradów, Pstroszyce and Biskupice.

4.4 Soil conditions

Miechów municipality is an area of intensive agricultural development, providing a rich base for agro-food processing. There are high-class soils with the most favourable agro-ecological conditions, with a predominance of wheat and beet complexes, loesses and chalky rendzina.

Agriculture is a characteristic feature of the region. In the structure of areas, arable land occupies more than 13 thousand hectares, which is more than 89% of the Municipality's area.

There are around 3,540 farms with an average size of around 5 ha in the Miechów municipality and city. The dominant crops are cereals, root crops (potatoes) and vegetables. Livestock production is dominated by pig fattening and dairy farming. The vast majority of agricultural land is owned by individual farms.

In the area of the Municipality and the City, the percentage share of the different bonitation classes is:

- Class I – 215 ha – 1.5%,
- Class II – 1,917 ha – 13%,
- Class III – 8,299 ha – 56%.

Soils of the highest soil quality classes predominate in the central part of the municipality and the southern part of the municipality, although they can be found throughout the entire municipality and, as can be seen, represent a fairly high percentage (70.5% of soils of the highest quality classes in total).

Forest areas (outside the Forestry District) of Miechów Municipality cover a total area of 50 ha.

According to the land use type of Corine Land Cover 2018, the area of the planned project is located in the borderland between forests and arable land, and according to the Land and Building Register, the area under the current radar station is agricultural land of bonitation class IIIa.

4.5 Surface water

Bodies of surface water

The investment area is located within the catchment area of the Vistula River from Przemsza to Nida.

The plot 63 belongs to the catchment area of the Nidzica River from its inflow in Książ Wielki to Kalinka.

In accordance with the country's division into bodies of surface water (SWB), the planned investment is located within the catchment area of the river body with the European code RW200072139816 Nidzica to Nidki. The indicated SWB is 38.32 km long and the catchment area is 168.52 km^2. The status was determined as the artificial SWB type 7 (Upland carbonate stream with coarse substrate). The following table provides a summary assessment of the status of this SWB.

Table 2. Assessment of the SWB

Assessment of the SWB		
Is the SWB monitored?		NM
Code and name of similar monitored SWB		RW20007213649 (Rudawa to Racławki)
Assessment of the situation for the years 2010 - 2012	Ecological status/potential	BELOW GOOD
	Indicators determining the status	not applicable
	Chemical status	GOOD
	Indicators determining the status	not applicable
	Status (general)	BAD

Anthropogenic pressures on water status		
Type of water body use	agricultural	
Anthropogenic pressures/impacts and threats	unrecognised pressure	
Assessment of the risk of not attaining the environmental objective	endangered	
Protected areas listed in Appendix IV of the WFD		
Areas designated pursuant to Article 7 for the abstraction of water intended for human consumption	NO	
Areas designated for the protection of aquatic species of economic importance	None	
Water bodies used for recreation, including areas designated as bathing waters	NO	
Water bodies designated as vulnerable area, from which nitrogen discharges from agricultural sources to those waters must be reduced	NO	
Water bodies designated as sensitive to nitrogen pollution from agricultural sources	NO	
Water bodies designated as nutrient sensitive areas	YES	
Areas designated for the protection of habitats or species, where maintenance or enhancement is an important factor in their conservation	YES	
ENVIRONMENTAL OBJECTIVE FOR THE SWB	good ecological status	good chemical status
Type of exemption resulting from Article 4(4) and (5) of the WFD	4(4) - 1, 4(4) - 2	
Deadline for achieving the environmental objectives	2021	
Justification of the derogation	Lack of technical capacity and disproportionate costs. Due to the low reliability of the assessment and the consequent impossibility of identifying the causes of the failure to achieve good status, it is not possible to plan reasonable corrective measures. Planning and implementing any action will generate unreasonable costs. Therefore, in the SWB an action is planned to identify the actual ecological status – to conduct research monitoring. If the poor condition is confirmed after 2 years, action will be introduced to identify its causes. This phased approach will allow the necessary measures to be rationally planned and ensure the required effectiveness.	

Rainwater from construction and paved areas

The investment area receives an average of approximately 600 mm of rainfall per year. Rainwater and snowmelt will be discharged into the ground spontaneously, flowing off the meteorological radar. The materials used to construct the tower (reinforced concrete) pose no risk of soil or water contamination. No paved areas larger than 0.05 ha are anticipated within the development site and this paved area will have a rainwater permeable surface. Furthermore, rainwater will not flow onto neighbouring plots.

Water monitoring – surface water

Prepared on the basis of the Report on the condition of the environment in Małopolskie Voivodeship in the year -2017 (the latest available data from VIEP as at 07.01.2021).

The planned investment is located within the unit with the European code RW200072139816 Nidzica to Nidka, which in terms of abiotic typology of watercourses is classified as type 7, i.e. a carbonate upland stream with coarse-grained substrate.

The analysed SWB was not monitored in 2016-2017.

Flood risk areas

According to the flood risk maps and flood risk maps published on 22 October 2020, the investment area is not located in an area of special flood risk.

4.6 Groundwater

In terms of groundwater, the studied area is situated within the boundaries of the groundwater body (GWB) with the code PLGW2000114, which has been found to be in good chemical condition, good quantitative condition and therefore in good general condition. The GWB, based on the status analysis, was determined to be not at risk with regard to achieving the environmental objectives.

There will be no permanent personnel working in the radar tower and the water from the dug well will only be used for sanitary and hygienic purposes of the maintenance crews. As such, a water supply connection will be made to the planned building from an excavated well (designed on the property), while a sewerage connection will be made to a sealed sep tank also located on the property. This tank will be emptied by authorised operators.

The recharge of aquifers takes place through infiltration of precipitation. The effective infiltration module varies spatially. It depends on the amount of rainfall and the permeability of the rocks exposed on the ground surface. A geophysical study using electrical resistivity tomography was conducted for the site of the radar station in Brzuchania. Based on this, the best location for drilling a well was determined. The north east corner of the site is proposed. Within the station area, the impermeable layer is between 5 and 10 m thick, which means that no shallow water is present.

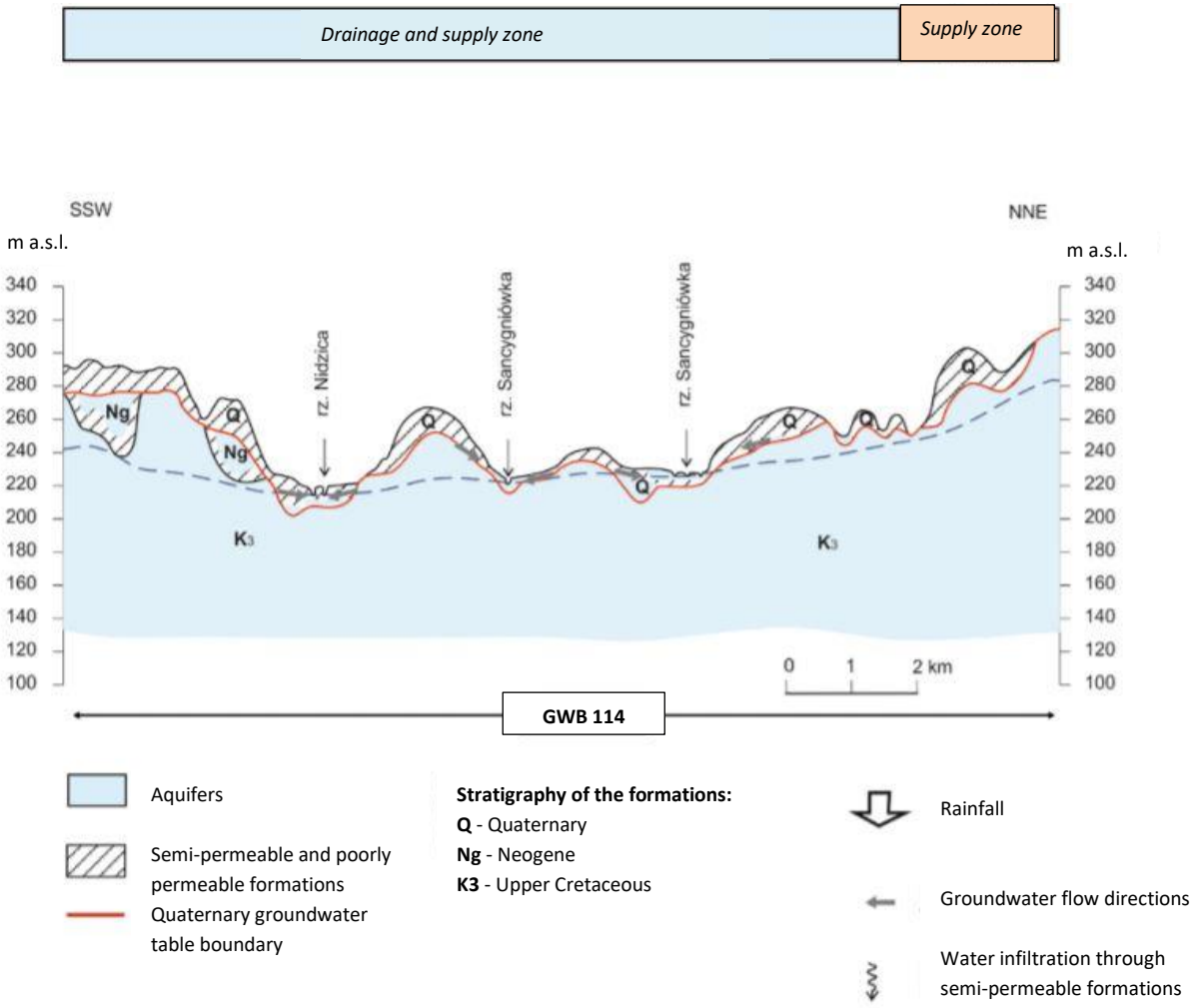


Figure 2. The GWB groundwater of the code PLGW2000114 (source: Polish Geological Insti–ute - National Research Institute)

The investment is located within the range of the Main Underground Water Reservoir no. 409 Niecka Miechowska (SE), which is formed by chalk sediments.

MUWR no. 409 is of fundamental importance for the water supply of the area. It is the only source of drinking water. It supplies municipalities located within the borders of the MUWR, and intakes located in the east and south-east, right next to its borders, supply localities from neighbouring municipalities located within the borders of the counties: Kazimierski and Proszowicki. The renewable resources of the reservoir are 747,804 m^3 /d and the disposable resources are estimated at 252,228 m^3/d, which is almost 34% of the renewable resources. The disposable resource module is 87.2 m^3/d/km^2.

The area encompassing the GZWP no. 409 and its immediate surroundings is of agricultural and industrial character and is characterised by low diversification of land use and development. However, the dominant economic function of the area is agriculture, due to favourable natural conditions, the presence of good quality soils and good climatic conditions.

4.7 Climatic conditions

According to the climatic division of Poland, Miechów Municipality belongs to the Śląskie-Małopolskie climatic region. The average annual air temperature is between 7°C and 8°C, with the coldest month being January (-3°C to -7°C) and the hottest July (+17.7°C). Statistically, winter here lasts 92 days, and summer also 92 days. The number of clear days per year is 62, while the number of cloudy days is 122. The snow cover lasts for about 80 days. Sunshine in summer ranges from 550 to 600 hours. And in winter, less than 150 hours. Annual rainfall averages 600 mm, which is close to the national rainfall average. Within the Miechów municipality, the prevailing winds are westerly and north-westerly. The average relative humidity is around 81% and the average growing season for plants is 210 days. Miechów municipality belongs to the warmer areas in Poland and is characterised by a temperate climate throughout the year. Such climatic conditions favour the development of agricultural activities in the area.

It is characterised by the following climatic elements:

- average annual air temperature: 7°C - 8°C
- coldest month: January: -3°C -7°C
- warmest month: July: +17.7°C
- annual average relative humidity: 77-80%
- winter: 92 days, summer: 92 days
- the duration of the snow cover: 60-80 days
- annual rainfall: 600 mm
- number of days with annual rainfall: 190 - 290
- maximum rainfall occurs in the summer months (May-July)
- minimum during the winter months (December - January)
- number of sunny days per year: 62, and cloudy: 122
- the length of the frost-free period: 140-180 days
- the growing season: 200 -220 days
- the sunshine in summer: 550 -600 h, in winter less than 150 h
- the prevailing winds are westerly and north-westerly.

4.8 Nature inventory

For the purpose of the environmental impact assessment procedure for this investment, a nature inventory of the radar station area was conducted, the results of which are presented below.

The nature inventory is an essential activity for making decisions about investments in environmentally valuable areas and for managing and optimising these activities.

In the instance of an existing installation, and in this case the Brzuchania meteorological radar station, the classic inventory was replaced by a site visit.

The Brzuchania radar station was commissioned in February 2004 and has been operating in the natural environment and local landscape for 17 years.

Land characteristics

According to the geobotanical regionalisation made by Matuszkiewicz, the area is hierarchically located in the following units:

Central European Province

Proper Central European Subprovince

C. Division of Southern Poland Uplands

C.5. Land of the Miechowsko-Sandomierskie Uplands

C.5.1. Miechowsko-Pińczowski District

C.5.1.c. Miechowski

Potential vegetation

According to the Potential Vegetation Map, the potential vegetation for the whole area of the planned investment is the Subcontinental Lime-Oak-Grabebeard - fertile series (Tilio-Carpinetum Litt. -Pol. rich). It should be noted that the map was produced at a scale of 1:300,000 and is only a fairly substantial generalisation, and does not capture the local variability and mosaicity of habitats, but observing the site from a geomorphological perspective, this inclusion seems entirely justified.

Landform and water system

The landform is monotonous, characteristic of an agricultural landscape on an upland plateau. No areas or sites filled with stagnant water, watercourses or ditches were observed on the plots 63 and 64. No other hydrated or wet areas or ponds were identified.

Research methodology

The area subjected to local inspection has been marked out by a polygon delimiting the area of the plot in question. The presence of protected and rare species was searched for in the area of the indicated plot in the place of radar operation and at the same time in the area of the future investment and in the nearest vicinity, within 100 m from the plot.

The planned investment does not and will not affect areas outside the boundary of the plot 63 and partly 64, which could limit the site visit to their area. It is planned to locate the facilities for the construction on the adjacent plot no. 64 (if the agreement with the owner comes into effect) which is an extensively used hay meadow. However, following good practices regarding the recognition of the natural environment, the site inspection was conducted not only in the area of the planned investment. In addition, a site inspection was conducted within a contractual buffer of 100 metres around the designated plot. This area also includes the plot no. 64 in its entirety.

Figure 3. The research area covering the plot 63 Brzuchania, together with a 100 m buffer (base – geoportal.gov.pl)

Field work was conducted on 03.03.2021.

The observations included the entire flora, fauna and fungi biota, but were particularly focused on finding protected and rare species and taxa characteristic of habitats of Community interest.

Another important component in identifying corridors was the search for trodden animal tracks, traces and footprints.

A drone with a camera was also used to take a series of photographs from above the research area and possibly detect unusual habitats and moving animals.

Flora, fungi biota and plant communities

A site visit botanical and mycological was conducted during the visit on 3.03.2021. Primarily protected and rare plants were searched for, due to the limited impact of the existing and planned development in the area, no wider research was conducted.

No trees or bushes are expected to be removed during construction.Possible pruning of self-sown trees can take place at the stage of demolition, a project covered by another document (checklist).

The site visit was conducted in good weather conditions, identifying distinctive patches of vegetation. The aim of the botanical inventory was to identify rare and protected plant species, their habitats and plant communities that could be the basis for distinguishing natural habitats protected in the Natura 2000 network.

Fauna

Mammals

The field work for the mammal inventory was divided into several species groups, necessitating different methodologies. Large mammals were observed with 10x42 binoculars during transects. Tracking was undertaken and signs of presence (droppings, feeding traces, marking of territory boundaries, etc.) were looked for.

The observations were conducted on 3.03.2021 in good visibility conditions.

The nomenclature of mammals used in this study is consistent with the publication “Polish nomenclature of mammals of the world” (Cichocki W. et al. 2015).

Birds

Bird observations were conducted on 3.03.2021 in good visibility conditions.

Amphibians and reptiles

Due to the time of year, no search was conducted for amphibians and reptiles and was limited to searching for potential habitats for them. Particular attention was paid to any water bodies present in the research area, such as water-filled ditches and ruts. The main research method was visual observation.

Invertebrates

Due to the time of year, the search for invertebrates was not conducted and was limited to searching for potential habitats for them.

The observers have made every effort to ensure that the knowledge is as complete as possible and provides the best possible basis for the environmental decision, but it should be noted

that the timing of the work means that many of the migratory species may not have been taken into account. For this reason, additional literature was used.

Biotic components of the environment

Species names of animals subject to species protection are written in bold.

Mammals

The mammal fauna is typical of the local environment, with no rare species. The following table lists the mammals observed:

Table 3 Mammals occurring in the area of the planned investment

Eurasian wild boar (*Sus scrofa*)	Hunting species, common throughout Poland, despite significant population depletion due to AFS, in the examined area tracks were spotted in the beech forest on the N side – plot no. 349.
European roe deer (*Capreolus capreolus*)	Hunting species, common throughout Poland, found in the examined area in the beech forest on the N and W sides – plots no. 349 and 356.
Brown mink (*Myodes glareolus*)	One of the most common rodents throughout the country. Numerous in the examined area. More than a dozen used burrows were found, on plot 64 as well as on the edge of the forest.
European mole (*Talpa europea*)	Partial species protection, species common throughout the country. Numerous traces of this species were observed in several places in the neighbouring plot no. 64.

The species composition of mammals is influenced by the agricultural, transformed landscape with a considerable number of trees and bushes and the nearby forests. The area of the Brzuchania radar station and at the same time the future investment does not constitute a mammalian feeding ground.

Birds

The bird fauna of the area is characteristic of the grassland forests surrounding the examined area. No birds were observed in the area of the radar station and the future investment, only single flying individuals. The observed species are not associated with nesting within the fenced area of plot 63, which may only provide potential foraging habitat. There are no conditions for nesting birds on the neighbouring plot no. 64, either. The species observed are shown in the table.

Table 4 Birds occurring in the area of the planned investment

great tit (*Parus major*)	on the edge of the beech forest and in the forest
crow (Corvus corax)	flying over the studied area
jay (*Garrulus glandarius*)	beech forest

common magpie (Pica pica)	flying over the studied area
chaffinch (*Fringilla coelebs*)	on the edge of the beech forest

All the birds listed are protected species.

No species from the Red List of Birds of Europe were observed, where 15 species from the Polish breeding control are listed: Greater Spotted Eagle (EN: very high risk, highly endangered species), Scythian, Common Coot, Oystercatcher, Lapwing, Curlew, Kingfisher, Magpie, Aquatic Warbler, Turtle Dove (VU: high risk species, vulnerable to extinction) and silver gull, thrush, meadow pipit, red kite and coot (NT: lower risk but near threatened species).

Among the bird species observed and listed above there are no bird species of value for the Special Protection Areas – Natura 2000 in Poland. There are no such designated SPAs in the area of the planned investment or in the immediate vicinity.

With the breeding season now over, sightings occurred at random locations that are not associated with their nesting, and could only be related to foraging sites and flying in and out of them.

Reptiles and amphibians

The potential herpetofauna of the studied area is poor, typical and comparable to surrounding areas. No amphibian or reptile breeding or feeding sites were found within plot 63 or within the studied 100m buffer surrounding it. Potentially **the grass frog (Rana temporaria)** and **the common toad (Bufo bufo)** may occur in the area.

Invertebrates

During the site visit, no invertebrates were observed in the studied area. No vine snail or remains of its shell were found. No larvae of imaginal forms or traces of protected beetles were found.

No protected invertebrate species were observed.

Fungi biota

During the inventory works, no species of macrofungi were found outside the area of the planned investment.

No protected species of fungi or lichens were found.

Flora and plant communities

The fenced area of the radar station plot is overgrown with grassy synanthropic vegetation. The unfenced section on the western side of the single self-sowing trees of primarily beech and hazel with a trunk circumference at a height of 5 cm above the ground between 3 and 30 cm.

The land adjacent to the plot of land currently occupied by the Brzuchania radar station, and at the same time the site of the tower conversion and radar equipment upgrade, is occupied:

- On the N, W and NE sides – fresh upland forest beech aged about 83 years – plots no. 349 and 71 (forest address 03-14-1-03-82-c-00) and fresh upland forest beech aged about 78 years – plot no. 356 (forest address 03-14-1-03-89-b-00). In the further part of the plot no. 356 in the W direction, there is a separation of poplar fresh upland forest of the age of about 53 years (forest address 03-14-1-03-89-c-00) close to natural, wetness – strongly fresh, on opaque-soil, owned by the State Treasury under the administration of State Forests National Forest Holding, Regional Directorate of State Forests in Cracow, Miechów Forest District, Trąby Forestry.
- From the SW, on the other side of the DK7 – an upland fresh beech forest aged about 83 years – plot no. 357 (forest address 03-14-1-03-89-d-00), close to natural, moisture content – strongly fresh, on calcareous lessive soils, State Treasury owned by the State Forests National Forest Holding, Regional Directorate of State Forests in Cracow, Miechów Forest District, Trąby Forestry.
- From the S side – national road DK 7 (E 77), crossing the buffer of plot 63 from S to N.
- From the S side, behind DK 7 – arable fields, intensively used.
- From the E side – plot no. 64, a grassland, currently used extensively.

The forest separations located in the surroundings of the plot have a protective function – soil protection. The felling age of beech trees is 120 years, i.e. the earliest felling can take place in 40 years. The felling age of the poplars is 40 years, i.e. they are already of cutting age.

The flora of the forest is typical of the fresh beech upland forest. In addition to the dominant beech *(Fagus sylvatica)*, there are few bearded birch *(Betula pendula)* and pedunculate oak *(Quercus robur)* with poor undergrowth.

No valuable or protected natural habitats or plant species were identified within the plot 63 or within the studied 100m buffer. Plant species characteristic of fresh upland forest and cultivated fields predominated.

It is expected that once the investment is completed, native species characteristic of the region and climate zone will reappear at the radar station site.

4.9 Cultural landscape and monuments

Miechów was founded in the 12th century and was a property connected with the Gryfit family of Świebodzice, whose coat of arms Griffin became also the coat of arms of the town of Miechów. Historians regard the crusader Jaks Gryfit from Miechów as the founder and the first heir, who, after participating in the Crusades, brought here from Jerusalem several knights from the Equestrian Order of the Holy Sepulchre of Jerusalem, as well as several canons of the Order of St. Augustine, who cared for the Sepulchre of Christ, and in 1162 built for them the Collegiate Basilica of the Holy Sepulchre of Jerusalem and a monastery.

The name Brzuchania originates from the surname of the homestead nobility who were called Brzuchańskis and probably used the Hawkweed coat of arms. In the years 1386-1999 the Holy Sepulchre of Miechów purchased most of the land, which is confirmed by the originals of these documents in the Czartoryski collection in Cracow. The remaining part called Brzuchania Szlachecka still belonged to the Brzuchański family in the 16th century, but at the turn of the 16th and 17th centuries they emigrated to Miechów. Until the end of the 18th century, the noble part was owned by Jan Śladkowski and Krzysztof Rodowski.

In the 19th century, the lands belonging to the Holy Sepulchre and the Nobility were sold to the then residents and the village of Brzuchania was established.

At present, Brzuchania is the largest village in the Miechów Municipality with an area of around 740 ha and a population of around 290.

Objects entered in the register of immovable monuments of the Małopolskie voivodeship located in the Miechów municipality or in the immediate vicinity of the plot 63:

- Antolka in Książ Wielki municipality – 19th century inn, in Classicist style, brick, one-storey, covered with a hipped roof, a risalit with four pilasters on the elevation,
- Falniów in Miechów municipality – chapel,
- Miechów in Miechów municipality – the complex of the Church and Monastery of the Holy Sepulchre,
- Miechów in Miechów municipality – Miechów gm. Miechów – wooden manor house at Racławicka 26,
- Miechów – Siedliska in Miechów municipality – St. Cross filial church, churchyard, old trees, fence, gate,
- Nasiechowice in Miechów municipality – parish church,
- Pojałowice in Miechów municipality – chapel,
- Przesławice in Miechów municipality – church of the Blessed Virgin Mary, Mother of the Church,
- Zarogów in Miechów municipality – manor-park complex.

The cultural landscape in the immediate vicinity of the radar station includes protective forests, the DK7 national road and agricultural fields. At a distance of about 500 m in the S direction is the village of Brzuchania with buildings in a row system. About 1.5 km to the E, in a depression, there is the village of Antolka with row and chain buildings. There is a 19th century historic inn in the village.

4.10 Landscape

The forest cover rate in the municipality is 4.7%, according to CSO data for 2019. This value is lower than the value for the voivodeship.

The area of the Miechowska Upland, within which the majority of Miechowski County is located, known as the "land of orchids", is characterised by biodiversity, resulting from the occurrence of fertile soils formed, among others, of loess, marl and opok. The variability of the bedrock forming the soils, the diversity of slopes, the dense network of baulks, ravines and gullies in the loess slopes, create an upland landscape that changes with the seasons, visible in the fields and meadows as well as in the mixed deciduous forests (oak-hornbeam).

The centuries-long human presence in the area, and its close links with agriculture, have been a factor in the balance of nature. Nine nature reserves have been created in the Miechów County, including steppe reserves, forest reserves and a floristic reserve. Within the Natura 2000 network, 21 Special Areas of Conservation have been established for the conservation of specific types of natural habitats and species that are considered valuable or endangered on a European scale. The average height of the Miechowska Upland ranges from 250 m in the east to 420 m in the west. The gentle slope of the upland area towards the south-east, the richness of the terrain forms and the unpolluted environment are conducive to recreation and tourism.

The planned investment is located on the border of agricultural and forest areas. Within the municipality, human activities largely affect the landscape and plant species structure, mainly due to the advanced state of agriculture in the municipality.

Approximately 2 km from the construction site of the planned radar, a new route of the S7 expressway is under construction, which is a linear facility. The facilities are far enough away from each other that they do not affect themselves.

4.11 Electromagnetic field

The radar is equipped with an antenna that rotates continuously around its vertical axis. The radar antenna (hidden under a non-conductive shield that protects the antenna from the effects of precipitation – a characteristic sphere) is characterised by a very strong concentration of electromagnetic energy. As a result, the space around the antenna is swept by the very narrow signal emitted from the radar antenna. Due to the extremely directional characteristics of the radar antenna, the signal at ground level and at heights even quite significantly close to the height of the antenna installation is very small, at ground level practically unmeasurable by instruments with sensitivity adapted to environmental regulations. In contrast, the field from the radar antenna would be enormous if one were to analyse a point lying in the direction of the antenna's maximum emission. However, it follows from the nature and purpose of such radar that it must never radiate towards any (conductive) obstacle, i.e. buildings, but also trees or, even more so, places accessible to people, as it would be absurd to design radar in this manner. Therefore, the antennas are mounted at a significant

height above the height of existing and expected terrain obstacles, in the case of Brzuchania 51 m.a.s.l. Additionally, the radar beam is deviated by +0.5° from the horizontal elevation determined by the antenna centre.

Due to the physical principle of meteorological radar, the antenna does not emit electromagnetic energy continuously, but it is a pulsed signal. As a result, this signal is characterised by a certain average energy, the value of which is significantly lower than that of a single pulse. In the signal emitted from the antenna there are many more moments of no emission than moments of emission (in weather radar installations the ratio of emission time to no emission varies between 1:250 ... 1:2000). The latter ratio means that during operation the antenna emits electromagnetic field energy for one unit of time, and for the next 1999 same time instants the emission does not occur. This shows the degree of “dilution” of the field energy emission. This also justifies the use of averages rather than maximum values for energy and power. Similarly, it follows from the principle of the radar's operation that the antenna rotates around the horizon. Therefore, the emission in the chosen (any) direction occurs only for a short moment, after which the antenna continues its rotation and stops “illuminating” this point. This is an example of a non-stationary field emission. The regulations prescribe that the impact resulting from a very short time of impact must be corrected in a manner based on physical phenomena. It is understandable that the time for an object (e.g. a person) to be “illuminated” by a field beam from an antenna is dependent on the degree of focus (width) of that energy beam. The mentioned coefficients take into account precisely these directional characteristics of the antenna.

The large diameter of the reflector in combination with the very high frequency of the signal (5 GHz - C band) causes an enormous concentration of electromagnetic energy; the generated beam has a very strong convergence, and after deviating from the axis of maximum radiation already by half a degree, the amount of energy drops to half of the maximum. With further deviation, the magnitude of the perceived energy in this direction decreases very rapidly. Such a parabolic antenna results in an energy flux that can be compared to a needle with an opening angle of about 1°. No other type of antenna commonly found has the ability to focus and direct electromagnetic energy so strongly.

The schematic distribution of the field and its relative position to areas accessible to people in the case of classical meteorological radar tower construction is shown in the figure below.

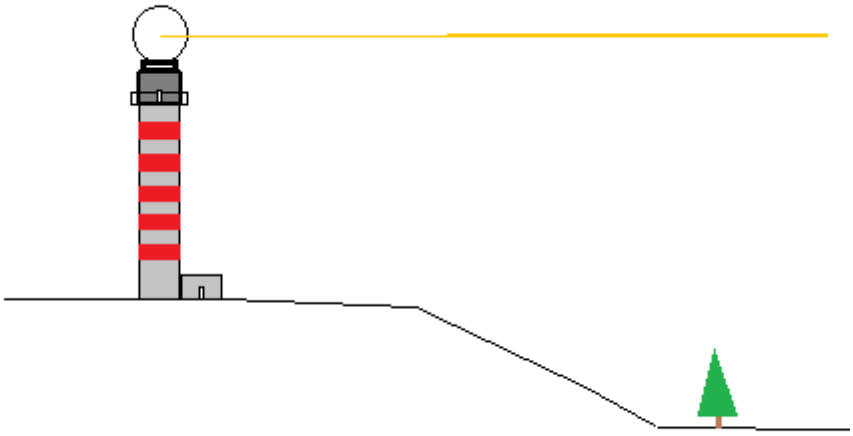


Figure 4 Schematic layout of the radar station

According to the definition of the Regulation of the Council of Ministers of 10 September 2019 on projects likely to have a significant impact on the environment, radiolocation devices whose equivalent isotropic radiated power is greater than 20kW are classified as projects likely to always have a significant impact on the environment. In the event of METEOR 735CDP10 radars selected for the execution of the Contract, the value of this indicator is 436.5kW. Therefore, the execution of the radar installation under the Contract required obtaining the Decision on Environmental Conditions. Following the amendment of the regulation, radiolocation devices have been exempted from the need to obtain an environmental decision, so in further administrative proceedings the environmental decision will not be taken into account (described in more detail in Section 3.5).

4.12 Acoustic climate

The area of the radar station is not an acoustically sensitive area. There are no permanent residents, with technical teams usually arriving once a month for less than 8 hours.

The radar tower is located in an acoustically sensitive area, bordering the DK7 (E77) road on the south side. The nearest buildings are located approximately 420 m from the investment in a south-western direction behind the forest wall.

During the environmental impact assessment phase, a noise emission impact assessment was conducted. According to this assessment, the conduct of works associated with the investment will result in the installation of the following noise sources on a temporary basis (for the duration of demolition and construction works):

- construction machinery with a noise level of 80-105 dB(A),

- vehicles with a noise level of approx. 102 dB(A).

In addition, the following noise ranges are adopted for performing demolition work:

- hand-held pneumatic hammers >80dB,
- impact machines >80dB,
- normal and long arm hydraulic crushers <70dB,
- cutting with mechanical devices <70dB.

For the operating time assumptions (during the most unfavourable hours of the day) for the 4 types of equipment and equipment operation, the equivalent sound power level for the sum of the sources is 102 dB. However, this value applies only to the immediate surroundings of the equipment and the work in progress. However, this value is important from an occupational health and safety point of view; as an emission in the environment, noise is treated taking into account the decrease in sound power.

Table 5 Noise propagation at the investment implementation stage

Emitter sound level [dB]	Sound level at r=1m [dB]	Sound level at r=100m [dB]	Sound level at r=500m [dB]
102	105	62	48
100	100	60	46
80	80	40	26
70	70	30	16

The above analysis indicates that at the stage of construction works, implementation of the project in question, noise will be burdensome at a distance of up to 100 m from working machinery or conducted works. The greater the distance from the emitter the greater the drop in sound power. Taking into account the location of the buildings (approx. 0.5 km), the implementation phase will not be associated with inconveniences and exceedances of acceptable standards. It should be noted that noise emissions at the project implementation stage are temporary and will cease with the completion of the works.

In addition, for about 2.5 months the tower will be constructed using the sliding formwork method. This technology requires non-stop work, i.e. 24 hours a day. This technology is not very inconvenient in terms of acoustics and will not result in exceeding permissible standards for residential buildings located approximately 420 m away at night.

At the stage of exploitation, the following should be indicated as noise sources:

- Vehicle traffic in the area of the planned project (1 passenger vehicle, 6 visits per year up to 8 h),

- Generator – operation for control purposes, a trial run will be conducted once a month for approximately 1 hour, i.e. a maximum of 12 hours/year,
- Air conditioners (2 pcs),
- Freight and passenger lift inside the tower.

Neither the operation of these facilities nor vehicular traffic will constitute a significant impact and the acceptable standards will not be exceeded.

4.13 Material assets

The proposed investment is located on the boundary between farmland and woodland, with the nearest built-up areas being within 420m to the south-west.

There is currently no agricultural or forestry production on plot 63 as a radar station operates on it. On the neighbouring plot No. 64, which is planned to be used as a construction background for the period of demolition and construction works, (discussions with the owner are currently underway), agrotechnical measures related to an extensive hay meadow are currently being undertaken. Upon completion of the construction works, reclamation works would be conducted on the plot, restoring it to its current state, so that it would not lose its value.

The POLRAD radar network is registered as Aeronautical Ground Control Equipment and as such their operation is protected under Article 88(3) of the Aviation Law. It should be taken into account that aerial ground facilities are objects:

- The construction and operation of which are a public purpose within the meaning of Article 6.1b of the Act of 21 August 1997 on Real Estate Management (Journal of Laws of 2010, No. 102, item 651).
- It shall be provided with appropriate security measures to protect them against damage or interference in accordance with Appendix Va, Part A - Physical characteristics, infrastructure and equipment, point 3.d of Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009 amending Regulation (EC) No 216/2008 in the field of aerodromes, air traffic management and air navigation services and repealing Directive 2006/23/EC (OJ L 309, 24.11.2009, p. 51).
- It cannot be disturbed and the performance of which cannot be adversely affected by radioactive sources or by the presence of fixed or movable objects according to Appendix Va, Part A – Physical characteristics, infrastructure and equipment, point 3(e) of the abovementioned Regulation (EC) No 1108/2009 of 21 October 2009.

Therefore, protection zones shall be designated around meteorological radars. They are published on the website of the Civil Aviation Authority[13]. Depending on the topography of the area around the radar in question, protection zones differ, among other things, in terms of the permissible heights of objects to be agreed upon. It should be noted that the protection zones do not imply a ban on construction, but only the need to agree on the objects listed in the table below.

The restriction applies to sites at least part of which are above the development limitation area. Development restriction zone ranges shall be designated for different types of buildings, indicated by the radiuses (distances from the device) of the zone ranges, expressed in kilometres.

Table 6 Development Restriction Zones

Zone number	Scope of application	Description of the objects to which the restrictions apply
1	from 0 km to 0.6 km	concerns: - all objects
2	from 0.6 km to 1.6 km	concerns: - wind turbines - other objects if their height exceeds 15 m above sea level, with the exception of buildings not having their tops above the existing buildings in their immediate vicinity [above sea level].
3	from 1.6 km to 6 km	concerns: - wind turbines - other objects if their height exceeds 15 m above sea level, with the exception of: (a) buildings with their tops not higher than the existing buildings in their immediate vicinity [above sea level] b) fixed, tall objects, the horizontal projection of which for their main structure is contained within a circle with a radius of 5 m, e.g. GSM masts
4	from 6 km to 30 km	concerns: - wind turbines

[13] Register of Aerial Ground Installations (RLUN) and their Building Restriction Areas (BRA) https://caa-pl.maps.arcgis.com/apps/webappviewer/index.html?id=a1a678f73a2f40b89c54f8cba453f071

5. SUMMARY OF THE ENVIRONMENTAL IMPACT ASSESSMENTS

The following subsections will describe the environmental impact assessments by individual environmental elements and the implementation and operation phases of the project.

5.1 Elements of the environment protected under the Nature Conservation Act of 16 April 2004, ecological corridors and biodiversity

The planned investment is not located in the areas of statutory forms of nature protection, such as: national parks, reserves, landscape parks and nature and landscape complexes. There are no natural monuments, documentary sites or ecological grounds and also ecological corridors in the vicinity

The plot 63 is not located within a Natura 2000 area and there are no connections of the investment area with conditions necessary to create habitats or to accommodate species for which Natura 2000 areas have been established.

Construction phase

During the construction of the meteorological radar station, there will be no negative impact on any forms of nature conservation or Natura 2000 areas.

The planned construction is located within the Miechowska Upland Protected Landscape Area (PLA). However, the construction work will not violate any of the established protection objectives of this PLA.

In addition, according to Article 24, paragraph 2, item. 3 of the Law on Nature Protection, the prohibitions in force in the area of protected landscape areas do not apply to the implementation of public purpose investments.

Operation phase

Due to its nature, the planned installation will not have a negative impact on Natura 2000 areas and other forms of nature conservation and ecological corridors during its operation.

The project is located within the area of protected landscape of Miechowska Upland. However, it should be stated that the currently functioning radar installation and the planned investment due to the lack of direct interference in places and habitats for which the Protected Landscape Area was established and the location of the new meteorological radar, in the same place as the existing one, there will be no impact on the established objectives of protection.. None of the purposes for which this Area was established or the prohibitions indicated in Resolution No. XVII/230/20 of the Council of Małopolskie Voivodeship of 27 January 2020 will be violated.

5.2 Nature

Construction phase

The realisation of the planned Task 4A.3.1/g.2 in Brzuchania does not involve cutting down trees and bushes that, according to Polish law, require notification to the relevant authority.

On the territory and in the surroundings of the meteorological radar station Brzuchania, during the natural inventory, no naturally valuable habitats and species of plants, animals and fungi were found, and therefore no negative impact on protected areas and other forms of nature or landscape protection and on valuable habitats and species of plants, animals and fungi is expected. In connection with the implementation of demolition, construction and modernisation works, no removal or destruction of valuable natural habitats is expected, no destruction of regionally and nationally valuable species sites will occur.

Prior to the commencement of demolition works, a vegetation inventory shall be undertaken to determine primarily trees and bushes to be protected and possible designation of self-sown trees for felling. Due to the trunk circumference at 5 cm height of the indicated trees between 3 and 30 cm, they do not require a felling permit or notification to the authority. The necessary self-sown trees to be cut down will be described and designated in the checklist for the demolition stage.

Transport of equipment and materials as well as operation of machinery used for modernisation works will have a very limited and short-term impact on animals (mainly birds) that occasionally use the area of the current radar station as a feeding ground. However, this will be a short-term and limited impact and the mitigation measures undertaken will significantly minimise this impact.

At the construction stage, there will be an impact on the vegetation located on the plot (grasses, synanthropic vegetation) related to earthworks, construction and fence replacement. The impact will be mainly limited to the area of excavation for the foundation. This is low-value vegetation, which will be rehabilitated after the work is completed.

Operation phase

No negative impact is expected at the operation stage.

In addition, the project occupies a small area and is point source in nature and therefore does not present a risk to displaced species. The fence will maintain a space of at least 10 cm between the ground surface and the lower edge of the fence mesh to allow free movement of small animals. Large animals will be able to bypass the investment site through neighbouring areas still in forest and agricultural use. Therefore, the construction of the planned installation shall not contribute to the creation of a migration barrier.

The execution of the investment will not negatively affect the species of amphibians, reptiles and invertebrates.

The planned installation will also not negatively affect bats. Bats may be threatened by transparent vertical surfaces with which they may collide in flight. This threat applies in

particular to young animals learning to fly, in which the echolocation system is not yet fully developed.

The potential impact of the project on local bird populations may be of two kinds:

- indirect impact through loss of natural habitat, habitat fragmentation and/or modification,
- direct impact through the possibility of alternative feeding or nesting sites.

Additionally, no residential development is planned in the studied area, which is often the cause of biodiversity decline. The investment will not affect species perceived as conflict species and will not increase the penetration of alien species.

5.3 Surface of land and landscape

Construction phase

The impact on the ground surface will be temporary occupation of the site for the location of the facilities for the construction works. This impact occurs on a small spatial scale and will disappear with the completion of the works and decommissioning of the temporary occupation site. Once the works have been completed, this area will be reclaimed and returned to its current state – in the event that it is considered plot 64 to an extensively used hay meadow.

During construction, the impact on the landscape will be the appearance of new objects with surroundings related to the construction site and the systematic appearance of the newly built radar tower. The impact related to the construction site is temporary and will cease with the completion of the works.

Operation phase

The implementation of the planned Task 4A.3.1/g.2 in Brzuchania does not involve the permanent occupation of land other than that currently used.

At the Brzuchania location, where a taller tower will be built on the current site, there will be an impact on the landscape. It is related to the construction of a new, higher technical facility with a height of 54.35 m.a.s.l. The demolished radar tower (38.27 m.a.s.l.), which has existed since the 1990s, has already grown into the landscape. It is not currently visible from Antolka due to the location of the village in a depression. Looking from Brzuchania, only the dome is actually visible, as the tower seemingly merges with the wall of the forest. When the tower is raised, it will be clearly visible from Brzuchania, and its upper part from some places in Antolka. Therefore, the impact on the landscape will be permanent and negative. However, given the long history of the tower in the area, it should not generate negative feelings among the local community.

5.4 Soils and grounds

Construction phase

Due to the necessity of elevating the tower and changing the technology of its construction, the foundation trench will be widened. These works will take place within the plot of land earmarked in 2004 for a meteorological radar station. The wider foundation excavation will not have a significant adverse effect on soil and ground conditions.

The impact on soils and land may result from local degradation of soil cover during construction earthworks. This impact will be localised and will be minor, of short duration and reversible. Impacts will mainly relate to the temporary occupation of land for facilities for the construction works. This impact occurs on a small spatial scale and will disappear with the completion of the works and decommissioning of the temporary occupation sites.

Upon completion of the radar station, the station site will be recultivated, the layer of humus collected at the beginning of construction will be spread and the local grass mixture will be sown.

Operation phase

There will be no impact on soils during operation.

Due to the existing analogous use of the area for the radar tower, the project will not adversely affect the geological and soil conditions.

After the eventual termination of the radar, the site will be put to another use, impossible to determine today. In the event of radar on agricultural or forestry land, presumably to the original use. In addition, work will be conducted at this stage to rehabilitate the site and leave it in a condition no worse than before the investment. These works will be conducted in accordance with the regulations that will be in force at the time of the decommissioning of the meteorological radar and using machinery and equipment that will achieve the intended effect.

5.5 Surface water

Construction phase

No potential surface water pollution is diagnosed at the stage, demolition, construction and modernisation of facilities due to the proper technical condition of construction machinery and equipment.

The location of the planned investment will not interfere with surface water.

Domestic wastewater generated during the implementation of the project will be collected in sealed tanks and disposed of by authorized entities.

The construction site will be provided with equipment to neutralize possible spills of petroleum substances, among others, sorbents.

Operation phase

The plan is to demolish the existing tower, build a new one and modernise the facilities of the meteorological radar station, a facility that does not require a permanent water supply for either technological or social purposes. There will be no permanent personnel working at the facility.

Surface water will not be affected by the operation of the meteorological radar. No environmental pollutants are emitted during the meteorological radar operation. The estimated water consumption for the radar station, in accordance with the Regulation of the Minister of Infrastructure of 14 January 2002 on the definition of average norms of water consumption, is set at 50 dm^3/ inhabitant x day, but it should be noted that it will be used only by service crews, whose presence is estimated at 1 day per month.

Given the above data:

- technological waste water will not be generated during the operation of the investment,
- domestic waste water generated will be collected in a sealed tank and disposed of by authorised bodies,
- the project does not envisage the transformation of watercourse beds or water reservoirs, the flow of watercourses will not be altered and surface water quality will not be changed,
- rainwater from the investment area will freely infiltrate into the soil.

No plant protection products or mineral fertilisers will be applied during the use of the fenced area of the plot with the radar station.

5.6 Groundwater

Construction phase

No potential contamination of shallow circulating groundwater is diagnosed during the construction phase.

The Contractor shall conduct the works using equipment which will not adversely affect the quality of the works or the environment. It will also be their responsibility to ensure the safe and appropriate transport of materials to the site. All means of transport used by the Contractor shall have the appropriate permits and current technical inspections.

During construction work, proper organisation of the construction site and proper storage of materials on the site will be ensured. Appropriate organisation of the works will make it possible to protect the surface of the ground and, consequently, surface water and groundwater from possible contamination.

There are no wetlands and therefore no hydrogenic ecosystems in the area designated for the investment. The planned works, including the construction of a borehole, will not alter water relations or pollute groundwater. No plant protection products or fertilisers will be used.

Domestic wastewater generated during implementation will be stored in closed containers of portable toilets and transferred for disposal through an authorized septic collector.

The project will not have a negative impact at the implementation stage.

Operation phase

The planned demolition of the radar tower and construction of a meteorological radar, a facility that does not require a permanent water supply for either technological or social purposes. There will be no permanent personnel working at the facility. During the exploitation of the radar, there will be no impact on the status of water quality parameters and the impact on the status of quantitative parameters will be immeasurably low.

Permanent groundwater monitoring is not required for this project. The exploitation of the new meteorological radar will have no impact on groundwater. Estimated water consumption, in accordance with the Regulation of the Minister of Infrastructure of 14 January 2002 on the definition of average norms of water consumption, is set at 50 dm^3/ inhabitant x day, but it should be noted that it will be used only by service crews, whose presence is estimated at 1 day per month.

Bearing in mind the above data and the following findings made in the Environmental Impact Report for the planned Investment:

- technological wastewater will not be generated during the operation of the investment,
- the domestic wastewater generated during operation will be stored in closed containers in portable toilets and disposed of by an authorised sewage contractor,
- it is assumed that fuel in the amount of 1000 l (for the generator) will be stored on the investment site. However, in order to minimize the possibility of soil contamination by petroleum compounds, the fuel tank will be bunded, with anti-corrosion protection and will be secured with a drainless sump capable of taking in the entire contents of the tank and will be located inside the building. There will be a sorbent container in the room for use in the event of a fuel spillage during tank refuelling,
- rainwater from the investment areas will freely infiltrate into the soil,

The investment will not have a negative impact on groundwater either at the construction or operation stage.

5.7 Climate

Construction phase

Due to the nature of the task 4A.3.1/g.2 in Brzuchania, no negative impact of this investment on climatic conditions in the surroundings of the place of its execution is expected at the stage of execution of works.

The implementation of this task will not significantly affect the emission of greenhouse gases and increase climate change.

Operation phase

The project is not expected to affect climatic conditions at the operation stage.

The implementation of the Contract 4A.3.1 indirectly contributes to reducing the negative effects of climate change phenomena.

The technological solutions applied will ensure resistance to climatic conditions, including extreme conditions such as strong and gusty winds. Adequate protection and dome will prevent them from being damaged during precipitation (including hail and snow), grounding installations will ensure safety during storms and lightning, and adequate insulation will ensure safety during possible flooding.

5.8 Cultural landscape and monuments

Construction phase

Implementation of the task 4A.3.1/g.2 in Brzuchania may affect this element of the environment only through increased motor vehicle traffic during the execution of works. However, this will be a short-term impact, vehicles will be moving at specific times along traffic routes, this may cause increased noise, emission of exhaust fumes and cause vibration, but it will not cause a significant negative impact.

The planned task will not be located within conservation protection zones, and there are no identified objects of cultural value in the investment area.

Operation phase

Due to the distance of the Project from the nearest cultural and architectural assets, the meteorological radar station in Brzuchania will not have a negative impact on this element of the environment during its operating period.

5.9 Electromagnetic field

Construction phase

During the implementation of construction work, electromagnetic radiation from the radar occurs only during the last phase of construction and is related to the commissioning and testing of the installed device. During dismantling, as well as other works, the dismantled radar and the new radar are switched off.

Operation phase

Environmental protection against electromagnetic fields involves the obligation to ensure that no area accessible to the public is subject to fields exceeding limit values. The Regulation of the Minister of Climate of 17 February 2020 on the ways of verifying compliance with the permissible levels of electromagnetic fields in the environment specifies the details of the examination of compliance with the required state of the environment. The Regulation of the Minister of Health of 17 December 2019 on permissible levels of electromagnetic fields in the environment of values specifies a power density of 10 W/m^2 as the limit for humans. For the preparation of the Environmental Impact Assessment reports for the individual Contract sites, computational analyses were conducted to determine the human hazardous zone. Calculations show that the radius of the hazardous zone closes at a distance of 59 m around the axis of the antenna, except that due to the high convergence of the radar beam this area does not exceed a zone of several centimetres at the height of the centre of the radar antenna, i.e. 51 m above ground level, thus high above the zone accessible to man.

The locations of the radar towers have been chosen in such a manner that the likelihood of high building construction in close proximity to the radars is excluded. Taking into account the results of calculations and the above-mentioned conditions connected with the method of construction of facilities, it can be concluded that electromagnetic radiation generated by POLRAD system radars in Brzuchania does not affect humans in a harmful way, and its impact on the environment is minor. Due to the large mutual distance between radar stations and the difference in absolute mounting ordinates of particular radar devices resulting in the lack of overlapping of radiation impact planes, there is no cumulative effect of electromagnetic impact coming from meteorological radars being the subject of the Contract.

The electromagnetic impact of the radar is reversible, long-lasting and local.

5.10 Sanitary state of the air

Construction phase

The sanitary condition of the air will be affected by the emission of pollutants connected with the operation of machinery, vehicles and equipment, as well as by the carrying away of fine dust fractions from unpaved soils at the stage of demolition, construction and modernisation of equipment. The impact is predicted to be local, short-term and of low intensity.

Operation phase

At the stage of operation, the impact on the condition of atmospheric air will be limited to occasional emissions resulting from servicing and maintenance of the meteorological radar and the use of an emergency generator in the event of a power outage.

As a result of the implementation of the Contract, there will be an electromagnetic impact. It is described in subsection 5.9 Electromagnetic field.

5.11 Acoustic climate

Construction phase

The sources of noise of the implementation of the Task 4A.3.1/g.2 will be the operation of construction machinery and vehicle traffic (including, among others, trucks) at the stage of demolition and construction, including erection of the tower using the sliding shuttering method. These impacts will be temporary as well as local (limited to the vicinity of the radar and the roads used for transport). The construction is not located in an acoustically protected area, nor will it have a negative impact on acoustically protected areas, nor will it result in exceeding acceptable noise standards for these areas.

Operation phase

No significant noise emissions are expected at the operational stage of the project.

5.12 Material assets

Construction phase

The proposed investment is located on the boundary between farmland and woodland, with the nearest built-up areas being within 420m to the south. The implementation of the project will not affect any changes in the areas adjacent to the plot, only temporary occupation of the plot adjacent to the project for construction facilities may occur, if after negotiations it will be used for facilities for the construction. However, there will be no loss of its value, as once the works are completed, the plot 64 would be rehabilitated and restored to its current state.

There will be little or no impact on technical infrastructure, particularly roads, due to mitigation actions taken.

The analysis conducted for the project in question shows that if the conditions specified in the documentation prepared for the purpose of the proceedings are observed, the environmental quality standards will be met both within and outside the project area.

This means that there will not be any restrictions on the use of neighbouring properties as a result of the works.

Operation phase

The scale of the planned project and its location means that the impact on material assets will be minimal. Due to the location of the existing radar station, there is no basis for a decline in land values in their vicinity.

5.13 Human health and safety

Construction phase

The works conducted in Brzuchania within the framework of the Task 4A.3.1/g.2, will not affect temporary deterioration of the quality and standard of living of the local residents. Any negative impacts on the traffic conditions of the DK7, will be temporary and limited in nature and will cease with the completion of the construction phase. In order to minimise this impact, mitigation actions will be provided as appropriate.

Incorrect organisation of works and failure to comply with the relevant standards could lead to contamination of soil and water with oil-derived substances during construction, demolition, renovation, maintenance and modernisation works, which could result in a direct or indirect threat to the health of the Contractor's personnel or local residents. Issues related to the possibility of an accident or disaster are discussed in Chapter 5.14.

In order to minimise the occurrence of health and safety risks in the surroundings and on the construction site, it is required to prepare the SHP Plan and to comply with the principles of occupational safety and health and the Labour Code. During work on the tower, the radar will be turned off, so there will be no electromagnetic impact.

Operation phase

There will be no negative impact on the health and safety of local residents during the operation of the radars. The negative impact of electromagnetic fields occurs at the height of antenna centre in the zone of approximately 59 m. Appropriate procedures and safeguards of IMGW-PIB prevent Institute's employees from staying in this zone when the antenna is working. The area around the radar is fenced off and is an exclusion zone, i.e. members of the public must not enter the area. Furthermore, even if an unauthorised person were to enter the area fenced off around the radar, the radiation at ground level is immeasurably low, i.e. practically zero.

5.14 Extraordinary environmental hazards

Construction phase

Crisis situation

In the event of crisis situations, the relevant services should be notified in the first instance:

Service	Telephone number
Emergency number from a mobile phone	112
Police	997
Fire brigade	998
Emergency service	999

It is the Contractor's duty to prevent hazards in the first instance and, if they occur, to mitigate their effects. The principal hazards are characterised below, but the list of hazards given is open and does not exhaust the risk of other hazards not listed in the DEMP.

In the event of any emergency situation, the Contractor shall immediately notify the relevant services as well as the Employer and the OVFM Project Coordination Office.

Windstorms and hurricanes

The Contractor is responsible for ensuring safety in the Contract area. The procedure to be followed in the event of extreme weather phenomena, such as windstorms and hurricanes, but also torrential rainfall, hailstorms and other extreme phenomena, will be included in the Health and Safety Plan prepared by the Contractor.

Spill of petroleum substances

Another type of emergency is a spill of petroleum substances into water or soil. In order to limit the risk of environmental pollution, appropriate preventive measures shall be implemented relating to, among others, appropriate organisation and equipment of the construction sites and facilities for the construction, equipping the places of possible leakages with adequate sorbents and current control of the condition of the construction equipment used.

In the event of a possible spill of petroleum substances, measures must be taken to limit the spread of the pollutants and they must be removed immediately.

If contaminated soil layers are present, they must be managed in accordance with current legislation.

Finding of unexploded ordnance and unexploded bombs

The Employer has not inspected the worksite for the presence of unexploded ordance or misfires. In connection with the above, the Contractor is obliged to provide, in justified cases, during the execution of earthworks, sapper supervision (the Contractor's sapper supervision) consisting in the on-going inspection (primarily before the commencement of works) and clearing the area of dangerous objects of military origin together with their disposal. As the

area of the radar station in Brzuchania was already developed and earthworks were conducted, there is no need for sapper supervision.

In the event that unexploded ordnance is found during the works, the Contractor shall immediately cease work and evacuate the personnel and notify the bomb disposal authorities, the police and the Employer.

It is strictly forbidden, before the arrival of the Contractor's sapper supervision or a military demining patrol, to pick up, dig up, bury, carry, throw into fire or water, etc. objects of potentially dangerous military origin that have been found.

Fire

A fire emergency may occur during the construction phase (e.g. due to equipment failure, personnel negligence, explosion of flammable substances, lightning strike, etc.). The occurrence of such a situation poses a risk to both the Contractor's personnel and the environment.

Fire protection in the area of Task 4A.3.1/g.2 is the responsibility of the Contractor. A detailed course of action in case of fire will be included in the SHP Plan to be prepared by the Contractor.

Epidemiological threat

Should a state of epidemiological threat or a state of epidemics be in effect during the performance of the works, the Contractor shall be obliged to proceed in compliance with the legal requirements, in particular with the Act of 5 December 2008 on preventing and combating infections and infectious diseases in humans (consolidated text: Journal of Laws of 2021, item 2069), all obligations resulting from the declaration of a state of epidemics or a state of epidemiological threat and the relevant World Bank guidelines. The Contractor's activities shall reduce the risk of spreading infection to the Contractor's personnel as well as to the Employer and the local community.

Regardless of the above, the Contractor shall implement an awareness programme on the spread of communicable diseases (e.g. HIV-AIDS, COVID 19).

Operation phase

At the stage of operation of the meteorological radar station, emergency situations, such as those mentioned above, may occur, but the Customer, i.e. IMGW-PIB, is responsible for response and prevention of potential events.

5.15 Other ES risks

Construction phase

The implementation of Task 4A.3.1/g.2 in Brzuchania may give rise to a number of impacts concerning ES issues (i.e. environmental, social and health and safety aspects). In addition to the issues previously discussed in Chapters 5.1 to 5.14, the following additional problems or risks related to the aforementioned topics may occur, among others, during the implementation of Task 4A.3.1/g.2:

- accidents and near misses involving persons connected with the execution of the Contract and/or third parties;
- instances of unacceptable behaviour in the workplace, such as sexual harassment or mobbing;
- cases of intentional or negligent breaches of labour law, including those relating to social conditions and staff working and pay conditions;
- cases of infections with sexually transmitted diseases (including HIV/AIDS) and other infectious diseases (including those caused by coronaviruses, e.g. COVID-19), resulting from lack of knowledge or failure to comply with existing rules on the prevention and control of such infections.

Due to the significant social impact of the above-mentioned hazards, a number of specific conditions have been included in the DEMP and in other documents of the Contract 4A.3.1 in order to counteract and effectively respond to the occurrence of such events and to ensure the proper implementation of all national legislation in force in this respect (see, among others, chapter 6.1).

Operation phase

The Employer is responsible for preventing the aforementioned events during the operation phase. It has its internal procedures to prevent such events and to respond appropriately when they occur.

5.16 Cumulative impact

Construction phase

In the event of construction, noise from the DK7 may also be cumulative. However, as it results from the noise analyses for the EIA report, at the stage of construction and implementation works the noise will be burdensome at a distance of up to 100 m from working machinery or conducted works. Extending this analysis beyond this area, the closest acoustically sensitive areas are at a distance of approximately 420m from the development, for which there are no exceedances of noise limits due to DK7. These values will also not be exceeded during construction. Moreover, cumulative impacts for investments should only be examined within a buffer of 100 m from the border of the investment. As these are non-sensitive areas and not acoustically protected, there is no cumulative noise impact.

There will be no cumulative impact of electromagnetic fields at the construction stage, due to the shutdown of the radar during construction work. There will also be no other cumulative impacts.

The nearest investment under construction is the construction of the S7 expressway. It is located at a distance of about 2 km. Therefore, the impacts are not cumulative.

Operation phase

According to analyses of electromagnetic fields conducted at the stage of environmental impact assessment, cumulative impacts do not occur both in terms of other emitters of electromagnetic waves and accumulation of waves from particular radars, as the negative impact of each radar is limited to a buffer of approx. 59 m at the height of the centre of the antenna, which varies for particular towers, and in the case of Brzuchania is 51 m above sea level.

There will be no cumulative impacts at the operational stage either.

5.17 Summary

Construction phase

The following matrices summarise the environmental impact of the radar tower at Brzuchania. The first table shows the environmental impact during construction and the second during the operational phase.

Table 7 Impact of the radar tower in Brzuchania on the environment during the construction phase

	Physical aspects							Ecological aspects		Social aspects			
Description	**Soil erosion/stability**	**Agricultural land**	**Air quality**	**Noise level**	**Surface water quality**	**Groundwater quality**	**Landscape quality**	**Protected/endangered species**	**Protected areas**	**Local employment**	**Health and safety of employees**	**Health and safety of local residents**	**Road safety**
Preparation of facilities	0	-1	0	-1	0	0	0	0	0	+1	0	0	0
Foundation excavation	0	-1	0	-1	0	-1	0	0	0	+1	-1	0	0
Laying the foundation – reinforced concrete work	0	-1	0	-1	0	-1	0	0	0	+1	-1	0	0
Construction of reinforced concrete walls of the tower	0	-1	0	-1	0	0	-1	0	0	+1	-1	0	0
Light-wet façade construction	0	0	0	-1	0	0	-1	0	0	+1	-1	0	0
Construction of foundations for the ground floor building	0	-1	0	0	0	0	0	0	0	+1	-1	0	0
Construction of ground floor building walls	0	0	0	0	0	0	-1	0	0	+1	0	0	0
Construction of the tower staircase – steel structure	0	0	0	0	0	0	0	0	0	+1	-1	0	0
Construction of a lift shaft	0	0	0	0	0	0	0	0	0	+1	-1	0	0

	Physical aspects							Ecological aspects		Social aspects			
Description	**Soil erosion/stability**	**Agricultural land**	**Air quality**	**Noise level**	**Surface water quality**	**Groundwater quality**	**Landscape quality**	**Protected/endangered species**	**Protected areas**	**Local employment**	**Health and safety of employees**	**Health and safety of local residents**	**Road safety**
Lift installation	0	0	0	0	0	0	0	0	0	0	-1	0	0
Construction of the tower roof	0	0	0	0	0	0	-1	0	0	0	-1	0	0
Construction of the roof of the ground floor building	0	0	0	0	0	0	-1	0	0	+1	-1	0	0
Drilling of wells	0	0	0	0	-1	-1	0	0	0	0	0	0	0
Execution of surface hardening works around the tower and road	0	-1	-1	-1	0	0	-1	-1	-1	+1	-1	0	0
Fencing	0	0	0	0	0	0	-1	-1	-1	+1	-1	0	0
Installation of radar and dome	0	0	0	-1	0	0	-1	0	0	+1	-1	0	0
Installation of radar and associated equipment	0	0	0	-1	0	0	0	0	0	0	-1	0	0
Electromagnetic field distribution tests performed by an authorised body	0	0	0	0	0	0	0	0	0	0	0	0	0
Dismantling of facilities	0	0	0	-1	0	0	0	0	0	0	-1	0	0

Key: 0 = no impact; -1= minor negative impact; -2= significant negative impact; +1= minor positive impact; +2= significant positive impact

Operation phase

Table 8 Impact of the radar tower in Brzuchania on the environment in the exploitation phase

	Physical aspects							Ecological aspects		Social aspects			
Description	**Soil erosion/stability**	**Agricultural land**	**Air quality**	**Noise level**	**Surface water quality**	**Groundwater quality**	**Landscape quality**	**Protected/endangered species**	**Protected areas**	**Local employment**	**Health and safety of employees**	**Health and safety of local residents**	**Road safety**
Unattended operation	0	0	0	0	0	0	-1	0	0	0	0	0	0
Periodic test of the generator	0	0	0	-1	0	0	0	0	0	0	0	0	0
Operation of air conditioning and heating	0	0	0	-1	0	0	0	0	0	0	0	0	0
Maintenance operations	0	0	0	0	0	0	0	0	0	+1	0	0	0

Key: 0 = no impact; -1= minor negative impact; -2= significant negative impact; +1= minor positive impact; +2= significant positive impact

6. DESCRIPTION OF MITIGATION ACTIONS

6.1 Mitigation actions by component

In order to reduce potential negative impacts of the planned project on particular environmental components, the Mitigation Actions Plan applicable to the Contractor for Contract 4A.3.1 for particular environmental components is presented in the Appendix No. 1. These actions have been developed on the basis of knowledge, experience and good practice in this field.

The Mitigation Action Plan takes into account the conclusions of the RDEP in Krakow contained in the Decision on Environmental Conditions dated 21.01.2022 with letter No. OO.420.4.5.2021.AMi, which is included in Appendix No. 4, despite the withdrawal of the environmental decision from further administrative proceedings.Regardless of the foregoing, the Contractor shall apply and comply with all ES Policy requirements and conditions (relating to environmental, social and occupational health and safety issues) as specified in the Contract Documents, the World Bank's[14] Environmental and Social Operational Policies and Procedures, the World Bank's Environmental, Health and Safety Guidelines (EHS Guidelines[15]), the ES Code of Conduct (developed at the tender submission stage[16]), as well as those arising from applicable Polish legislation (including Labour Code, Construction Law, etc.).

Environmental compensation measures are provided for the construction of the tower in Brzuchania. It is planned to place 10 - 20 bird and bat boxes in consultation with the owners of the adjacent plots, i.e. the State Forests, and after they expressed their lack of objection. In addition, the fence will be designed with a gap of at least 10 cm between the ground and the bottom edge of the mesh to allow for migration of small animals.

The following are the mitigation measures by environmental component, followed by the construction and operation phases.

6.1.1 Nature

Construction phase

The mitigation of negative impacts on nature will be implemented through the implementation of the following mitigation measures described in Appendix 1 of the DEMP, which serve, among others, to:

[14] *Available, among others, at: https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx#S3-2 (in the section entitled: Inwestment Project Financing / Environmental and Social Safegurard Policies).*

[15] *The guidelines are posted on the World Bank's website, at: https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainab ility-At-IFC/Policies-Standards/EHS-Guidelines/ and https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=jOWim3p*

[16] *In accordance with the conditions specified in the tender documents*

- limitation of losses in natural resources due to occupation of land for construction facilities and access and technological roads (items 3, 4, 5, 10, 11, 12, 21, 22);
- elimination or reduction of impacts on flora (items 13, 14, 15, 16, 17, 18, 19, 20);
- elimination or reduction of impacts on animals (items 23, 60);
- elimination or reduction of impacts on protected habitats and animal species (item 23);
- land reclamation after completion of works and care (items 28, 29).

Limiting the loss of natural resources will consist primarily in the rational and sustainable designation of construction sites, access and process roads. In addition, these sites will not be allowed to be designated in areas of shallow water, valuable natural habitats, etc., and will have to be properly protected and/or paved.

No cutting of trees and shrubs is assumed during the construction phase. Any cutting of trees or shrubs that do not require a felling permit will take place during the demolition stage, covered by a separate checklist.

Trees and shrubs that are not intended for cutting but are at risk of damage will be protected, primarily the trunks and, if necessary, branches and roots in accordance with the conditions included in Appendix 1.

Among the most important requirements of the RDEP is the installation of adequate radar lighting to make the tower visible to passing birds, thus minimising the risk of birds crashing into the subject site.

Operation phase

The mitigation of negative impacts on nature will be implemented through the implementation of the following mitigation measures described in Appendix 1 of the DEMP, which serve, among others, to:

- elimination or reduction of impacts on animals (items 84, 87);
- land reclamation after completion of works and care (item 85).

Due to the operational specifications of the radar station, there is virtually no impact on wildlife during operation.

Mitigation measures specify the use of appropriate lighting to minimize the impact on animals and the conditions for the care of grassy areas.

6.1.2 Surface of land and landscape

Construction phase

Mitigation of adverse impacts on the land surface and landscape will be achieved through the implementation of the following mitigation actions described in Appendix 1 of the DEMP, which serve to, among others:

- restoring or preserving a transformed space (item 28);
- locating temporary occupation sites in such a manner as to minimise the area of interference and impact on landscape amenities (items 3, 4, 10, 11, 21, 22, 61).

The main impact on the land surface will be earthworks, location of construction facilities and roads. The mitigation measures specify how to use the earth surface to minimize the negative impact, including how and where to locate construction facilities and roads, minimize the occupied surface, and how to restore the fertile soil layer.

Among the most important requirements of the RDEP is to paint the tower in shades of green and grey to reduce the visibility of the structure in the landscape.

Operation phase

Due to the lack of impact on the ground surface during the operation stage, no mitigation measures are envisaged.

Mitigation measures to minimize the impact on the landscape (painting of the tower) will be implemented and described at the construction stage.

6.1.3 Soils and waste management

Construction phase

Mitigation of adverse impacts on the surface of soil and ground will be implemented through the implementation of the following mitigation actions described in Appendix 1 of the DEMP to, among others:

- reducing the loss of soil resources associated with land occupation (items 24, 25, 26, 27);
- safe management of waste (items 48, 49, 50, 51, 52);
- reducing the risk of soil contamination during the works phase (items 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42).

Due to the need to collect topsoil and excavate for construction, mitigation measures will indicate how to handle the fertile layer of soil until it is reused.

Waste management will be carried out in accordance with the Waste Management Plan prepared before the start of the works. It will specify the types of waste, including possible

hazardous waste, and the methods of their disposal. Waste storage sites must meet the requirements of mitigation measures as to the location of such sites. These should be paved areas, not located on the sites of protected plants and animals and shallow water sites. Waste will be collected by an authorized entity.

Social and domestic wastewater will be collected in a sealed non-drainage tank and collected by an authorized septic collector.

A number of mitigation measures specify the conditions that should be met during construction work in order not to pollute the ground and water environment. First of all, they concern the technical condition of vehicles and machinery, the location and equipment of material collection sites, vehicle servicing, parking areas, etc., the type of construction materials used, as well as ensuring the availability of sanitation facilities and sorbents and procedures in the event of oil pollution emissions.

Operation phase

Mitigation of adverse impacts on the surface of soil and ground will be implemented through the implementation of the following mitigation actions described in Appendix 1 of the DEMP to, among others:

- safe management of waste (item 86);
- reducing the risk of soil contamination during the works phase (items 77, 78, 79, 80, 81).

Activities during the period of operation are primarily concerned with the technical efficiency of vehicles and the provision of sorbents and appropriate procedures in the event of oil spills related to both the arrival of service crews and the fuel tank. A sealed septic tank for social and domestic wastewater and sanitary facilities will be located on the plot.

Waste will be stored selectively, in a designated place and transferred to an entity with the required permits.

6.1.4 Surface water and groundwater

Construction phase

Mitigation of adverse impacts on surface water and groundwater will be achieved through the implementation of the following mitigation actions as described in Appendix 1 of the DEMP to, among others:

- safe management of waste (items 48, 49, 50, 51, 52);
- reducing the risk of changes in water parameters at the stage of works (items 11, 12, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42).

Waste management will be carried out in accordance with the Waste Management Plan prepared before the start of the works. It will specify the types of waste, including possible

hazardous waste, and the methods of their disposal. Waste disposal sites must meet the requirements of mitigation measures as to the location of such sites. Waste will be collected by an authorized entity.

Socio-domestic wastewater will be collected in a sealed, non-drainage tank and collected by an authorized septic tanker.

A number of mitigation measures specify the conditions that should be met during construction work so as not to pollute the ground and water environment. First of all, they concern the technical condition of vehicles and machinery, the location and equipment of material collection sites, vehicle servicing, parking areas, etc., the type of construction materials used, as well as ensuring the availability of sanitation facilities and sorbents and procedures in the event of oil pollution emissions.

Operation phase

Mitigation of adverse impacts on surface water and groundwater will be achieved through the implementation of the following mitigation actions as described in Appendix 1 of the DEMP to, among others:

- safe management of waste (item 86);
- reducing the risk of changes in water parameters at the stage of operation (items 77, 78, 79, 80, 81).

Activities during the period of operation are primarily concerned with the technical efficiency of vehicles and the provision of sorbents and appropriate procedures in the event of oil spills related to both the arrival of service crews and the fuel tank. A sealed septic tank for social and domestic wastewater and sanitary facilities will be located on the plot.

Waste will be stored selectively, in a designated place and transferred to an entity with the required permits.

6.1.5 Climate

No mitigation measures due to climate protection have been identified for this Contract in both the construction and operation phases.

6.1.6 Cultural landscape and monuments

Construction phase

Mitigation of adverse impacts on monuments will be achieved through the implementation of mitigation actions as described in Appendix 1 of the DEMP, primarily serving:

- implementation of appropriate procedures in the event of discovery of movable monuments or archaeological sites during the works phase (items 59).

Due to the lack of discovered archaeological sites and monuments within the project area and its immediate surroundings, the mitigation measures will have the function of a preventive procedure in case new archaeological sites or monuments are discovered.

Operation phase

Due to the lack of existing archaeological sites and monuments on the plot and in its immediate vicinity, and the lack of possible impact of the weather radar station on monuments, no mitigation measures were found necessary.

6.1.7 Electromagnetic field

Construction phase

Mitigation of the negative impact of electromagnetic field will be achieved through implementation of the following mitigation actions described in Appendix 1 of the DEMP, mainly for the manner of design and installation of equipment (item 54).

In addition, when the radar is working, no people are allowed in the radar dome room, the terrace around the dome or the crane at the height of the radar antenna axis.

Operation phase

Mitigation of the negative impact of electromagnetic fields will be implemented through the implementation of the following mitigation measures described in Appendix 1 of the DEMP on human safety during radar operation (Item 88).

6.1.8 Sanitary state of the air

Construction phase

The mitigation of negative impacts on air sanitary status will be realised through the implementation of the following mitigation actions described in Appendix 1 of the DEMP, which primarily serve to reduce air pollution from exhaust gases and dust (items 43, 44, 45).

These conditions primarily relate to limiting pollution from exhaust fumes, dust from roads and construction sites during construction work by, among other things, using efficient equipment, limiting leaving vehicles idling, properly storing loose materials, etc.

Operation phase

No mitigation measures were found necessary for this Contract in terms of protecting air sanitation during the operational phase.

6.1.9 Acoustic climate

Construction phase

The mitigation of negative impacts on the acoustic climate will be implemented through the implementation of the following mitigation actions described in Appendix 1 of the DEMP to primarily reduce noise during works (items 11, 12, 46, 47).

These conditions relate to locating roads and construction facilities as far as possible from acoustically protected areas. In the case of the Brzuchania site, the entire plot is located at such a distance from these areas that there should be no negative impact.

Work should be carried out only during daytime from 6:00 am to 10:00 pm, with the exception of slipform work, which requires non-stop work.

In addition, as far as possible, the least acoustically intrusive technologies should be used, and the work schedule should be set so that as few significantly acoustically intrusive devices as possible are working together.

Operation phase

The mitigation of negative impacts on the acoustic climate will be implemented through the implementation of the following mitigation actions described in Appendix 1 of the DEMP to primarily reduce noise during works (item 83).

It will primarily concern the conduct of acoustically annoying maintenance work, among other things, of the generator set during daytime hours, i.e. from 06:00 to 22:00.

6.1.10 Human health and safety

Construction phase

The mitigation of negative impacts on human health and safety will be achieved through the implementation of the following mitigation actions described in Appendix 1 of the DEMP, which serve to, among others:

- reduction of the impact on air sanitation (items 43, 44, 45);
- reduction of the impact on the acoustic climate (items 11, 12, 46, 47);
- elimination or reduction of the risk of water and ground contamination (items 11, 12, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42);
- ensuring safety on and around the construction site (items 53, 54, 55, 56);
- ensuring an adequate response to emergency situations (items 57, 58);

- specific requirements of World Bank ES Policies (items 68, 69, 70, 71, 72, 73, 74, 75, 76).

Reducing the impact on air sanitation, acoustic climate and the risk of water and land pollution, in addition to minimizing the impact on these environmental elements, also has a positive effect on human health and safety. These elements are described in the chapters above.

Prior to the commencement of the work, an SHP plan will be prepared. It is required to comply with health and safety regulations, to maintain safety during the work, especially at height, and to properly develop the construction site, including hazardous zones, if and when they occur, and to store materials in a way that does not endanger safety.

In the event of emergencies such as fire, windstorm, large oil spill or failure, notify the relevant services and the Employer, follow their directions and instructions strictly. Until the arrival of the services, perform the necessary activities to reduce the risk of loss of personnel, property and the environment.

In addition, the activities impose the obligation to implement the requirements and conditions of the WB in terms of ES policies, ensure appropriate working and health and safety conditions in accordance with Polish law, and educational activities and working conditions to prevent sexual harassment, mobbing and infections caused by sexually transmitted diseases and coronaviruses.

Operation phase

The mitigation of negative impacts on human health and safety will be achieved through the implementation of the following mitigation actions described in Appendix 1 of the DEMP, which serve to, among others:

- reduction of the impact on the acoustic climate (item 83);
- elimination or reduction of the risk of water and ground contamination (items 77, 78, 79, 80, 81);
- ensuring safety on the plot (item 88).

They mainly concern measures to prevent both negative impacts on the acoustic climate, water and land, as well as on human health and safety. They are described in the chapters above.

No other mitigation measures related to human health and safety were found to be necessary in connection with the Employer's existing internal procedures for working and safety conditions. Only the need to prevent human access to the radar room during its operation was emphasized.

6.1.11 Extraordinary environmental hazards

Construction phase

Extraordinary environmental hazards are described in chapter 5.14.

The mitigation actions related to the hazards are specified in Appendix 1 of the DEMP, serving, among others, the following purposes:

- crisis management (item 57);
- handling of unexploded ordnance or unexploded bombs (item 58);
- handling in the event of an epidemiological emergency or pandemic during the execution of works (item 76);
- preparation of documents relating to safety in the area where the work is to be executed (item 53).

It is required to develop a SHP plan.

In the event of emergencies such as fire, windstorm, large oil spill or accident, notify the relevant services and the Employer, follow strictly their recommendations and instructions. Until the arrival of the services, perform the necessary activities to reduce the risk of loss to personnel, property and the environment.

Operation phase

No mitigation measures have been identified for this Contract for extraordinary environmental risks during the operation phase.

6.1.12 Other ES risks

Construction phase

Examples of forms of additional risks related to ES issues are presented in chapter 6.2.

In order to address these risks, Appendix 1 of the DEMP identifies the following mitigation actions to, among others:

- prevention of accidents and near accidents on the worksite and at other places connected with the execution of the Contract (68, 69, 70);
- tackling unacceptable behaviour in the workplace, such as sexual harassment or mobbing (items 71, 72);
- implementation and reporting of the Detailed Environmental Management Plan for Task 4A.3.1/g.2 meteorological radar station in Brzuchania (items 62, 63, 64, 65, 66, 67);

- ensuring appropriate social conditions and lawful working and pay conditions for personnel involved in the Contract (item 73);
- ensuring that appropriate procedures are in place for the ongoing reporting of incidents of concern and risks related to the above (item 74);
- reducing the risk of spreading communicable diseases, in particular sexually transmitted diseases (including HIV/AIDS) and diseases caused by coronaviruses (e.g. COVID-19) (items 75, 76).

The above mitigation measures are designed to minimize the risk of negative social behavior of the Contractor's employees and to ensure working and pay conditions in accordance with Polish law. Ongoing reporting on the implementation of the DEMP will be conducted on a monthly basis.

Operation phase

In the case of the Contract in question, there was no need to perform mitigation measures for risks related to ES issues, due to the unmanned operation of the radar and the existing internal procedures of the Employer.

6.1.13 Material assets

Construction phase

The investment will take place on land owned by the Employer, so no Property Acquisition and Resettlement Plan was required.

The mitigation actions to ensure that buildings, roads and other infrastructure are protected from the adverse impacts of the works and/or transport (items 5, 6, 7, 8, 9) have been introduced in Appendix 1 of the DEMP to reduce the potential impact of the works on material assets.

Due to the location of the project, no significant impact on this element and possible danger is diagnosed, but in the event that an element is damaged, the Contractor is obliged to repair it. A detailed photographic documentation of the surrounding technical infrastructure will be made before the work begins.

Operation phase

It was found that no mitigation measures were necessary for material assets due to the unmanned operation of the radar, infrequent arrivals of maintenance crews and the absence of emissions that could adversely affect neighboring parcels or reduce their value.

6.2 Specific requirements for World Bank ES Policies (environmental and social aspects, including risks of sexual exploitation, sexual abuse and sexual harassment)

The execution of the Contract 4A.3.1 is related to the need to meet a number of ES requirements (environmental, social, occupational health and safety aspects), which are regulated by national legislation governing environmental protection, occupational health and safety and labour law. Compliance with them is supervised by state institutions and bodies. In particular, with regard to compliance with occupational health and safety regulations and labour law, the state sanitary inspection authorities and the state labour inspection authorities are authorised to control the activities of entrepreneurs, including on construction sites. However, due to the high importance attached to ES requirements by the World Bank, the terms and conditions of contracts subsidised by a World Bank loan impose obligations to ensure implementation of the applicable regulations. Special attention is due to issues such as:

- Protection of juvenile persons employed in the execution of the Contract;
- Elimination of inappropriate forms of behaviour by persons employed on the Contract (including sexual harassment and mobbing);
- Ensuring the safety and health protection of persons employed on the Contract, including the provision of health and safety services as required by law;
- Ensuring proper social and employment conditions for employees working on the Contract (including fair pay).

The following is a list of issues in the form of requirements for the Contractor, related to the WB ES Policies. It should be emphasised that the ES requirements and conditions specified for the Contractor and their employees also apply to the Contractor's Subcontractors and their employees or Subcontractors.

- The Contractor shall provide training and implement an anti-sexual harassment and mobbing awareness programme. These activities shall be conducted throughout the duration of the Contract, at least every other month. They shall take the form of information, education and awareness-raising campaigns.
- The Contractor shall immediately inform the Employer of all reported and suspected cases of sexual harassment and mobbing.
- The Contractor shall inform all persons employed on the site of the possibility of making complaints about working and pay conditions and shall deliver an information leaflet with the necessary information on how to make a complaint, in which they shall ensure that there are no repercussions for the person reporting the problem. The content of the leaflet will be agreed with the PIU.

- The Contractor shall inform the Employer of all accident incidents involving employees and members of the public in accordance with the procedure provided by the Employer. In the event of an accident, the Contractor shall take all actions required under applicable law, such as, but not limited to, the Construction Law and the Labour Code.
- The Contractor shall ensure equal pay for employees performing the same work without regard to sex, sexual orientation or age, and persons employed on the Contract shall not be subjected to harassment or discrimination on grounds of sex, sexual orientation or age.
- The Contractor shall, in accordance with the possibilities and conditions and the Polish Labour Code regulations, provide for the living and social needs of employees at the workplace.
- The Contractor shall facilitate the upgrading of professional qualifications for employees.
- The Contractor may only employ an employee who is at least 18 years of age, has completed at least eight years of primary school and has provided a medical certificate stating that the work of the type in question is not hazardous to their health.
- The Contractor shall employ a health and safety specialist with qualifications and professional experience in accordance with Polish labour legislation.

However, it must be stressed that the Contractor is required to apply and comply with all provisions of the Labour Code and will act in accordance with the ES Code of Conduct.

6.3 Requirements for the implementation of action plans during the construction phase

In order to ensure the proper organisation of the conduct of the works, and in order to properly implement the conditions set out in the DEMP for the Brzuchania site, the Contractor is required to prepare and obtain the approval of the Employer and then implement the following documents for implementation:

- *The site organization project*, which should include, but not be limited to, elements such as:
  - location of facilities for the construction site,
  - development of facilities for the construction site,
  - securing the facilities for the construction site,
  - technological routes, including the compulsory temporary occupation of the site,
  - environmental protection at the construction site.

- *A waste management plan* which should include, among others, the following main elements and the detailed guidelines contained in Appendix 1:

– the existing and anticipated types and quantities of waste,

– methods to prevent the negative impact of waste on the environment,

– waste management, including collection, transport, recovery and disposal of waste,

– the type of waste produced (e.g. waste from the construction, repair and dismantling of buildings and road infrastructure - including soil from contaminated sites, hazardous waste, municipal waste, waste containing asbestos) and the method of its storage and disposal;

- *A plan for the handling of uncontrolled emissions (spills) of petroleum substances*, which should include, among others, elements on how to handle chemical and oil spills, i.e:

  – the course of equipping with appropriate materials in relation to the anticipated hazards and substances,

  – the course of alert and notification of the different services,

  – the course of action to reduce spillage,

  – the course of action for handling sorptive materials;

- The safety and health plan (SHP plan), which should include, among others, the following elements:

– indication of the elements of development of the plot of land or the terrain which may pose a threat to human health and safety,

– information on foreseeable hazards occurring during the execution of construction works, specifying the scale and types of hazards as well as the place and time of their occurrence, including with regard to the environment,

– information on the demarcation and marking of the site of construction work according to the type of hazard,

– information on how to instruct employees before commencing particularly hazardous work,

– define how hazardous materials, products, substances and preparations are stored and handled on the construction site,

– indication of technical and organizational measures aimed at preventing hazards resulting from the execution of construction works in areas of special health risk or in their vicinity, including ensuring safe and efficient communication enabling rapid evacuation in the event of fire, breakdown and other hazards,

- indication of where to store site documentation and documents necessary for the correct operation of machinery and other technical equipment,
- information on resolving COVID-19 issues.

The Contractor, in developing the above documents, shall take into account the relevant World Bank operational policies on health, environment and safety principles, including the ES Guidelines17. Before implementation, these documents must be approved by the Employer, which then also monitors their correct implementation.

The Contractor shall also provide training on the terms and conditions of implementation of the DEMP to the Contractor's management and engineering personnel, and regular training of Employees on health and safety, awareness raising against sexual harassment and mobbing.

In developing these documents, the Contractor shall take into account relevant World Bank operational policies on health, environment and safety principles. Before implementation, these documents must be approved by the Employer, which then also monitors their correct implementation.

7. DESCRIPTION OF ENVIRONMENTAL MONITORING ACTIVITIES

Based on the Mitigation Actions Plan, a Monitoring Actions Plan was developed with a set of monitoring actions applicable to the Contractor for the Contract 4A.3.1. In the Decision on Environmental Conditions issued by RDEP in Cracow dated 21.01.2022 with the letter no. OO.420.4.5.2021.AMi, no requirement to conduct any additional monitoring activities for RDEP or GDEP was indicated.

Accordingly, monitoring activities will be carried out only in accordance with the requirements of the DEMP, addressing the implementation of the provisions of this document.

8. PUBLIC CONSULTATIONS

8.1 Public consultation on the environmental management framework (2015)

The draft Environmental and Social Management Framework (ESMF) for OVFMP was subject to a public consultation procedure conducted in accordance with World Bank Operational Policy OP 4.01. Their purpose was to enable the public to familiarise themselves with the

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

content of this document and to provide an opportunity to submit any comments, queries or proposals to its content.

Documentation of the public consultation process on the ESMF document is available on the website of the Odra-Vistula Flood Management Project Coordination Office[18].

8.2 Public consultation at the EIA stage (2021)

In accordance with the Polish EIA procedure, at the stage of issuing the decision on environmental conditions, the planned project falling within the scope of Contract 4A.3.1, was subject to mandatory public consultations conducted by the competent RDEP. Description of the individual stages of the EIA procedure conducted at the stage of issuing the decision on environmental conditions, along with the description of the public consultations conducted by the competent RDEP within the framework of the said procedure will be presented in the text of the decision of the Regional Director for Environmental Protection.

8.3 Public consultation of the DEMP (2022)

The public consultation process for the entire Contract 4A.3.1 documents is described in chapter 8.3. Public Consultation of the DEMP (2021) in the General Environmental Management Plan – Guidance to the Contractor. It describes the procedure for the various documents, i.e. the GEMP, the DEMP and the checklists. The following describes the public consultation process of the EMP for Brzuchania, which according to the established nomenclature is the DEMP.

After obtaining administrative approvals for environmental protection, primarily the Decision on Environmental Conditions, the DEMP for Brzuchania was subjected to mandatory public consultations conducted in accordance with World Bank Operational Policies (OP/PB 4.01). Given the risks associated with the outbreak of the coronavirus causing COVID-19 disease, the action plan for publicizing the DEMP project took into account the recommendations of the World Bank's Technical Note "Public Consultation and Stakeholder Engagement in World Bank-supported Activities When Constraints on Conducting Public Meetings Arise"[19].

It should be noted that within the EIA procedure the consultation process described in chapter 8.2 was also conducted.

Following preparation of the EIA project and obtaining on its basis PCU approval (consent to public disclosure) for commencement of the public disclosure procedure, the electronic

[18] *https://odrapcu.pl/projekt-opdow/popdow-dokumenty/*

[19] In relation to the procedures used prior to the coronavirus pandemic, in the current situation, the paper version of the draft DEMP was abandoned for inspection in public offices and bureaus, and the organization of an open public debate at the end of the public disclosure period of the draft DEMP document was abandoned. Instead of the aforementioned debate, a publicly accessible teleconference (webinar) was organized on the last day of the public consultation, consisting of a presentation of the draft DEMP and a Q&A session.

version of the DEMP project was placed on publicly available websites: IMGW-PIB website - https://www.imgw.pl, OVFM PCU website - http://odrapcu.pl and Miechów Commune and City Office.

Detailed information about the possibility to review the document and to submit applications and comments (including contact details: postal address, e-mail address, telephone number) was made available to the public in a Notice available at the appropriate time at the following locations:

- on the websites:
    - IMGW-PIB – https://www.imgw.pl,
    - OVFM PCU – http://odrapcu.pl,
    - and Miechów Commune and Town Office - https://www.miechow.eu;
- on the notice boards of the Miechów Commune and City Office and in the offices of the institutions listed above;
- in social media of IMGW-PIB, https://www.facebook.com/Meteoimgw;
- in the relevant local press, in an online version – Głos24 Miechów - https://glos24.pl/informacje/miechow;
- in social media of Głos24 – Małopolski Information Portal – www.facebook.com/glos24.

The draft document was made available between May 16 and May 30, 2022 inclusive (i.e., 11 business days).

The aforementioned announcements also included information about the opportunity to participate in a publicly available teleconference (webinar) scheduled for May 30, 2022 from 5-7 p.m. and information about the location of the link to participate in the teleconference.

Information about the commencement of the publicity procedure of the DEMP project and the possibility to submit proposals and comments was also sent by e-mail to the following persons, institutions and organisations:

- Mayor of Miechów Commune and City,
- Miechów City Council,
- Polish Society for the Protection of Birds,
- Society for the Earth,
- Polish Society for Nature Protection “Salamandra”,
- Club of Naturalists.

The meeting so far organized within the framework of making the document public in the form of an open debate was replaced by the organization of a webinar on May 30, 2022, i.e. a type

of webinar conducted and implemented through webcast technology, which enabled two-way communication between the meeting leader and participants, using virtual tools. The meeting was organised through the Microsoft Teams application. This application allows you to organize and conduct a webinar, with the ability to share, among other things, a presentation or screen view, as well as to switch between several speakers and to ask questions by participants in a chat (only in written form) and answer them by the speakers. All that is required of participants is Internet access and a web browser - no other software is required to be installed on your computer to join the webinar.

The presentation given during the webinar included information on the functioning of the radar, how measurements are made, and its impact on the environment. In addition, information about the DEMP, its function and the impact of the contract on nature conservation forms was presented.

After the end of the public consultation period a Report from public consultations of the DEMP for Brzuchania and a final version of the DEMP for the task of Contract 4A.3.1/g.2 in Brzuchania were prepared.

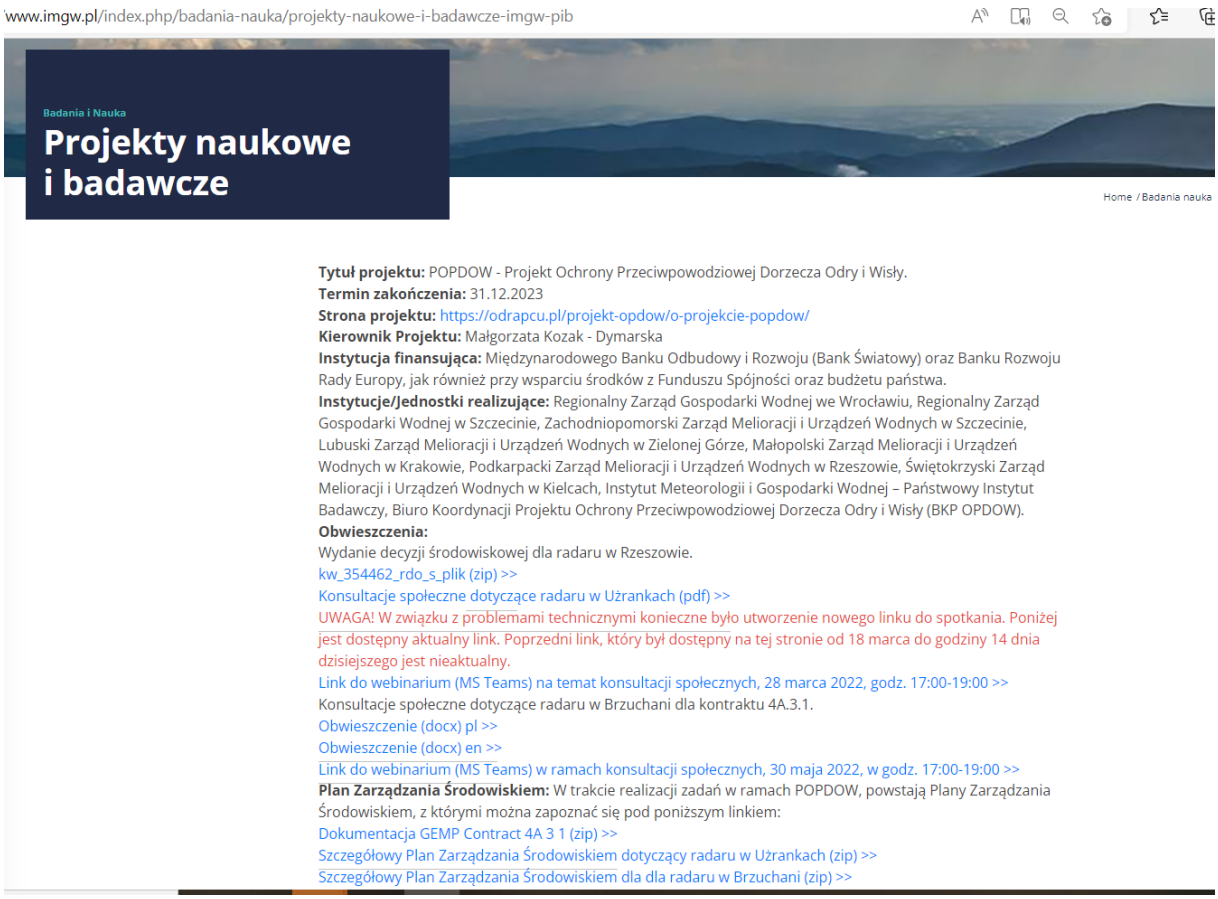


Figure 5 Notice on the IMGW-PIB website

https://odrapcu.pl/obwieszczenia/

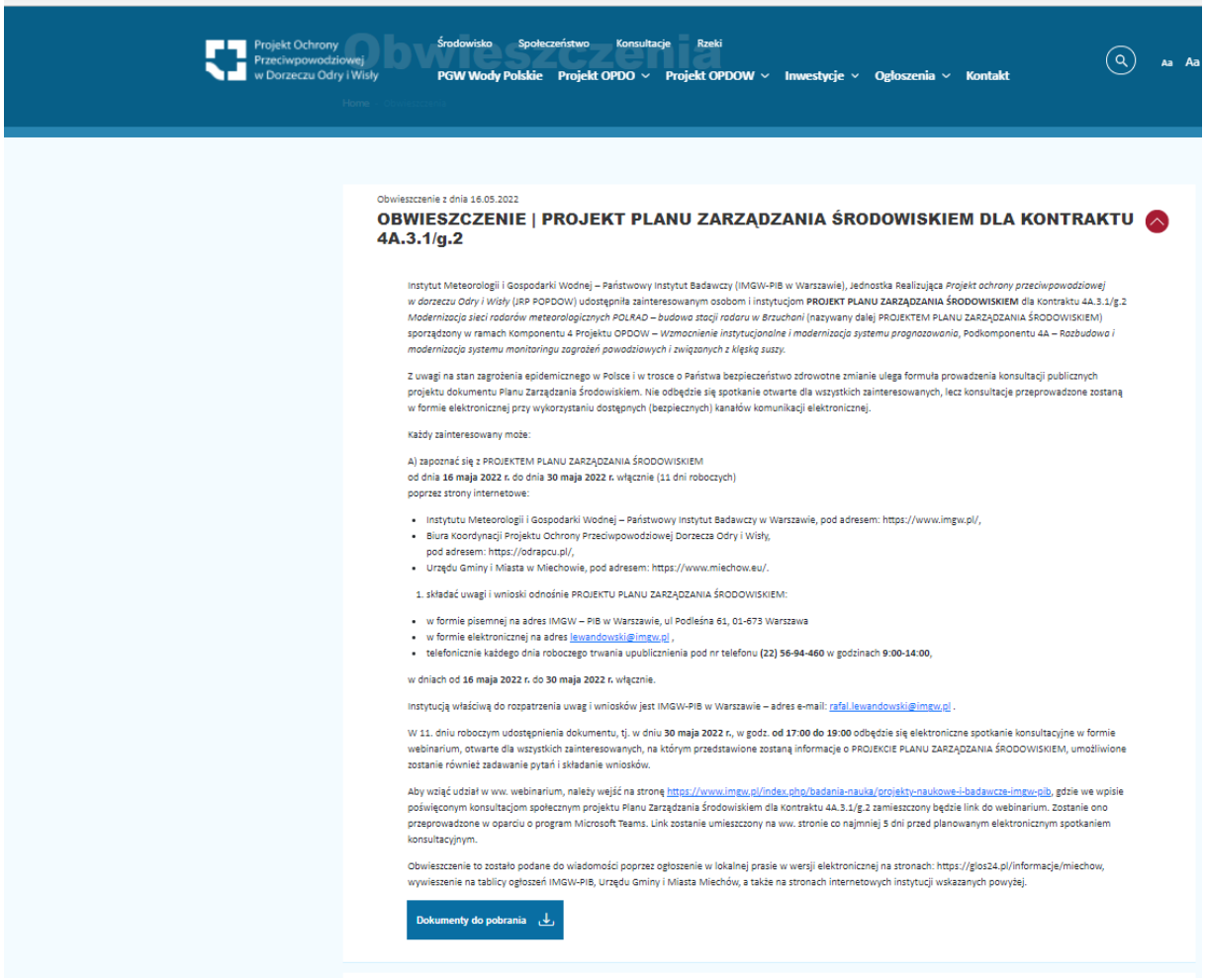


Figure 6 Notice on the OVFM PCU website

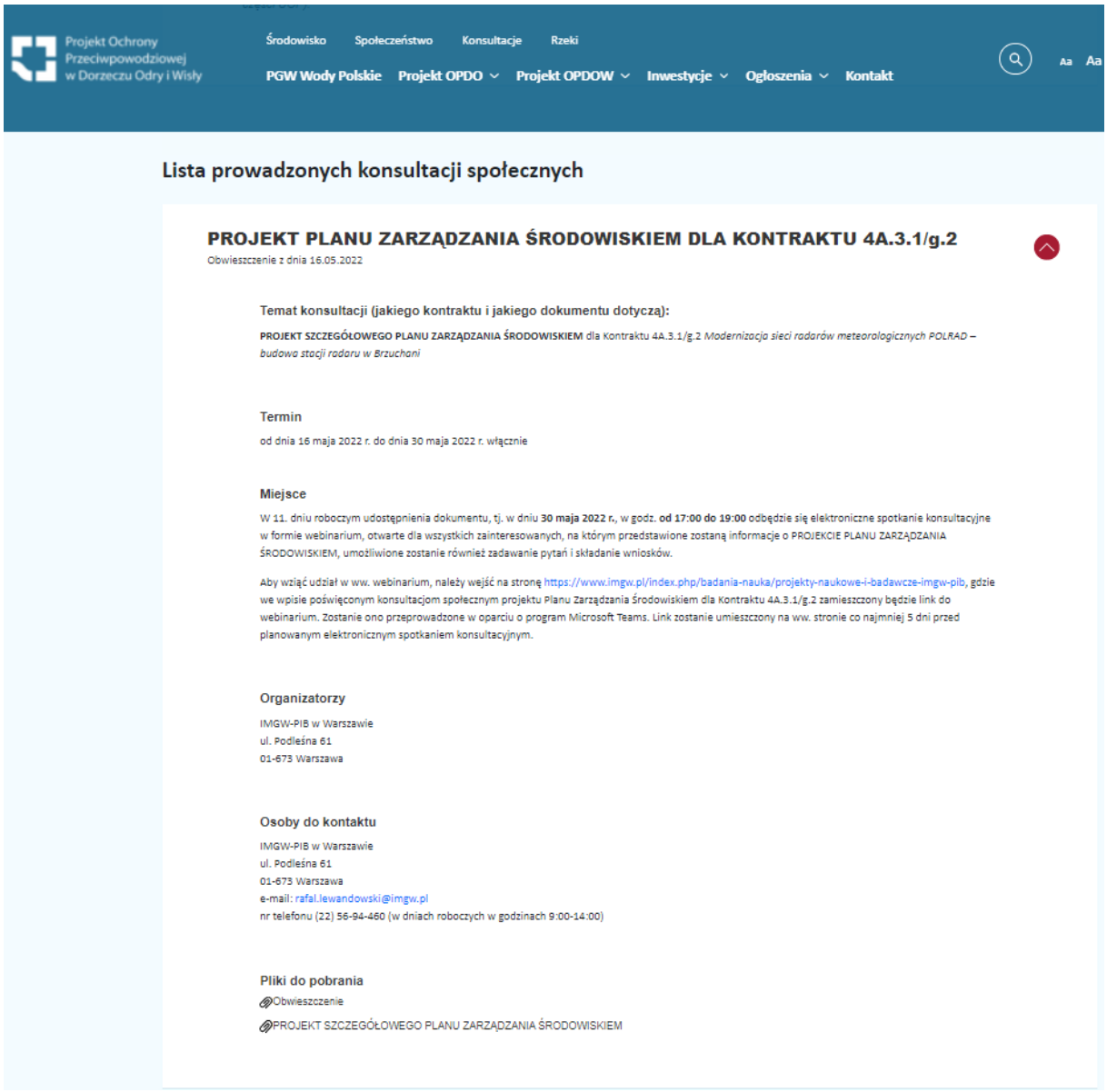


Figure 7 Information about public consultations on OVFM PCU website

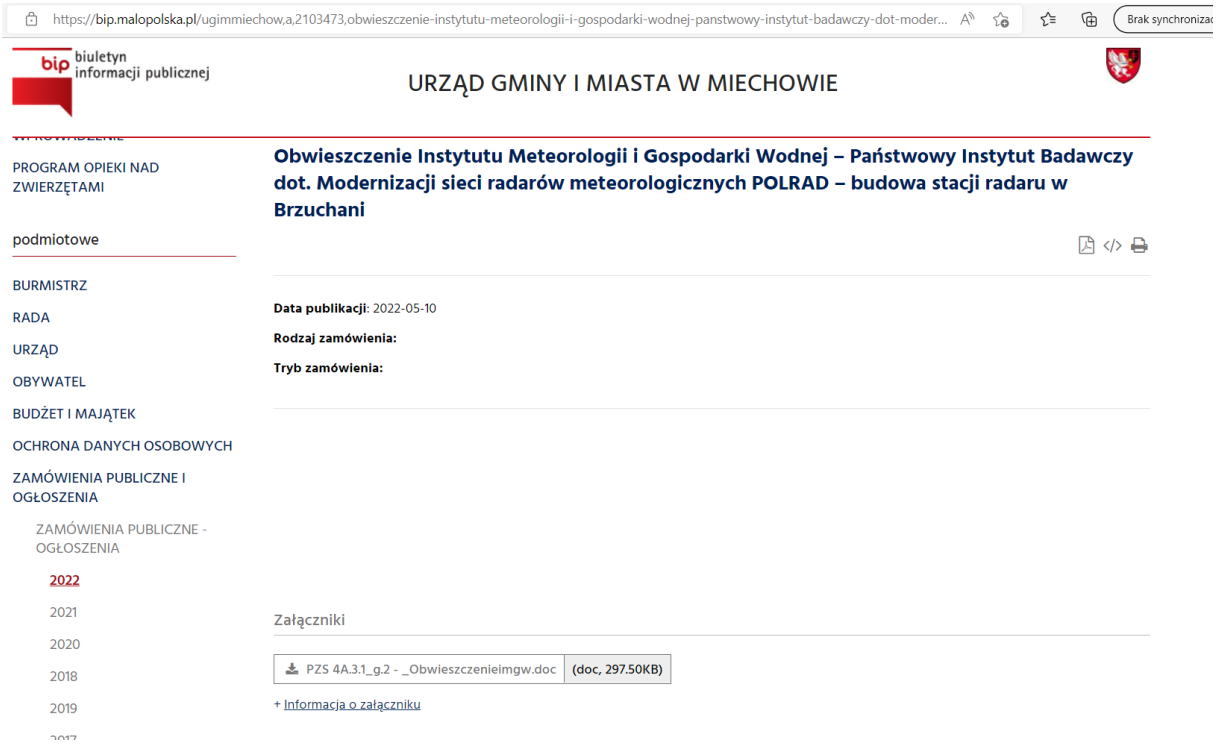


Figure 8 Notice on Miechów Commune and City Office PIB website

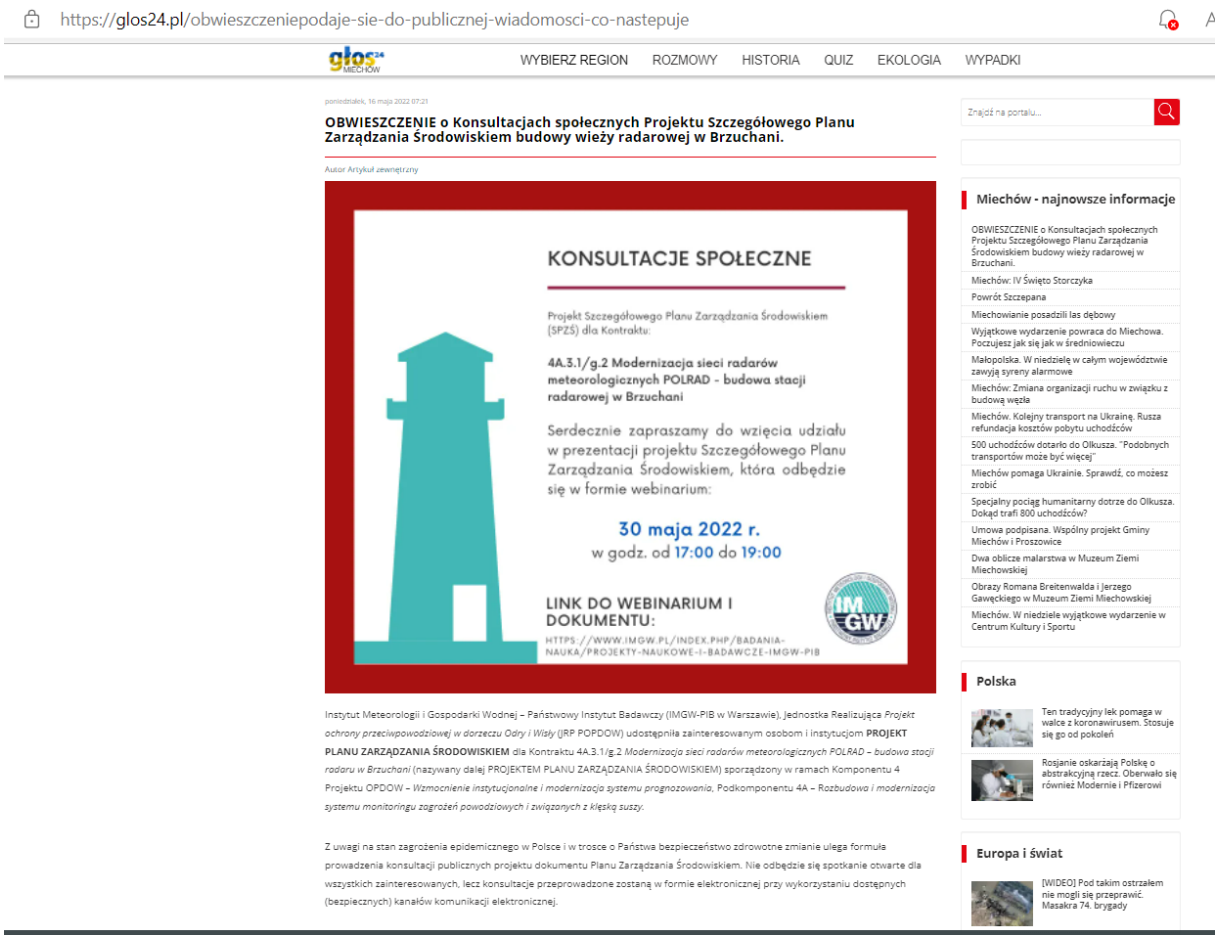


Figure 9 Article on the Głos24 Miechów website

głos24 MIECHÓW WYBIERZ REGION ROZMOWY HISTORIA QUIZ EKOLOGIA

Każdy zainteresowany może:

A) zapoznać się z PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM
od dnia **16 maja 2022 r.** do dnia **30 maja 2022 r.** włącznie (11 dni roboczych)
poprzez strony internetowe:

- Instytutu Meteorologii i Gospodarki Wodnej – Państwowy Instytut Badawczy w Warszawie, pod adresem: https://www.imgw.pl/,
- Biura Koordynacji Projektu Ochrony Przeciwpowodziowej Dorzecza Odry i Wisły, pod adresem: https://odrapcu.pl/,
- Urzędu Gminy i Miasta w Miechowie, pod adresem: https://www.miechow.eu/.

B) składać uwagi i wnioski odnośnie PROJEKTU PLANU ZARZĄDZANIA ŚRODOWISKIEM:

- w formie pisemnej na adres IMGW – PIB w Warszawie, ul Podleśna 61, 01-673 Warszawa
- w formie elektronicznej na adres rafal.lewandowski@imgw.pl ,
- telefonicznie każdego dnia roboczego trwania upublicznienia pod nr telefonu **(22) 56-94-460** w godzinach **9:00-14:00**, w dniach od **16 maja 2022 r.** do **30 maja 2022 r.** włącznie.

Instytucją właściwą do rozpatrzenia uwag i wniosków jest IMGW-PIB w Warszawie – adres e-mail: rafal.lewandowski@imgw.pl .

W 11. dniu roboczym udostępnienia dokumentu, tj. w dniu **30 maja2022 r.**, w godz. **od 17:00 do 19:00** odbędzie się elektroniczne spotkanie konsultacyjne w formie webinarium, otwarte dla wszystkich zainteresowanych, na którym przedstawione zostaną informacje o PROJEKCIE PLANU ZARZĄDZANIA ŚRODOWISKIEM, umożliwione zostanie również zadawanie pytań i składanie wniosków.

Aby wziąć udział w ww. webinarium, należy wejść na stronę https://www.imgw.pl/index.php/badania-nauka/projekty-naukowe-i-badawcze-imgw-pib , gdzie we wpisie poświęconym konsultacjom społecznym projektu Planu Zarządzania Środowiskiem dla Kontraktu 4A.3.1/g.2 zamieszczony będzie link do webinarium. Zostanie ono przeprowadzone w oparciu o program Microsoft Teams. Link zostanie umieszczony na ww. stronie co najmniej 5 dni przed planowanym elektronicznym spotkaniem konsultacyjnym.

Obwieszczenie to zostało podane do wiadomości poprzez ogłoszenie w lokalnej prasie w wersji elektronicznej na stronach: https://glos24.pl/informacje/miechow, wywieszenie na tablicy ogłoszeń IMGW-PIB, Urzędu Gminy i Miasta Miechów, a także na stronach internetowych instytucji wskazanych powyżej.

CEB THE WORLD BANK Państwowe Gospodarstwo Wodne Wody Polskie IMGW

Figure 10 Article on the Głos24 Miechów website – content

Figure 11 Głos24 Facebook post

Figure 12 IMGW-PIB Facebook post

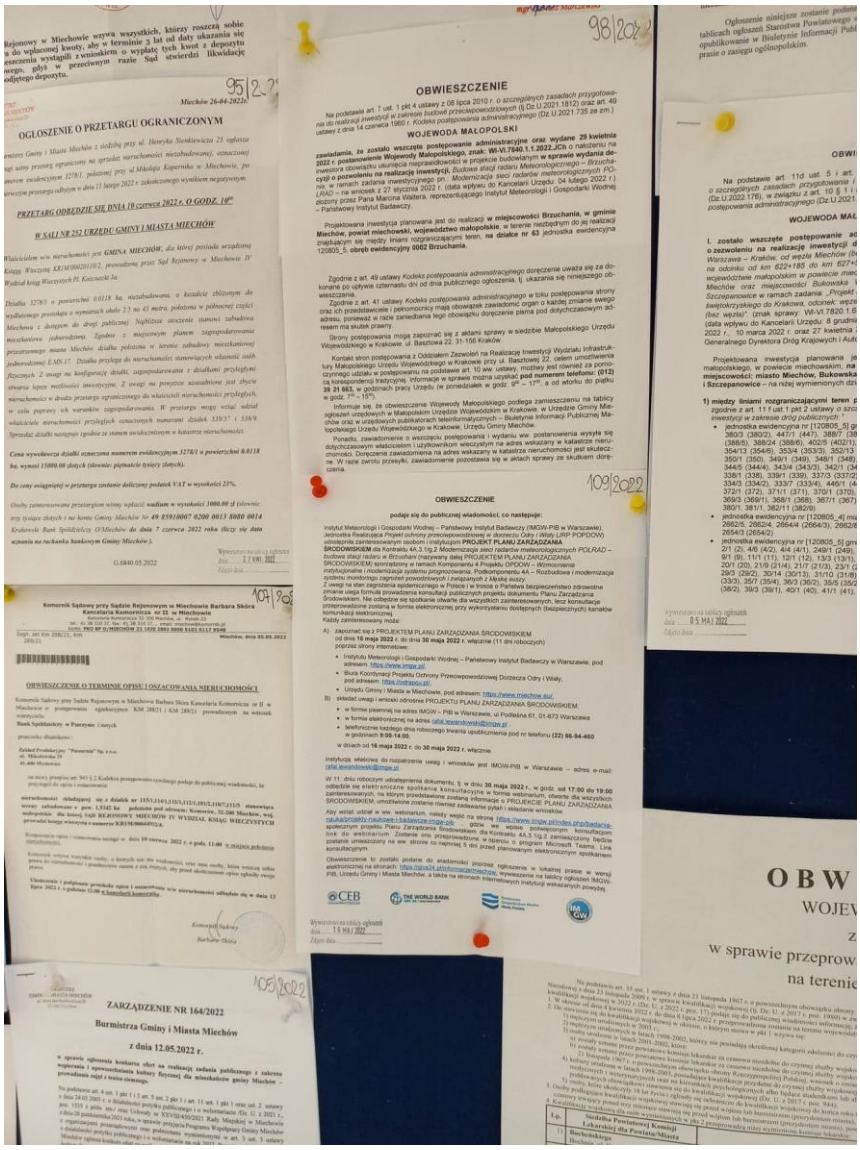
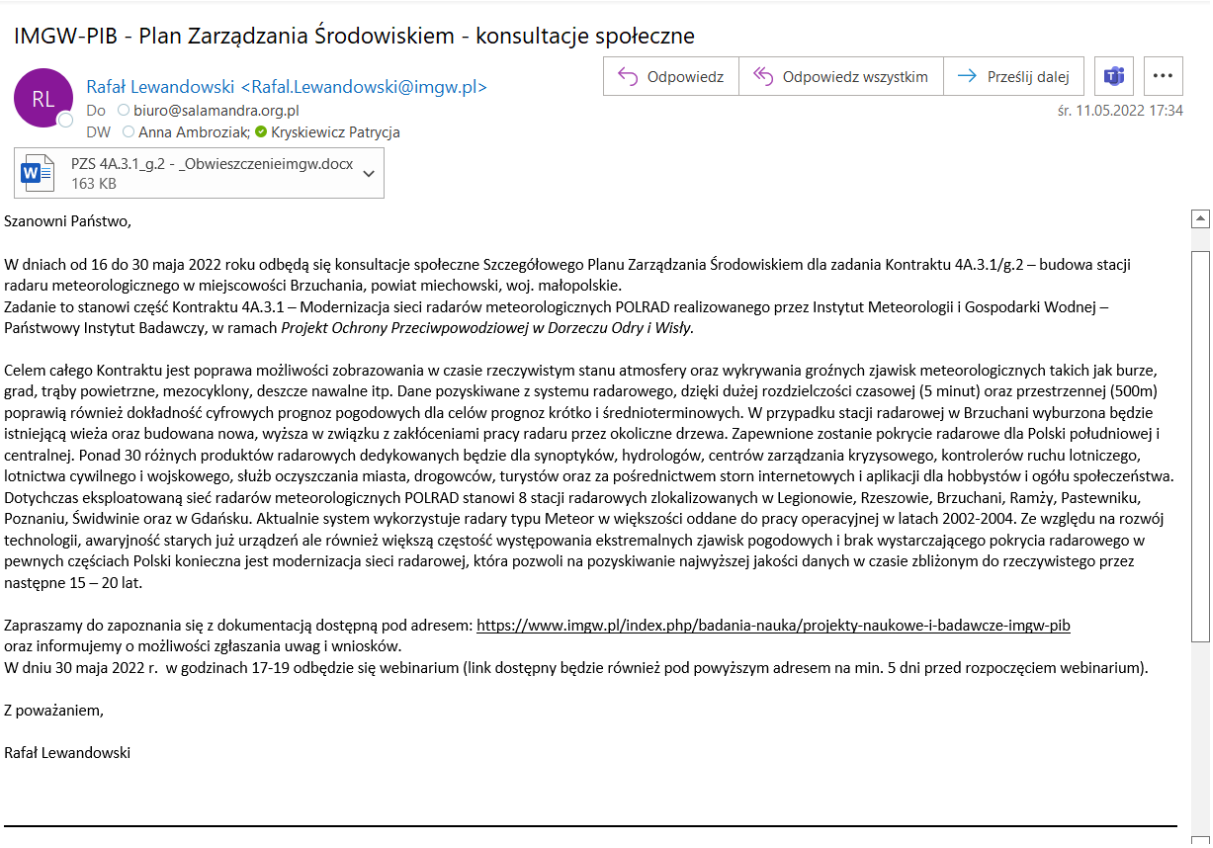


Figure 13 Notice on the bulletin board of the Miechów Commune and City Office

Figure 14 Notice on the bulletin board of the IMGW-PIB



IMGW-PIB - Plan Zarządzania Środowiskiem - konsultacje społeczne

Odpowiedz | Odpowiedz wszystkim | Prześlij dalej

RL Rafał Lewandowski <Rafal.Lewandowski@imgw.pl>
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DW Anna Ambroziak; Kryskiewicz Patrycja

śr. 11.05.2022 17:34

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Szanowni Państwo,

W dniach od 16 do 30 maja 2022 roku odbędą się konsultacje społeczne Szczegółowego Planu Zarządzania Środowiskiem dla zadania Kontraktu 4A.3.1/g.2 – budowa stacji radaru meteorologicznego w miejscowości Brzuchania, powiat miechowski, woj. małopolskie.
Zadanie to stanowi część Kontraktu 4A.3.1 – Modernizacja sieci radarów meteorologicznych POLRAD realizowanego przez Instytut Meteorologii i Gospodarki Wodnej – Państwowy Instytut Badawczy, w ramach *Projekt Ochrony Przeciwpowodziowej w Dorzeczu Odry i Wisły.*

Celem całego Kontraktu jest poprawa możliwości zobrazowania w czasie rzeczywistym stanu atmosfery oraz wykrywania groźnych zjawisk meteorologicznych takich jak burze, grad, trąby powietrzne, mezocyklony, deszcze nawalne itp. Dane pozyskiwane z systemu radarowego, dzięki dużej rozdzielczości czasowej (5 minut) oraz przestrzennej (500m) poprawią również dokładność cyfrowych prognoz pogodowych dla celów prognoz krótko i średnioterminowych. W przypadku stacji radarowej w Brzuchani wyburzona będzie istniejącą wieża oraz budowana nowa, wyższa w związku z zakłóceniami pracy radaru przez okoliczne drzewa. Zapewnione zostanie pokrycie radarowe dla Polski południowej i centralnej. Ponad 30 różnych produktów radarowych dedykowanych będzie dla synoptyków, hydrologów, centrów zarządzania kryzysowego, kontrolerów ruchu lotniczego, lotnictwa cywilnego i wojskowego, służb oczyszczania miasta, drogowców, turystów oraz za pośrednictwem storn internetowych i aplikacji dla hobbystów i ogółu społeczeństwa. Dotychczas eksploatowaną sieć radarów meteorologicznych POLRAD stanowi 8 stacji radarowych zlokalizowanych w Legionowie, Rzeszowie, Brzuchani, Ramży, Pastewniku, Poznaniu, Świdwinie oraz w Gdańsku. Aktualnie system wykorzystuje radary typu Meteor w większości oddane do pracy operacyjnej w latach 2002-2004. Ze względu na rozwój technologii, awaryjność starych już urządzeń ale również większą częstość występowania ekstremalnych zjawisk pogodowych i brak wystarczającego pokrycia radarowego w pewnych częściach Polski konieczna jest modernizacja sieci radarowej, która pozwoli na pozyskiwanie najwyższej jakości danych w czasie zbliżonym do rzeczywistego przez następne 15 – 20 lat.

Zapraszamy do zapoznania się z dokumentacją dostępną pod adresem: https://www.imgw.pl/index.php/badania-nauka/projekty-naukowe-i-badawcze-imgw-pib
oraz informujemy o możliwości zgłaszania uwag i wniosków.
W dniu 30 maja 2022 r. w godzinach 17-19 odbędzie się webinarium (link dostępny będzie również pod powyższym adresem na min. 5 dni przed rozpoczęciem webinarium).

Z poważaniem,

Rafał Lewandowski

Figure 15 Email to selected individuals, institutions and organizations

9. ORGANISATIONAL STRUCTURE OF THE IMPLEMENTATION OF THE DEMP

The Contract 4A.3.1 is part of the Odra-Vistula Flood Management Project co-financed by the World Bank, the Council of Europe Development Bank, the European Union Cohesion Fund and the state budget. Therefore, the structure of supervision over the implementation of the DEMP must comply with both the provisions of Polish law and the requirements of the World Bank.

9.1 Odra -Vistula Flood Management Project Coordination Office

The overall coordination of the implementation of individual EMPs under OVFMP is the responsibility of the Project Coordination Office (PCU), which functions as an organisational unit within the structures of the National Water Management Authority (NWMA), which is an organisational unit of the National Water Holding Polish Waters (PGW WP). The PCU's tasks include:

- managing tasks of Project Implementation Units (PIU) and Project Implementation Offices (PIO) within the scope of tasks coming under the Project;
- providing technical assistance and support to the PIU and PIO in the implementation of tasks included in the Project, including the application of World Bank procedures on procurement, environmental and social issues;
- preparing the annual work programmes of the Project and assessing their progress;
- supervising the work of the Project and assessing its progress;
- day-to-day control and monitoring of the financial resources allocated to the Project and participation in the management of the Project's financial resources;
- reporting, including preparation and submission of quarterly reports on Project implementation to the World Bank, CEDB and the Steering Committee.

9.2 Project Implementation Office (PIO) and Project Implementation Unit (PIU)

The Project Implementation Unit (PIU), i.e. the Institute of Meteorology and Water Management - National Research Institute based in Warsaw, is directly responsible for the implementation of the DEMP for the Task 4A.3.1/g.2 and monitoring the progress of its implementation.

In connection with the implementation of the OVFM Project, a Project Implementation Unit (PIU) was separated in the structure of the PIO, constituting a separate organisational unit and supervised by the Director of the Institute of Meteorology and Water Management – National Research Institute based in Warsaw. Such a structure is transparent and has a very high decision-making level, which increases the efficiency of the implementation of the Contract.

As part of the supervision of the implementation of the DEMP, the PIU performs the following tasks:

- monitoring the progress of the DEMP implementation;
- financial management and accounting;
- preparing the necessary reports to monitor the implementation of the DEMP and to coordinate its implementation by all services involved in the implementation of the DEMP.

The responsibilities of the PIU personnel in relation to the supervision of the implementation of the DEMP are as follows:

- directing, coordinating and supervising the monitoring of the DEMP performed by the Contractor;
- supervising directly the correct execution of tasks;

- cooperating with the PCU;
- exercising administrative and legal supervision over the implementation of the DEMP;
- verifying the reports and DEMP implementation reports prepared by the Contractor;
- exercising financial supervision over the implementation of the DEMP;
- supervising the correctness of the application of formal procedures in the implementation of the DEMP, resulting, among others, from the requirements of the Contract 4A.3.1, Construction Law, Environmental Law and others.

The PIU has appointed a Project Supervisor who shall be responsible for:

- monitoring the activities of the Contractor;
- checking the quality of construction work performed by the Contractor and of in-built construction products, and in particular preventing the use of defective construction products and those not permitted for use in the construction industry;
- representing the Investor at the construction site by controlling its compliance with the project and the building permit, environmental protection regulations and principles of technical knowledge;
- conducting additional tests in the event that the Contractor's reports need to be verified;
- inspecting and accepting construction work that is being covered up or is coming to a close, as well as preparing for and taking part in the acceptance of finished construction objects.

9.3 The Contractor

In order to carry out the works, the Contractor has been selected to be responsible for the implementation of the individual EMPs, for each site. The Contractor's responsibilities in this regard include:

- conducting construction works under the terms and conditions of the DEMP, in accordance with the contractual terms and conditions and the design documentation, in compliance with the applicable laws and requirements of the administrative decisions issued for this Contract;
- ensuring permanent health and safety supervision, which will be provided by the Health and Safety Officer, and in their absence by the Site Manager;
- maintaining site documentation;
- preparation of reports (reports to RDEP and/or GDEP [the latter only to the extent resulting from the decisions of the aforementioned authorities obtained during the execution stage, if the Contractor obtains such decisions]);

- applying to the Investor for changes in the design solutions if this is justified by the need to increase the safety of the construction works or to improve the construction process as regards the implementation of the DEMP;
- repairing any defects/faults that will be reported by the Investor in the course of the works and during the period of reporting defects, warranty and guarantee. The Contractor is obliged to report on all actions taken to rectify defects/faults. The report must be submitted to the Investor
- confirming the work actually executed and the removal of defects, and, at the request of the Investor, checking the construction accounts
- participating in activities related to acceptance of finished construction works and handing them over for use.

Within the Contractor's team, the EMP Coordinator - the person who coordinates and supervises the activities related to the implementation of the DEMP - will be appointed. Throughout the Contract period, the Contractor shall ensure the participation of environmental experts as required. The work of the expert team will be coordinated by the Contractor's EMP Coordinator. The EMP Coordinator will be responsible for:

- monitoring the implementation of the DEMP;
- overseeing all environmental matters through environmental specialists and other personnel;
- continuous monitoring of the correct implementation of actions mitigating negative environmental impacts;
- identifying problems arising from the harmful environmental impact of the execution of construction works and submitting proposals to remedy these problems.

A health and safety officer will also be appointed to the Contractor's team, available throughout the period of the Contract, who will also be responsible for implementing other ES issues not included in the DEMP. The Contractor shall identify a person to whom complaints of mobbing, discrimination and ill-treatment can be reported.

10. SCHEDULE FOR IMPLEMENTATION OF THE DEMP AND REPORTING PROCEDURES

The implementation of the Brzuchania DEMP, enables the parties involved in the preparation, implementation and supervision of this task of the Contract 4A.3.1/g.2:

- identification of the various environmental aspects which have a significant impact on the state of the environment so that they can be controlled, corrected, reduced but, in turn, have an economic impact;

- correction of adverse consequences of works in progress for the benefit of the environment and financial performance;
- identification of the objectives and targets implemented in the framework of the adopted environmental policy, covered by the DEMP, which require expenditure and produce measurable results;
- identification and elimination of potential hazards and accidents, prevention and remediation of environmental consequences that may be associated with them and entail disproportionate preventive costs;
- the rational use of nature's goods, with minimal environmental damage and optimal cost generation.

Furthermore, the implementation of the recommendations and actions resulting from the DEMP may reduce or even eliminate the risk of socially, environmentally and economically disadvantageous events and phenomena concerning the Contract, in particular:

- the risk of environmental issues being overlooked in the Contractor's execution of tasks;
- the risk of escalation of protests by the local community as a result of the Contractor's failure to comply with the work technology and environmental procedures approved by the Investor;
- the risk of additional environmental penalties;
- the risk of incurring additional environmental damage.

Considering the importance of the issues defining the environmental and social conditions, the following procedures are foreseen for the implementation of the DEMP for the whole Contract:

- The Contractor for the Contract 4A.3.1, through the Investor, shall submit the GEMP project and then the checklists or DEMP for each location to the PCU for their opinion;
- once the World Bank has expressed its no objection to the GEMP, it will be made public in its final form on the websites of the PCU, the Employer and the Bank throughout the duration of the Contract;
- when individual EDs have been obtained, DEMPs will be prepared for all sites depending on the provisions of the EDs (in the form of a complete document or checklist);
- for the remaining locations where no ED will be required, checklists will be created;
- once the PCU has expressed their disagreement with the checklists presented, they will be made public in their final version;

- after the PCU expresses no objection to the presented DEMPs, they will be made public on the website of OVFM Project and IMGW-PIB and submitted to public consultation, additionally a draft of these DEMPs will be submitted to the World Bank for comments;
- comments will be considered on the DEMP project and the final versions will be submitted to the World Bank for a No Objection;
- all activities of the Contractor shall be reported at regular intervals (monthly), in Polish and, if necessary, in English, on paper and electronically, in terms of the obligations arising from the DEMP and other contractual documents. These reports will be subject to approval by the Employer. Upon completion of the Contract, the Contractor shall prepare a final report on the implementation of the DEMP, which shall be subject to an opinion and expression of no objection by the World Bank. This is a condition for the completion and settlement of the Contract.

In addition, the relevant entities involved in the execution of the Contract 4A.3.1 are required to implement additional monitoring and reporting obligations on environmental issues as specified in the administrative decisions issued for the project and presented at the next stage in the individual mitigation action plans for each site, in the checklist or as an appendix to the DEMP.

The Project progress reporting system will be based on monthly reports submitted by the Contractor to the PIU. Monthly and quarterly reports on the implementation of the DEMP shall also be prepared as part of the above mentioned monthly and quarterly reports or as a separate document.

The PIU shall submit quarterly reports to the PCU in the part concerning the tasks performed by them. They will contain the required set of information and descriptions to enable PCU to prepare the Project's quarterly report. Furthermore, especially in case of problems with the implementation of the Contract 4A.3.1, the PCU shall expect the PIU to provide summaries and data on a monthly basis.

The following reporting procedures have been established:

1. Reporting:
    a) reports (monthly, quarterly, ad-hoc, final) shall be prepared by the Contractor;
    b) submission of the report to the Employer;
    c) submission of a report to RDEP and/or GDEP (only to the extent resulting from issued administrative decisions obtained at the stage of implementation, if they require reporting on the measures in question);
    d) submission of the quarterly report of the PIU to the PCU;
    e) a final report on the implementation of the DEMP prepared by the Contractor (after verification by the PCU, submitted to the World Bank no later than 3 months after completion of the works).

2. Archiving:
    a) The Contractor: 1 copy of each report in electronic version for 5 years from the date of completion of the Contract 4A.3.1;
    b) The Investor: 1 copy of each report in electronic version for 5 years from the date of completion of the Contract 4A.3.1.
3. Evaluation:
    a) ongoing assessment of the results of the implementation of planned actions resulting from the DEMP;
    b) on-going analysis of documentation (Contractor's Reports) by the Investor;
    c) providing the Employer with reliable information on the progress of the construction process, with particular emphasis on the implementation of measures to reduce negative environmental impacts and recommendations arising from environmental decisions;
    d) preparing and submitting quarterly reports by the PCU to the World Bank.

It is planned:

- on-going evaluation: The Contractor's quarterly reports,
- ex-post evaluation:
    - Report after completion of works (final reports on the implementation of the DEMP, prepared by the Contractor).

11. SOURCE MATERIALS

1) Environmental Impact Assessment Report for the project OVFMP 4A.3.1 “POLRAD Weather Radar Modernization” in Brzuchania location, Consortium: INSTAL Warszawa S.A. i Klimas Przedsiębiorstwo Budowlano-Projektowe Ryszard Klimas, Krotoszyn; 2021

2) ISOK – Informatic System for National Defence,

3) General Directorate for Environmental Protection, Central Register of Nature Conservation Forms,

4) Explanations to the geoenvironmental map of Poland 1: 50 000 Legionowo Sheet (487) – Polish Geological Institute – PIB, Warsaw 2010,

5) Collins Guide. Birds. L. Svensson, K. Mullarney, D. Zetterstrom, Multico 2012,

6) Insects Heiko Bellmann Multico 2007,

7) Atlas of European Birds Detlef Singer, Delta,

8) Guide to the identification of plant communities of Poland. Władysław Matuszkiewicz, Wydawnictwo Naukowe PWN 2008,

9) Polish Flora, Meadow plants, Zbigniew Nawara, Multico 2012,

10) Polish Flora. Synatropic plants. Barbara Sudnik-Wójcikowska. Multico 2011,

11) Atlas of Polish insects. Łukasz Przybyłowicz. Publicat,

12) A guide to plant identification. Schauer, Caspari, Elipsa,

13) Mammal Research Institute Polish Academy of Sciences Białowieża, Project of ecological corridors linking the European Natura 2000 network in Poland, Elaboration prepared for the Ministry of the Environment (Contract No. 13/N/2004 dated 29 December 2004) under the Phare programme PL0105.02 “Implementation of the European Ecological Network in Poland”, Warsaw 2005,

14) Zmyślony M. Biological effects and health effects of electromagnetic fields in terms of requirements of reports on the impact of projects on the environment. Med Pr 2007

15) World Bank Operational Policy OP 4.01 – Environmental assessment

16) (https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx# S3-2 [in the section entitled Investment Project Financing / Environmental and Social Safegurard Policies]).

17) Environmental and Social Management Framework, final document, April 2015 (http://odrapcu2019.odrapcu.pl/popdow_dokumenty/).

18) Odra-Vistula Flood Management Project - Project Operational Manual, Wrocław 2015 (http://www.odrapcu.pl/doc/POM_PL.pdf).

19) Website: http://odrapcu2019.odrapcu.pl/popdow_dokumenty/.

20) GDEP Geo-service http://geoserwis.gdos.gov.pl/mapy/.

12. LIST OF PHOTOGRAPHS

13. LIST OF FIGURES

14. LIST OF TABLES

15. ATTACHMENTS LIST

Appendix 1 Mitigation Action Plan

Appendix 2 Monitoring Action Plan

Appendix 3 List of legal acts related to environmental protection

Appendix 4 Copies of administrative decisions

Appendix 5 Map of the location of the Brzuchania meteorological radar station

Appendix 6 Map of the location of the Brzuchania meteorological radar station against the protected areas

Appendix 7 Report on the public consultation