Państwowe Gospodarstwo Wodne Wody Polskie

State Water Holding Polish Waters
Regional Water Management Authority in Cracow

ENVIRONMENTAL MANAGEMENT PLAN

FINAL VERSION

ODRA-VISTULA FLOOD MANAGEMENT PROJECT

Loan Agreement no. 8524 PL

Environmental category B – in accordance with WB OP 4.01

Component 3:

Flood Protection of the Upper Vistula

Subcomponent 3A:

Flood Protection of Upper Vistula Towns and Cracow

Contract 3A.2

FLOOD PROTECTION IN SERAFA VALLEY

Works Contract 3A.2/4

Flood protection in Serafa Valley – Serafa 2 reservoir

Issue	*Date*	*Authors*	*Verified by*	*Client's approval*	*Description*
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ODRA-VISTULA FLOOD MANAGEMENT PROJECT

co-financed by:

World Bank - International Bank for Reconstruction and Development (WB)
– Loan Agreement no. 8524 PL,

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State Budget

ENVIRONMENTAL MANAGEMENT PLAN

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Contract 3A.2
FLOOD PROTECTION IN SERAFA VALLEY

Works Contract 3A.2/4
Flood protection in Serafa Valley – Serafa 2 reservoir

Environmental category B – according to OP 4.01 WB

Project Implementation Unit:

State Water Holding Polish Waters
represented by the Director
of Regional Water Management Authority in Cracow
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Document developed by:

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OVFM PIU

AECOM Polska Sp. z o.o.
Technical Assistance Consultant

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LIST OF BASIC DEFINITIONS AND ABBREVIATIONS APPLIED IN THIS EMP

Name	Description
BGW	Body of Groundwater
BIOZ Plan	Health and Safety Plan developed based upon Article 21a of the Act of July 7, 1994 – Building Law Act
BOD_5	Biochemical oxygen demand during 5 days
BSW	Body of Surface Water
CE	Contract Engineer
CEB	Council of Europe Development Bank https://coebank.org/en/
Consultant / Engineer / Consultant Engineer	Company or legal person providing services for the Investor Technical Assistance Consultant for the OVFM Project – AECOM Polska Sp. z o.o.
Contract / Contract 3A.2	Contract 3A.2 *FLOOD PROTECTION IN SERAFA VALLEY* comprising i.a. Works Contract 3A.2/4
Contract / Contract 3A.2/4 / Works Contract / Works Contract 3A.2/4	Works Contract 3A.2/4 *Flood protection in Serafa Valley – Serafa 2 reservoir*
Contractor	Company or a legal person implementing the Works Contract 3A.2/4
Designer	Company or a legal person drawing up the design documentation
DQAP / SPZJ	Detailed Quality Assurance Plan
EHS Guidelines	World Bank Group Environmental, Health, and Safety Guidelines https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/EHS-Guidelines/
EIA	Environment Impact Assessment
EMP	Environmental Management Plan
Environmental Decision (ED)	Decision on environmental conditions
Epidemic risk state	Legal situation introduced in a given area in connection with the risk of occurrence of an epidemic, in order to undertake anti-epidemic actions as specified in the Act on combating infectious diseases

Name	Description
Epidemic state	Legal situation introduced in a given area in connection with the occurrence of an epidemic, in order to undertake anti-epidemic and preventive actions to minimize the effects of an epidemic as specified in the Act on combating infectious diseases
ES	The Environmental and Social World Bank Policy – ES, concerning environmental and social issues (i.e. in the scope of the environmental protection, health and safety at work and of the social issues, including gender equality, protection of minors, protection of particularly vulnerable people (including the disabled), sexual harassment, sexual violence, awareness and prevention of HIV/AIDS)
ESMF	Environmental and Social Management Framework *http://odrapcu.pl/doc/OVFMP/Environmental_and_Social_Management.pdf*
GDOŚ	General Directorate for Environmental Protection
H&S	Health and Safety
IMGW-PIB	Institute of Meteorology and Water Management National Research Institute
KZGW	National Water Management Authority
LA&RAP	Land Acquisition and Resettlement Action Plan
LSDP / MPZP	Local Spatial Development Plan
MGR	Major Groundwater Reservoirs
MZMiUW	Małopolski Board of Amelioration and Hydraulic Structures in Cracow
PAD	Project Appraisal Document for the World Bank approval of a Loan to the Polish Government to implement OVFMP *http://documents.worldbank.org/curated/en/320251467986305800/Poland-Odra-Vistula-Flood-Management-Project*
PCU / OVFM PCU	Odra-Vistula Flood Management Project Coordination Unit *http://odrapcu2019.odrapcu.pl/en/welcome/*
PGW WP	State Water Holding Polish Waters
PIO	Project Implementation Office – created within PIU separate organizational unit responsible for the implementation of Works Contract
PIU / OVFM PIU	OVFM Project Implementation Unit

Name	Description
PIU / Investor / Employer (to December 31, 2017)	Małopolski Board of Amelioration and Hydraulic Structures in Cracow
PIU / Investor / Employer (from January 1, 2018)	State Water Holding Polish Waters, represented by the Director of Regional Water Management Authority in Cracow / OVFM Project Implementation Unit
POM	Project Operations Manual prepared by the Odra Vistula Flood Management Project Coordination Unit, Wroclaw 2015 *http://www.odrapcu.pl/doc/POM_PL.pdf* the binding version is the English one: *http://www.odrapcu.pl/doc/POM_ENG.pdf*
Project / OVFMP / OVFM Project	Odra-Vistula Flood Management Project
RDOŚ	Regional Directorate for Environmental Protection
Roads authority	Agency responsible for management of public roads in accordance with the Act on public roads
RZGW	Regional Water Management Authority
SCDSP / SUiKZP	Study of Conditions and Directions of Spatial Development
Waste MP	Waste Management Plan
WIOŚ	Provincial Inspectorate for Environmental Protection
World Bank (WB)	International Bank for Reconstruction and Development *http://www.worldbank.org/*

LIST OF ABBREVIATED TITLES OF LEGAL ACTS APPLIED IN THIS EMP

Titles, publication reference and abbreviated titles of legal acts quoted within contents of this EMP are given in the table below.

Abbreviated title	Full title (with publication reference)
APC	The Act of June 14, 1960 Code of Administrative Procedure (consolidated text: Journal of Laws of 2020, item 256 as amended)
CC	The Act of April 23, 1964 Civil Code (consolidated text: OJ of 2020, item no. 1740)
LC	The Act of June 26, 1974 Labour Code (consolidated text: OJ of 2020, item no. 1320)
PC	The Act of June 6, 1997 Penal Code (consolidated text: OJ of 2020, item no. 1444 as amended)
BIOZ Regulation	Regulation of the Minister of Infrastructure of June 23, 2003 on Information Concerning Safety and Health Protection and Safety and Health Protection Plan (Journal of Laws of 2003, No.120, item 1126)
Noise level Regulation	Regulation of the Minister of Environment of June 14, 2007 on admissible noise levels in the environment (OJ of 2014, item no. 112)
Regulation on the protection of fungi species	Regulation of the Minister of Environment of October 9, 2014 on the protection of fungi species (OJ of 2014, item no. 1408)
Regulation on the protection of plant species	Regulation of the Minister of Environment of October 9, 2014 on the protection of plant species (OJ of 2014, item no. 1409)
Regulation on the protection of animal species	Regulation of the Minister of Environment of December 16, 2016 on the protection of animal species (OJ of 2016, item no. 2183 as amended)
Regulation on works prohibited for juveniles	Regulation of the Council of Ministers of August 24, 2004 on the list of prohibited work for juveniles and the conditions for their employment in some of these works (consolidated text: OJ of 2016, item no. 1509)
EIA Regulation	Regulation of the Council of Ministers of September 10, 2019 on the investment that may significantly affect the environment (consolidated text: OJ of 2019, item no. 1839)
Water MP	Regulation of the Council of Ministers of October 18, 2016 on Water Management Plan for waters within the Vistula River Basin (Journal of Laws 2016, item 1911)
Act on public roads	The Act of March 21, 1985 on the public roads (consolidated text: OJ of 2020, item no. 470 as amended)

Abbreviated title	Full title (with publication reference)
EPI Act	The Act of July 20, 1991 on the Environmental Protection Inspectorate (consolidated text: OJ of 2020, item no. 995 as amended)
Waste Act	The Act of December 14, 2012 on the waste (consolidated text: OJ of 2020, item no. 797 as amended)
EIA Act	Act of October 3, 2008 on access to information on the environment and its protection, public participation in environment protection and environmental impact assessments (consolidated text, Journal of Laws of 2020, item 283, as amended)
NP Act	Act of April 16, 2004 on the nature protection (consolidated text, Journal of Laws of 2020, item 55 as amended)
Act on combating infectious diseases	The Act of December 5, 2008 on preventing and combating infections and infectious diseases in humans (consolidated text: OJ of 2020, item no. 1845 as amended)
Act on heritage protection	The Act of July 23, 2003 on the protection of heritage and on the care for heritage (consolidated text: OJ of 2020, item no. 282 as amended)
SLI Act	The Act of April 13, 2007 on the State Labour Inspectorate (consolidated text: OJ of 2019, item no. 1251)
SSI Act	The Act of March 14, 1985 on the State Sanitary Inspectorate (consolidated text: OJ of 2019, item no. 59 as amended)
EPL Act	The Act of April 27, 2001 Environmental Protection Law (consolidated text: OJ of 2020, item no. 1219 as amended)
Building Law Act	Act of July 7, 1994, Construction Law (consolidated text: Journal of Laws of 2020, item 1333 as amended)
Water Law Act	The Act of July 20, 2017 Water Law (consolidated text: OJ of 2020, item no. 310 as amended)
Equal Treatment Act	The Act of December 3, 2010 on implementation of some regulation of the European Union in reference to equal treatment (consolidated text: OJ of 2016, item no. 1219 as amended)
Damage Act	The Act of April 13, 2007 on preventing damages to the environment and their removal (consolidated text: OJ of 2020, item no. 2187)

Summary

This Environmental Management Plan (EMP) refers to Works Contract 3A.2/4 *Flood protection in Serafa Valley – Serafa 2 reservoir*, forming (along with other three Works Contracts[1]) the scope of Contract 3A.2 *Flood protection in Serafa Valley.*

Contract 3A.2 remains a part of Subcomponent 3A implemented within *Odra-Vistula Flood Management Project* (OVFMP), co-financed by the International Bank for Reconstruction and Development (World Bank), and by the Council of Europe Development Bank, European Union Cohesion Fund, and by the State Budget.

This EMP includes the following elements:

- Brief description of the OVFM Project (Chapter 1.1);
- Description of Works Contract 3A.2/4, to which this EMP refers to (Chapter 2);
- Institutional, legal and administrative conditions for implementation of the aforementioned Contract with specified binding state legal acts on environmental protection, main stages of the EIA procedure, and also the current course of EIA procedure for the aforementioned Contract (Chapter 3);
- Description of individual elements of the environment in the area of the aforementioned Contract (Chapter 4);
- Summary of the environmental impact assessment (Chapter 5);
- Description of mitigation measures to eliminate or limit the adverse impact of the aforementioned Contract on the environment (Chapter 6), including a tabulated summary of those measures (Appendix 1 – Plan of mitigation measures);
- Description of environmental monitoring measures for the aforementioned Contracts (Chapter 7), including a tabulated summary of those measures (Appendix 2 – Plan of monitoring measures);
- Description of the course of public consultations on particular stages of environmental documentation development for the aforementioned Contracts (Chapter 8);
- Description of the organizational structure for implementation of the EMP (Chapter 9);
- Implementation schedule and description of reporting procedures (Chapter 10).

Appendices to this EMP include: a tabulated summary for the plan of mitigation measures (Appendix 1) and for the plan of monitoring measures (Appendix 2), the list of national legal acts related to environmental protection (Appendix 3), copies of decisions, resolutions, permits and / or notes referring to the environmental protection (Appendix 4) and graphical ap-

[1] Remaining parts of Contract 3A.2 are as follows:
* Works Contract 3A.2/1
Flood protection in Serafa Valley – Malinówka 1 reservoir;
* Works Contract 3A.2/2
Flood protection in Serafa Valley – Malinówka 2 reservoir;
* Works Contract 3A.2/3
Flood protection in Serafa Valley – Malinówka 3 reservoir.

pendices, including: a map presenting location of the Contract (Appendix 5), a map with location of the Contract in reference to protected areas (Appendix 6), a map presenting location of the Contract in reference to natural habitats and protected species occurrence sites (Appendix 7), and a map with location of the Contracts' elements (Appendix 8).

Characteristics of the Works Contract

Works Contract 3A.2/4 refers to the development of a small dry flood storage reservoir Serafa 2 at the Serafa River, in Małopolskie Province, in the area of the City of Wieliczka (District of Wieliczka, Municipality of Wieliczka).

That reservoir shall operate as a part of cascade comprising five small dry flood storage reservoirs in the Serafa river-basin: two at the River Serafa (the existing Bieżanów Reservoir and the planned Serafa 2 Reservoir) and three at the Malinówka Stream (planned reservoirs: Malinówka 1, Malinówka 2, and Malinówka 3).

Scope of the Works Contract

The scope of Works Contract 3A.2/4 comprises the following elements:

- development of a dry flood storage reservoir Serafa 2 (with an area of about 2.4 ha), with an earth-fill front dam and side dam (with shutter in the body and in the subbase), spillway and discharge facilities, pedestrian and vehicle footbridge and a stilling basin;
- development of ditches, including a band ditch;
- development of a culvert;
- development of a retaining sheet-piling (with a drainage); on the right bank of the reservoir;
- development of measuring points for the flow of water; with local protection of slopes (revetments) at the Serafa river-bed;
- redevelopment of water facilities (ditches);
- redevelopment of a medium voltage (MV) overhead line;
- shaping of the Serafa river-bed in two sections (transfer channel and discharge channel);
- development of a temporary by-pass channel of the Serafa River (with a temporary culvert);
- land shaping (grading) in the dry reservoir's bowl;
- development of service roads and a descend road to the dry reservoir's bowl;
- protection of the existing sections of: water-piping, teletechnical network, and power line.

Need to implement the Works Contract

Implementation of Contract 3A.2, including i.a. Works Contract 3A.2/4, results from the necessary improvement of flood protection in the Serafa Valley (including areas of the Złocień Estate and of the Stary Bieżanów Estate in Cracow) and from the limitation of flood damage in those areas.

The works in question have been included on List no. 1 under item "ID 2_177_W" (ordinal number: 1017) in Appendix no. 2 titled "*Investments that do not affect reaching the good status of water adversely or that do not deteriorate the status of water*" to the MasterPlan for the Vistula river-basin (2014)[2].

Institutional, legal, and administrative conditions

Works Contract 3A.2/4 is implemented in accordance with relevant state regulations on the environmental protection and in conformity with proper policies of the World Bank, while considering its characteristics, expected potential impact on the environment, and location in reference to the protected sites.

Status of administrative procedures for the EIA

In case of the Contract in question, in the years 2012-2020 the following decision and administrative notes in the scope of environmental protection have been issued, e.g.:

- Decision of the Regional Director for Environmental Protection in Cracow dated October 29, 2012 on environmental conditions (ref. no.: OO.4233.13.2012.BM – Appendix 4a to this EMP).
- Resolution of the Regional Director for Environmental Protection in Cracow dated October 3, 2018 stating that implementation of the planned Contract shall run in stages and that conditions determined in the decision on environmental conditions dated October 29, 2012 have not been modified (ref. no.: OO.4220.5.10.2018.BM – Appendix 4b to this EMP).
- Resolution of the Regional Director for Environmental Protection in Cracow dated September 12, 2019 clarifying doubts to contents of the decision on environmental conditions dated October 29, 2012 (ref. no.: OO.4220.5.28.2019.BM – Appendix 4c to this EMP).
- Resolution of the Regional Director for Environmental Protection in Cracow dated September 16, 2019 clarifying doubts to contents of the decision on environmental conditions dated October 29, 2012 (ref. no.: OO.4220.5.29.2019.BM – Appendix 4d to this EMP).
- Resolution of the Regional Director for Environmental Protection in Cracow dated December 5, 2019 on correction of obvious editorial mistakes in the decision on environmental conditions dated October 29, 2012 (ref. no.: OO.4220.44.2019.BM – Appendix 4e to this EMP).
- Resolution of the Regional Director for Environmental Protection in Cracow dated May 28, 2020 imposing obligation of providing an environmental impact assessment due to modification of design assumptions and necessary amendment to the decision on environmental conditions dated October 29, 2012 (ref. no.: OO.420.4.3.2019.BM – Appendix 4f to this EMP).
- Resolution of the Regional Director for Environmental Protection in Cracow dated August 17, 2020 clarifying doubts to contents of the decision on environmental conditions dated October 29, 2012 (ref. no.: OO.4220.5.27.2020.BM – Appendix 4g to this EMP).

[2] See: description in the footnote in Chapter 1.

- Decision of the Regional Director for Environmental Protection in Cracow dated September 18, 2020 amending the decision on environmental conditions dated October 29, 2012 in the range referring to the development of reservoirs Serafa 2 and Malinówka 3
  (ref. no.: OO.420.4.3.2019.BM – Appendix 4h to this EMP).
- Resolution of the Regional Director for Environmental Protection in Cracow dated November 18, 2020 clarifying doubts to contents of the decision on environmental conditions dated October 29, 2012
  (ref. no.: OO.4220.5.39.2020.BM – Appendix 4i to this EMP).
- Decision of the Regional Director for Environmental Protection in Cracow dated December 30, 2020 allowing for departure from bans binding in reference to animals under protection at the construction site of the Serafa 2 reservoir
  (ref. no.: OP-I.6401.403.2020.GZ – Appendix 4j to this EMP).

Current condition of the environment surrounding the Works Contract

As a result of works done to identify values of the natural and cultural environment, it has been identified that the implementation area for Works Contract 3A.2/4 and its neighborhood are characterized by the following environmental conditions:

- Implementation area for the aforementioned Works Contract is located within the boundaries of the Body of Surface Water (BSW), i.e. PLRW2000262137749 *Serafa,* and also within the boundaries of the Body of Groundwater (BGW) with a code PLGW2000148.
- Within the implementation area for the aforementioned Works Contract and in its close vicinity there are no Natura 2000 sites or other areas and objects under protection based upon the Act on the Nature Protection.
- One type of natural habitat (poplar riparian forest) and two protected plant species have been found within the Contract implementation area and in its close vicinity.
- Within the implementation area for the aforementioned Works Contract and in its close vicinity occurrence of the following was identified: 2 common protected species of insects, 4 common protected species of amphibians, 1 common protected species of reptiles, at least 20 protected species of birds, at least 2 protected species of bats and 1 protected species of non-flying mammals.
- No heritage protected based upon regulations on the protection of heritage and on the care for heritage is present within the implementation area for the aforementioned Works Contract and in its close vicinity. The implementation area for the aforementioned Works Contract is located within an archaeological supervision zone.

Summary of the environmental impact assessment

Impact on land surface and landscape

Implementation of the planned Works Contract is associated with acquisition of land and with local logging of trees and shrubs, but those do not affect land surface and landscape adversely.

Impact on climate

Implementation of the planned Works Contract does not affect the condition of climate.

Impact on the quality of air

Impact of the planned Works Contract on the quality of air is limited in time to the construction stage and it is not significant.

Impact on soils and grounds

Implementation of the planned Works Contract is associated with a permanent transformation of land surface (including soils and grounds) for the development of particular elements of the reservoir, as well as with a potential possibility of contamination of the subbase on the construction stage. On the operational stage the small dry flood storage reservoir shall not affect the condition of soils and grounds. If the conditions determined in Appendix 1 to this EMP would be met properly, the performance would not affect the condition of soils and grounds adversely.

Impact on surface water and groundwater

Construction of the planned small dry flood storage reservoir shall not affect the morphological continuity of the river, and shall also not affect water's hydromorphological, biological, and physical-chemical elements adversely. The performance is associated with a potential possibility of contaminating surface water and / or groundwater on the construction stage. On the operational stage the small dry flood storage reservoir shall not affect the condition of surface water and groundwater adversely. If the conditions determined in Appendix 1 to this EMP would be met properly, the performance would not affect the condition of surface water and groundwater adversely.

Impact on acoustic climate

Impact of the planned Works Contract on the acoustic climate is limited in time to the construction stage, and it is not significant.

Impact on biotic nature

Implementation of the planned Works Contract is associated with the occurrence of local impacts on vegetation and on fauna in the area. Those impacts – resulting mainly from the necessary acquisition of land, traffic of vehicles and machines in the construction period, and logging of trees and shrubs – shall be partially reduced due to the planned mitigation measures and in total they shall not affect the condition of protected habitats and species adversely in a regional scale. Implementation of the planned Works Contract does not affect Natura 2000 sites nor other protected areas and protected objects.

Impact on cultural heritage and material goods

Implementation of the planned Works Contract does neither affect cultural heritage nor material goods adversely.

Impact on health and safety of people

The Works Contract does not generate significant hazards to health and safety of people. They may emerge only in case of a failure, catastrophes, or other random events (such as e.g. leakage of pollutions, fire, finding of unexploded shells and misfires, flood). The EMP determines relevant conditions for prevention of such events and for mitigation of their potential effects. The operational stage is associated with a positive impact on health and safety of people, by improving the flood safety of areas located in the Serafa River valley downstream of the reservoir.

Other ES hazards

Regardless of the ones listed above, other ES related types of issues or hazards as accidents and near misses, cases of sexual harassment or mobbing, cases of labour law violation, cases of sexually transmitted diseases (including HIV/AIDS) or other infectious diseases (including those caused by coronaviruses, e.g. COVID-19), and others, may occur during implementation of the Works Contract. This EMP determines relevant conditions to prevent hazards of those types and to efficiently react to the cases of their occurrence.

Mitigation measures and monitoring measures

Chapters 6 and 7 of and Appendixes 1 and 2 to this EMP described and present – in a tabular form – a set of mitigation measures and monitoring measures to eliminate or limit adverse impact of the planned Works Contract on the environment, and to assure efficient implementation of the EMP's conditions. Those measures contain conditions determined in the binding decision on environmental conditions, as well as additional conditions provided on the stage of works on the EMP.

Public consultations

Chapter 8 of the EMP provides a relation of public consultations held under the EIA procedure for the planned Works Contract, including the following:

- Public consultations on the document titled *Environmental and Social Management Framework (ESMF)* for the OVFM Project (2015).
- Public consultations held on the stage of issuing the environmental decisions for the Contract comprising the planned Works Contracts (2012 and 2019-2020).
- Public consultations for this Environmental Management Plan (2020).

1 Introduction

This study presents the Environmental Management Plan (EMP) for the Works Contract 3A.2/4 *Flood protection in Serafa Valley – Serafa 2 reservoir,* forming (along with other three Works Contracts[3]) the scope of Contract 3A.2 *Flood Protection in Serafa Valley*.

Contract 3A.2 remains a part of Subcomponent 3A implemented within *Odra-Vistula Flood Management Project* (OVFMP), co-financed by the International Bank for Reconstruction and Development (World Bank), the Council of Europe Development Bank, by the European Union Cohesion Fund, and by the State Budget.

In reference to the environmental screening described in the Environmental and Social Management Framework for the OVFM Project, the works in question have been included on List no. 1 under item "ID 2_177_W" (ordinal number: 1017) in Appendix no. 2 titled "*Investments that do not affect reaching the good status of water adversely or that do not deteriorate the status of water*" to the MasterPlan for the Vistula river-basin (2014)[4].

1.1 Odra-Vistula Flood Management Project

The main objective of the OVFM Project is to protect people in flood plains within selected parts of river-basins of two of the greatest Polish Rivers – Vistula and Odra – against hazards caused by extreme floods. Implementation of the most urgent flood protection assignments was forecasted within the framework of the OVFMP.

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 Nysa Kłodzka Valley;
- Component 3 – Flood Protection of the Upper Vistula;
- Component 4 – Institutional Strengthening and Enhanced Forecasting;
- Component 5 – Project Management and Studies.

[3] Remaining parts of Contract 3A.2 are as follows:
* Works Contract 3A.2/1
Flood protection in Serafa Valley – Malinówka 1 reservoir;
* Works Contract 3A.2/2
Flood protection in Serafa Valley – Malinówka 2 reservoir;
* Works Contract 3A.2/3
Flood protection in Serafa Valley – Malinówka 3 reservoir.

[4] The MasterPlans for the Vistula River Basin and for the Odra River Basin remain a result of establishments made with the European Committee, which led to implementation of "*Action Plan for Strategic Planning in Water Management*" by Poland (resolution of the Council of Ministers of July 2, 2013, ref. no.: 118/2013). The MasterPlans remained an update to water management plans, since their previous update in 2015, and subsequently their results – in terms of investments, which affect or which may affect the status of water bodies – were transferred to the updated water management plans (adopted by the resolution of the Council of Ministers of October 18, 2016).

Component 3, within the framework of which the Contract in question – remaining a subject of this EMP – shall be implemented, is divided into the following Subcomponents:

- Subcomponent 3A – Flood Protection of Upper Vistula towns and Cracow;
- Subcomponent 3B – Protection of Sandomierz and Tarnobrzeg;
- Subcomponent 3C – Passive and Active Protection in Raba Sub-basin;
- Subcomponent 3D – Passive and Active Protection in San Basin.

Detailed information on the Project may also be found in the Environmental and Social Management Framework published at e.g. websites of the World Bank[5] and of the Odra-Vistula Flood Management Project Coordination Unit[6]. A detailed description of the Project is also given in PAD[7] and in the Project Operations Manual[8].

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

[6] http://odrapcu2019.odrapcu.pl/en/popdow_about_project/

[7] http://documents.worldbank.org/curated/en/320251467986305800/Poland-Odra-Vistula-Flood-Management-Project

[8] http://www.odrapcu.pl/doc/POM_PL.pdf
(a binding English version is available at: http://www.odrapcu.pl/doc/POM/ENG.pdf)

2 Contract Description

Contract 3A.2 refers to the development of four small dry flood storage reservoirs in the Serafa river-basin, and it is divided into four Works Contracts, the fourth of which remains the subject of this EMP:

- Works Contract 3A.2/1
  Flood protection in Serafa Valley – Malinówka 1 reservoir;
- Works Contract 3A.2/2
  Flood protection in Serafa Valley – Malinówka 2 reservoir;
- Works Contract 3A.2/3
  Flood protection in Serafa Valley – Malinówka 3 reservoir;
- Works Contract 3A.2/4
  Flood protection in Serafa Valley – Serafa 2 reservoir.

The aforementioned reservoirs shall operate as a part of cascade comprising five dry flood storage reservoirs in the Serafa river-basin: two at the River Serafa (the existing Bieżanów Reservoir and the planned Serafa 2 Reservoir) and three at the Malinówka Stream (planned reservoirs: Malinówka 1, Malinówka 2, and Malinówka 3).

The objective for construction of particular reservoirs is direct improvement of flood protection for areas downstream of each of the reservoirs, whereas the aim for development of the entire cascade of five reservoirs is improvement of flood protection in the Serafa Valley, including areas of the Złocień Estate and of the Stary Bieżanów Estate in Cracow.

Together with other elements of Subcomponent 3A of the OVFM Project (implemented or planned to be implemented under Contracts 3A.1[9], 3A.3[10], 3A.4[11], 3A.5[12] and 3A.6[13]), the planned projects shall contribute to significant improvement of flood protection of the areas located on the right and left bank of the Vistula in Cracow.

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[9] Works Contract 3A.1 *Modernization of Vistula embankments in Cracow*, concerning the extension of three sections of flood embankments of the Vistula River in Cracow, i.e.:
Section 1 – the left-bank flood embankment of the Vistula River from the Wandy bridge to the Przewóz barrage, together with the backwater embankments of the Dłubnia River;
Section 2 – the left-bank flood embankment of the Vistula River from the Przewóz barrage to Suchy Jar;
Section 3 – the right-bank flood embankment of the Vistula River from the Dąbie barrage to the Przewóz barrage.

[10] Works Contract 3A.3 *Section 4 - Right embankment of the Vistula from the Skawinka estuary to the Kościuszko barrage*, concerning the extension of the right-bank flood embankment of the Vistula River upstream of the Kościuszko barrage.

[11] Works Contract 3A.4 *Extension of a section of the right embankment downstream of the Dąbie Barrage, including development of a flood gate in the area of a repair yard*, concerning the extension of the flood embankment on the right bank of the Vistula from the Dąbie barrage to the Płaszów port and construction of a flood gate in the Płaszów port.

[12] Works Contract 3A.5 *Development of a flood gate at the left flood embankment in the area of water intakes for the Sendzimira Steel Mill in Cracow*, concerning the construction of a flood gate on the inlet channel to the Kujawy port on the left bank of the Vistula.

[13] Contract 3A.6 *Construction of a pumping station for mobile pumps to drain the Lesisko complex*, concerning the extension of the mobile pumps station on the left bank of the Vistula.

The Project Implementation Unit (PIU) for the Contract is the State Water Holding Polish Waters, represented by the Director of Regional Water Management Authority in Cracow, with its office at 22. Marszałka J. Piłsudskiego Street, 31-109 Cracow.

According to the valid bidding documents, the planned Contract's implementation time is at least 14 months.

2.1 Location of the Works Contract

The planned Works Contract 3A.2/4 is located in Poland, Małopolskie Province, in the area of the City of Wieliczka (District of Wieliczka, Municipality of Wieliczka).

The area of planned development for the Serafa 2 Reservoir is located within the limits of the Town of Wieliczka, in the register area Wieliczka 2. The reservoir's bowl has been designed in a natural valley of the Serafa River, about 150 m upstream of the boundaries of the Town of Wieliczka and the City of Cracow, and about 1 km upstream of the mouth of Malinówka Stream, in the area limited in the south with Krakowska Street, and in the north with Cracow – Wieliczka railway line.

Location of the Works Contract 3A.2/4 has been presented on the drawing presented below (Fig. 1) and in Appendix 5 to this EMP – Map with location of the Contract.

Fig. 1. Location of the Works Contract 3A.2/4 together with the location of other Works Contracts of Subcomponent 3A of the OVFMP (source: own materials)

2.2 Justification of the Contract

Intensive development within the catchment of Serafa River in the area of the City of Cracow and the Town of Wieliczka resulted in raised discharge of surface rainfall water to river-beds and streams (due to transformation of the existing green areas to sealed surfaces – roofs of houses, roads, yards, etc.). Furthermore, location of new development within flood plains provided new areas under flood risk.

Flood hazard occurs especially in the area of the City of Cracow at chainage km 3+469 – 8+100 of the River Serafa, i.e. it covers areas of the Złocień Estate and of the Stary Bieżanów Estate. Due to development of Wielicka Strefa Ekonomiczna [Business Zone of Wieliczka], e.g. an industrial area with 2.5 K employees is located within a zone under flood risk. The following sections of the river-bed are under particular risk: area of Rakuś Street, Zamłynie Street, Świeża Street, Korepty Street, and Półłanki Street at Stary Bieżanów; and area of Złocieniowa Street, Agatowa Street, Braci Czeczów Street, and Jasieńskiego Street on the northern side of the Cracow-Tarnów railway line. During the flood of 2010 those areas were flooded twice and inundated.

Areas of Stary Bieżanów comprise detached houses, whereas in the area of Złocieniowa Street and Jasieńskiego Street there are blocks of flats at the Złocień Estate and industrial sites. Such an engineering and technical infrastructure provides high economic losses in case of flood damage caused by inundation of those areas by flood water of the River Serafa.

Immediate works protecting the areas adjacent to the river-bed against the results of floods (e.g. sectional desilting of the river-bed, development of a dike raising the banks, protection of the river-bed) were undertaken after the flood of 2010.

All those works improved flood protection in case of flood water with occurrence probability of over 10%. However, safe accommodation of 10% water requires additional protection works in some sections of the river-bed – flood embankments and channel regulation. Very dense development in the center of Bieżanów unfortunately disables development of flood embankments. Numerous studies – developed after the flood of 2010 – proved that at the current high progress of development only dry flood-storage reservoirs may provide an expected result, i.e. improvement of flood safety. An analysis of site conditions at the Malinówka Stream and at the River Serafa allowed for indicating feasible locations of reservoirs, optimal in reference to land availability and achievement of beneficial capacity of the reservoirs, at simultaneous minimization of the impact on the environment and reduction of development costs. It was indicated that five reservoirs may be developed – three at the Malinówka Stream (Malinówka 1, 2, and 3 reservoirs) and two at the River Serafa (Serafa 2 and Bieżanów reservoirs). Until now the biggest of the reservoirs, i.e. the Bieżanów Reservoir at the Serafa River just downstream of the estuary of Malinówka, has been developed.

2.3 Specificity of the Works Contract

The scope of Works Contract 3A.2/4 comprises the following elements[14]:

- Construction of the dry flood storage reservoir Serafa 2
  at chainage km 9+223 of the Serafa River (with an earth-fill front dam and side dam [with shutter in the body and in the subbase], spillway and discharge facilities, pedestrian and vehicle footbridge and a stilling basin), having the following parameters:
  - hydraulic class of the structure – III
  - damming height – 3.9 m
  - maximum damming elevation (MaxSL) – 220.0 m a.s.l.
  - capacity of the reservoir at MaxSL – 43 000 m^3
  - flood area at MaxSL – about 2.4 ha
  - flow $Q_{0.2\%}$ at the inlet to the reservoir – 57.5 m^3/s
  - flow $Q_{0.5\%}$ at the inlet to the reservoir – 35.2 m^3/s
  - flow $Q_{1\%}$ at the inlet to the reservoir – 22.8 m^3/s
  - reduced flow $Q(reduced)_{0.2\%}$ – 56.5 m^3/s
  - reduced flow $Q(reduced)_{0.5\%}$ – 30.3 m^3/s
  - reduced flow $Q(reduced)_{1\%}$ – 20.9 m^3/s
  - front dam's crest elevation – 220.7 m a.s.l.
  - length of the front dam – 40 m
  - front dam's crest width – 4 m
  - riverside slope inclination – 1:3
  - landside slope inclination – 1:2.5
  - length of the side dam – 97 m
  - side dam's crest width – 3 m
  - riverside slope inclination – 1:3
  - landside slope inclination – 1:2
  - shutter in the body and in the subbase
  - slopes protected with anti-erosive mat and sown with a mix of grass
  - time of retention – about 4 hours

[14] The characteristics of the Works Contract provided in this EMP are for reference only and do not replace the design documentation. The Contractor is obliged to perform the works in accordance with the design documentation and with Technical Specifications corresponding with particular branches.

- Construction of ditches, including:
  - Development of a band ditch on the right bank of the Serafa River, over a length of about 77 m (along the side dam's body, on the landside), with an outlet to the existing railway ditch R1;
  - Development of an untight ditch R4 on the left bank of the Serafa River, over a length of about 39 m (along the service road no. 2), with an outlet to the existing ditch R2;
  - Development of an untight ditch R5 on the right bank of the Serafa River, over a length of about 6.5 m (underneath the service road no. 1), with an outlet at km 9+152 of the Serafa River.
- Development of a culvert P1 ∅1000 mm with non-return valve at the railway ditch R1 underneath the reservoir's side dam;
- Development of a retaining sheet-piling (with a drainage) on the right bank of the reservoir, over a length of about 97.5 m (at km 9+486 – 9+580 of the Serafa River);
- Development of measuring points for the flow of water with a local slope protection (revetments) at the river-bed, at km 9+171, 9+235 and 10+168 of the Serafa River ;
- Redevelopment of water facilities, including:
  - redevelopment of an untight ditch R1 (railway ditch) over a length of about 40 m, with an outlet at chainage km 9+239 of the Serafa River;
  - redevelopment of an untight ditch R2 over a length of about 16 m, with an outlet at chainage km 9+234 of the Serafa River;
  - redevelopment of a ditch R3 over a length of about 9.5 m, with an outlet at chainage km 9+191 of the Serafa River.
- Redevelopment of a medium voltage (MV) overhead line, including:
  - demolition of the existing medium voltage (MV) overhead line over a length of about 320 m in the bowl and on the right bank of the planned reservoir (the line crosses the Serafa river-bed at km 9+349);
  - development of a medium voltage (MV) cable line over a length of about 200 m on the right bank of the planned reservoir, within a route similar to the overhead line to be removed (along the railway embankment);
  - development of a medium voltage (MV) overhead line over a length of about 120 m in the bowl of the planned reservoir, within a route similar to the line to be removed (the new line shall cross the Serafa river-bed at km 9+350).
- Shaping of the Serafa river-bed in two sections, including:
  - shaping of the transfer channel (over a length of about 30 m) in section from km 9+233 to km 9+262 of the Serafa River;
  - shaping of the discharge channel (over a length of about 50 m) in section from km 9+162 to km 9+210 of the Serafa River.

- Development of a temporary by-pass channel of the Serafa River at km 9+183-9+252 along with development of a temporary culvert at km 9+196 of the temporary river-bed (for the time of developing the spillway-discharge facilities of the reservoir);
- Land shaping (grading) in the reservoir's bowl with a drop of min. 0.5% toward the channel of the Serafa River (about 0.5-1.0 ha on the right bank of the river);
- Development of service roads and of a descend road to the reservoir, including:
  - development of a service road no. 1 (over a length of about 65 m) with a U-turn yard, on the right bank of the reservoir;
  - development of a service road no. 2 (over a length of about 65 m with a U-turn yard, on the right bank of the reservoir;
  - development of a descend road from the side dam to the reservoir's bowl (on the right bank of the reservoir).
- Protection for sections of the existing water-piping, teletechnical (cable) network, and power (cable) line using protective tubes, on the right bank of the reservoir (in the course of the service road no. 2).

According to the current estimates[15], the volume of soil necessary for implementation of the Works Contract 3A.2/4 is about 2 K m^3. The aforementioned soil masses will be mostly obtained within the framework of the planned grading of land within the reservoir's bowl, and the remainder will be purchased and delivered from licensed external sources proposed by the Contractor and accepted by the Engineer (in compliance with the conditions for protection of environment, protection of material goods and protection of health and safety of people set out in Appendix 1 to the EMP).

[15] Based upon the valid Bill of Quantities.

3 Institutional, legal and administrative conditions

3.1 Institutions involved in implementation of the Contract

The investor for the Contract is the State Water Holding Polish Waters in Warsaw, represented by the Director of the Regional Water Management Authority in Cracow (PGW WP RZGW in Cracow).

Additionally, on the stage of performance and of operation, implementation of the Contract may require involvement of public administration units on central, regional, and local levels. An ongoing coordination of the OVFM Project implementation by particular PIUs is the task of the OVFM Project Coordination Unit (see Chapter 9.1).

3.2 Binding Polish law acts with regard to the environment

In accordance with the Polish Law the investment process related to the environmental protection remains a subject of several acts and regulations. A summary of selected, basic legal acts in that scope, which are binding for works on the EMP, has been presented in Appendix 3 to this EMP – List of national legal acts related to environmental protection. The number and contents of legal acts given there may be modified along with adjustments to environmental protection provisions valid in the territory of Poland. The Contractor is obliged – except for application of rules determined under this EMP – to apply valid provisions of the state law in the scope of environmental protection.

3.3 EIA procedure in Poland

The description of the environmental impact assessment procedure in Polish legislation is included in the *Environmental and Social Management Framework* (ESMF) published on the i.a. web pages of the World Bank (WB)[16] and the Odra-Vistula Flood Management Project Coordination Unit[17]. Furthermore, in case of the EIA procedure legal regulations listed in Appendix 3 to this EMP – List of national legal acts related to environmental protection – are in force.

3.4 Guidelines of the World Bank

The Contract in question shall be co-funded by e.g. the International Bank for Reconstruction and Development (World Bank). As a consequence, the conditions for its implementation in the scope of environmental protection shall correspond with Operational Policies and Bank Procedures in the range of environmental protection, including the following policies and procedures, e.g.: *OP/BP 4.01* (on environmental impact assessment), *OP/BP 4.04* (on environmental habitats), and *OP/BP 4.11* (on cultural resources). A description of the aforementioned World Bank Policies is given in the *Environmental and Social Management Framework (ESMF)*, as published e.g. at websites of the World Bank[16] and of the Odra-Vistula

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

[17] At: http://odrapcu2019.odrapcu.pl/en/popdow_documents/

Flood Management Project Coordination Unit[17]. Original contents of the aforementioned policies and procedures may be found at websites of the World Bank[18].

3.5 The current condition of EIA procedure for the Works Contract 3A.2/4

The following decisions on environmental protection were issued for this Contract:

- **Decision on environmental conditions**

  A decision on environmental conditions has been proceeded jointly for all five small dry flood storage reservoirs covered by Contract 3A.2 (as listed in Chapter 2), including Serafa 2 reservoir, planned for development under Works Contract 3A.2/4.

  In accordance with a classification given in the EIA Regulation, the assignment forming the subject of Contract 3A.2 is qualified to group I of assignments, which may always significantly affect the environment (due to technological association of all five dry reservoirs), for which it is required to perform an environmental impact assessment prior to the issuance of decision on environmental conditions.

  A proceeding on the issuance of decision on environmental conditions, during which an environmental impact assessment was done, has been completed with the issuance of a decision by the Regional Director for Environmental Protection in Cracow dated October 29, 2012 (ref. no.: OO.4233.13.2012.BM – Appendix 4a to this EMP) on environmental conditions for the assignment titled:

  1. "Construction of a flood storage reservoir "Bieżanów"
     on the River Serafa at chainage km 7+284 in the City of Cracow";
  2. "Construction of a flood storage reservoir "Serafa - 2"
     on the River Serafa at chainage km 9+223 in the City of Cracow";
  3. "Construction of a flood storage reservoir "Malinówka - 1"
     on the Malinówka Stream at chainage km 0+220 in the City of Cracow";
  4. "Construction of a flood storage reservoir "Malinówka - 2"
     on the Malinówka Stream at chainage km 2+320 in the City of Cracow";
  5. "Construction of a flood storage reservoir "Malinówka - 3"
     on the Malinówka Stream at chainage km 3+017
     in the City of Cracow and in the City of Wieliczka".

- **Resolution on staging of the proceeding**

  Resolution of the Regional Director for Environmental Protection in Cracow dated October 3, 2018 (ref. no.: OO.4220.5.10.2018.BM – Appendix 4b to this EMP) states that implementation of the planned contract (comprising development of five dry flood storage reservoirs, one of which – Bieżanów – has already been constructed and handed over for use) shall be done in stages and that the conditions determined in the decision of the Regional Director for Environmental Protection in Cracow dated October 29, 2012 (ref. no.: OO.4233.13.2012.BM) have not been changed.

[18] At: https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx#S3-2 (in the part titled *Investment Project Financing / Environmental and Social Safeguard Policies*)

- **Resolutions clarifying doubts to contents and correcting obvious editorial mistakes in the decision on environmental conditions:**
  - Resolution of the Regional Director for Environmental Protection in Cracow dated September 12, 2019 (ref. no.: OO.4220.5.28.2019.BM – Appendix 4c to this EMP);
  - Resolution of the Regional Director for Environmental Protection in Cracow dated September 16, 2019 (ref. no.: OO.4220.5.29.2019.BM – Appendix 4d to this EMP);
  - Resolution of the Regional Director for Environmental Protection in Cracow dated December 5, 2019 (ref. no.: OO.4220.44.2019.BM – Appendix 4e to this EMP);
  - Resolution of the Regional Director for Environmental Protection in Cracow dated August 17, 2020 (ref. no.: OO.4220.5.27.2020.BM – Appendix 4g to this EMP);
  - Resolution of the Regional Director for Environmental Protection in Cracow dated November 18, 2020 (ref. no.: OO.4220.5.39.2020.BM – Appendix 4i to this EMP).
- **Resolution imposing obligation for providing an environmental impact assessment for the Serafa 2 Reservoir and for the Malinówka 3 Reservoir**

  Resolution of the Regional Director for Environmental Protection in Cracow dated May 28, 2020 (ref. no.: OO.420.4.3.2019.BM – Appendix 4f to this EMP) imposing an obligation for providing an environmental impact assessment due to modification of design assumptions for the investment and necessary amendment to the decision on environmental conditions dated October 29, 2012 (in the range referring to the development of the Serafa 2 Reservoir and the Malinówka 3 Reservoir).
- **Decision amending the decision on environmental conditions**

  Decision of the Regional Director for Environmental Protection in Cracow dated September 18, 2020 (ref. no.: OO.420.4.3.2019.BM – Appendix 4h to this EMP) amending the decision on environmental conditions dated October 29, 2012 in the range referring to the development of the Serafa 2 Reservoir and the Malinówka 3 Reservoir.
- **Decision allowing for departure from bans binding in reference to protected species**

  Decision of the Regional Director for Environmental Protection in Cracow dated December 30, 2020 allowing for departure from bans binding in reference to animals under protection at the construction site of the Serafa 2 reservoir (ref. no.: OP-I.6401.403.2020.GZ – Appendix 4j to this EMP).

Copies of the documents listed above have been reproduced under Appendix 4 to this EMP – Decision, resolutions, permits, notices.

3.6 Grievance redress mechanisms

All project affected persons (PAPs) will have access to adequate and accessible grievance redress mechanisms. Everyone has the right to file a complaint or motion. Filing complaints or motions is not subject to fees. Furthermore, in accordance with the regulations, the person filing a complaint or request may not be exposed to any damage or allegation on account of such submission.

More information on Grievance redress mechanisms employed for projects co-financed from World Bank funds can be found in the Odra-Vistula Flood Management Project Operations Manual (POM) available on the website of the Project Coordination Unit[19].

[19] At: http://odrapcu2019.odrapcu.pl/doc/POM_ENG.pdf.

4 Description of environmental elements

4.1 Land surface and landscape

According to the physical-geographical regionalization by Kondracki (2001), including following modifications to the aforementioned regionalization, the implementation site for the Works Contract 3A.2/4 is entirely located within Krakowskie Foothills (Fig. 2):

- megaregion: Carpathian Region;
- province: Western Carpathian Mountains with Western and Northern Podkarpacie;
- subprovince: Northern Podkarpacie;
- macroregion: Sandomierska Valley;
- mezoregion: Krakowskie Foothills.

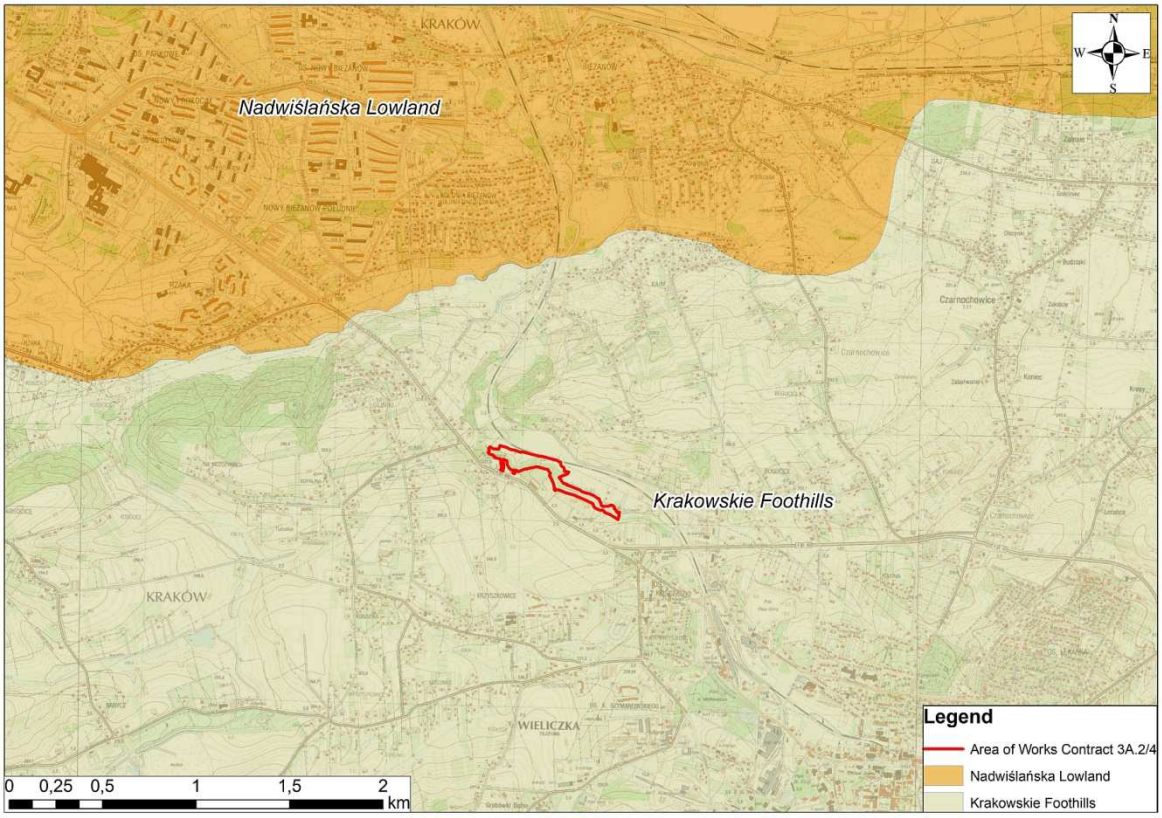

Fig. 2. Location of the Works Contract 3A.2/4 in reference to physical-geographical units (source: own materials)

4.2 Climate

The Town of Wieliczka, just as widely considered surroundings of the City of Cracow, is located at the bottom boundary of a moderately warm climatic level of the Carpathian Mountains, which is a variety of valley climate. It is specified by high diversity of weather conditions resulting mainly from the inflow of various air masses to that area – polar-maritime mainly, and – to a lesser extent – warm within the entire year: tropical-maritime or continental, as well as cold and dry artic air.

Meteorological conditions for the City of Cracow and its vicinity in 2018 (WIOŚ, Cracow 2018):

- Mean annual temperature: 10.6°C,
- Annual long-term precipitation rate in the area was from 500 mm at Małopolska Upland to 1200-1400 mm in the Carpathian Mountains.

4.3 Air quality

The quality of air within surroundings of the City of Cracow (including the Town of Wieliczka neighboring Cracow directly) may be considered as bad. Acceptable levels determined for suspended particulates PM10 and PM2.5 (daily concentration, as well as alarm levels and mean annual rates) and target levels for benzo(a)pyrene (mean annual concentration) are highly exceeded. Those exceedances also refer to the acceptable level for nitrogen dioxide (mean annual concentration).

The main reason for exceedance – in case of suspended particulates PM10 and PM2.5 and benzo(a)pyrene – is low emission, i.e. emission generated by consumption of cole and its derivatives in individual heating sources, and sometimes of waste by household. Transportation, which is the main source of emission in case of nitrogen oxides and has the biggest share in emission of that pollution, has a smaller contribution in exceedance of the aforementioned substances in the air. Spot sources generally have a smaller impact on the quality of air in Cracow and in its vicinity, but locally – in areas located in the industrial impact zone – their share may also raise.

4.4 Soils and grounds

The area of planned Serafa 2 reservoir placed within the valley of River Serafa is mainly located on alluvial-type soils. In the north-western part of the planned reservoir there is a strong grain-fodder complex on alluvial soil (8 F), whereas in the middle part of the reservoir – a good wheat complex on lixiviated brown soil and acid brown soil (2 Bd). In a minor part the reservoir's area is also located on railway grounds, in a strong grain-fodder complex on delluvial brown soil (8 Bd), within very good and good green use land on delluvial soil and alluvial soil, as well as within average green use land on delluvial brown soil.

Within the investment boundaries there are soils classified as follows (according to extracts from the land register): Ps – pastures, Ł – meadows, Lz – woodlots or shrubbed land on medium quality arable soil, PsV – pastures on weak arable soil, and W – grounds underneath water. To a minor extent the area within the investment site is located on good arable soil (RIIIa), averagely good arable soil (RIIIb), as well as on better medium quality arable soil (RIVa).

4.5 Surface water

The Works Contract 3A.2/4 is located in the Upper Vistula river basin, and is managed by PGWWP RZGW in Cracow. The River Serafa remains one of its main water-courses within the discussed reach. Main tributary rivers of Serafa are as follows: Krzyszkowicki Stream (left bank), Malinówka Stream (left bank), Drwina Długa Stream (left bank), Zabawka Stream (right bank). The River Serafa is about 12 km long, and the area of its catchment is about 75 km^2. Source of the river is placed within the boundaries of the Town of Wielieczka, whereas the mouth of Serafa to the Vistula River is placed in Brzegi (Commune of Wieliczka), about 400 m downstream of the weir at the Przewóz barrage on Vistula.

The condition of surface water within the boundaries of the body of surface water covering the area of the planned contract is monitored on an ongoing basis within the framework of state environmental monitoring, and its results are cyclically published on websites[20] of the Central Environmental Protection Inspectorate.

Hydrological specificity of the River Serafa and of the Malinówka Stream in the area of four reservoirs to be developed under Contract 3A.2 (reservoirs: *Malinówka 1*, *Malinówka 2*, *Malinówka 3,* and *Serafa 2* – see: description in Chapter 2) is given in the table below[21]:

Marking	Malinówka 1 Reservoir	Malinówka 2 Reservoir	Malinówka 3 Reservoir	Serafa 2 Reservoir
Stream/River	Malinówka	Malinówka	Malinówka	Serafa
Chainage of the reservoir's dam	0+222	2+279	2+990	9+223
Catchment area [km^2]	6.73	5.88	5.50	9.84
Characteristic flows[m^3/s]:				
• average low (SNQ)	0.007	0.006	0.005	0.010
• mean annual (SSQ)	0.055	0.048	0.046	0.081
Probable flows [m^3/s] for Class III hydraulic structures (at inlet to reservoirs):				
• $Q_{1\%}$	4.9	4.17	6.3	15.7
• $Q_{0.5\%}$ (design flow)	7.5	7.27	14.0	23.7
• $Q_{0.2\%}$ (control flow)	19.9	20.42	25.4	46.7

[20] http://www.gios.gov.pl/pl/stan-srodowiska/monitoring-wod and http://www.gios.gov.pl/pl/stan-srodowiska/monitoring-wod#mon_wod_pow

[21] Flow values given in the table have been calculated for the current conditions of development at the River Serafa and at the Malinówka Stream. Due to that reason values of flows $Q_{1\%}$, $Q_{0.5\%}$ and $Q_{0.2\%}$ given in the table differ from the values given in characteristics for the reservoir in Chapter 2.3 (those values have been calculated for forecasted conditions of development at the River Serafa and at the Malinówka Stream – flows raised due to sealing of the catchment).

Source: Own study based upon hydrological calculations and hydraulic modeling of flow in water-courses.

The planned dry Serafa 2 Reservoir is located within the Body of Surface Water BSW *Serafa* (PLRW2000262137749). In accordance with the currently binding Water Management Plan for the Vistula River Basin (WMP), approved with a Regulation of the Council of Ministers of October 18, 2016 (OJ of 2016, item no. 1911), specificity of the BSW in the area of the analyzed Works Contract is as follows.

BSW *Serafa* (PLRW2000262137749):

- BSW type: water-courses in valleys of great lowland rivers (26),
- Status: highly modified body of water,
- Is it monitored: yes,
- Assessment of the current condition (2016): bad,
- Assessment of risk of not achieving the environmental objectives: under risk,
- Derogations: yes,
- Deviation type: extension of the time to reach the objective – no technical possibilities,
- Deadline for achieving the good status: 2027,
- Justification for derogation: no technical possibilities. There is a communal pressure within the BSW. The action program planned a measure comprising review of water-law permits for the transfer of wastewater to the water or to the ground by users of the BSW, due to a risk of not achieving the environmental objectives, in accordance with Article 136 (3) of the Water Law Act, which is to provide a detailed recognition and – as a result – to limit that pressure, so it would be possible to achieve parameters corresponding with good status rates. However, due to the time necessary for implementation of that measure and subsequent particular recovery measures, as well as the time necessary for obtaining results of the implemented measures, good status may be achieved until 2027.
- Environmental objective: good ecological potential; good chemical status.

Implementation of the Works Contract 3A.2/4 shall not affect the river's morphological continuity, and it also shall not affect its hydromorphological, biological, and physical-chemical elements. The planned works shall not modify the volume and dynamics of flows in the river.

The Works Contract in question shall not form a risk of not achieving the environmental objectives established for the BSW. It shall neither refer to the intake of water nor to the discharge of wastewater to the ground; thus, it shall not affect the quantitative and qualitative status of surface water and groundwater.

Location of the Works Contract in reference to the BSW is given on a figure below (Fig. 3).

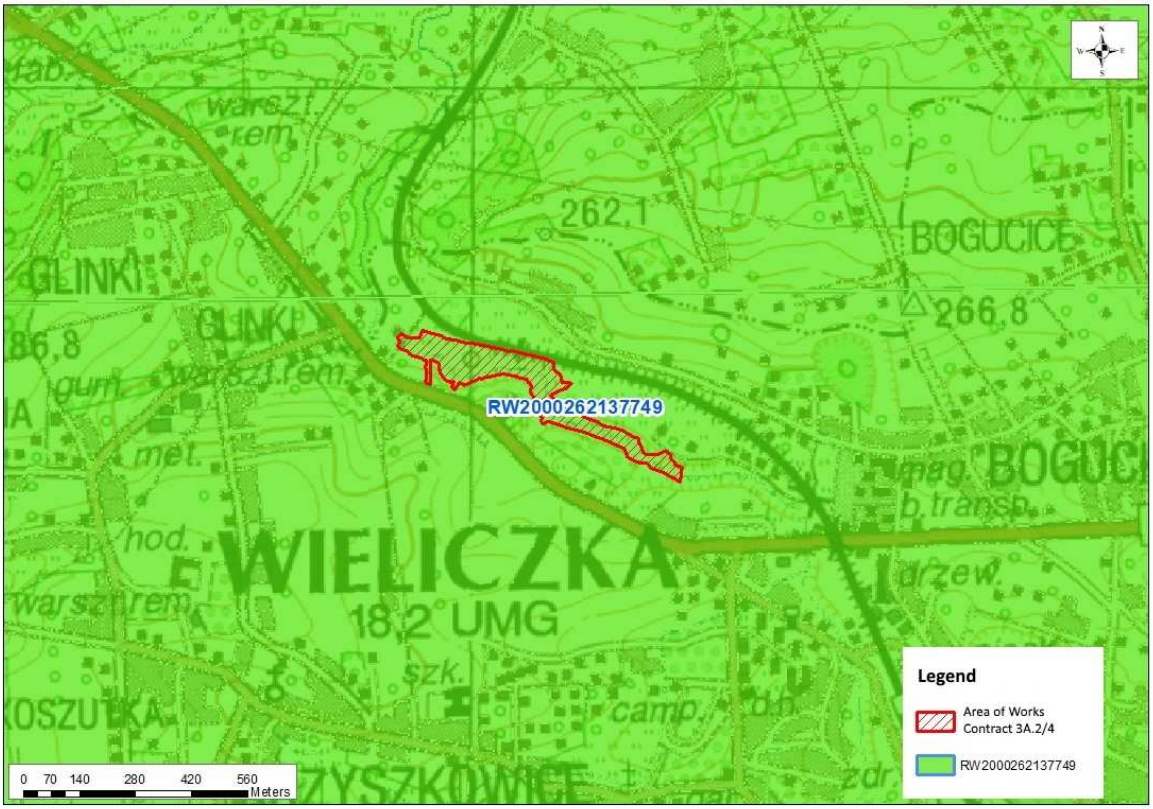

Fig. 3. Location of the Works Contract 3A.2/4 in reference to the BSW (source: own materials)

4.6 Groundwater

Geological formation and hydrogeological conditions

In geological terms the implementation area for the Works Contract 3A.2/4 is located within Przedkarpackie Depression – in its western part. The depression is filled with Miocene molassic sediments. Neogene sediments are located in rocks of various age – from Precambrian period to Cretaceous period, and in tectonic units of various age. Tertiary sediments (Neogene) are represented by maritime baden sediments formed by grabowickie layers (grey loam, sandy loam, slate-loam with interlays of loam, etc.) and bogucickie sands (fine sand, sandstone, conglomerates, with dusty spots and interlays of lignite) occurring within the aforementioned loamy sediments. Density of Tertiary sediments is from few dozens to over 200 m. Geological tests done for the investment in question at some places reached the top of Miocene sediments in the form of loam, dusty loam, compacted clay and dusty clay. Miocene sediments are covered with a layer of Quaternary sediments in a form of loess clay and alluvial sediments in valleys and on the lowest terraces (river sands, silt, peat, dust).

Ground and water conditions were recognized in the area of the planned reservoir up to a depth of ~23 m b.g.l. The top layer with a thickness of ~0.0 to ~0.8 m is formed by soil and uncontrolled made ground locally reaching the thickness of 4.5-5 m. Below, up to a depth of ~23 m there are dusty clays, sandy dusts, loamy sands, loam, dusty loam, with interlays/layers of clay sediments, all-in aggregate, fine sands, with density of from 1 to 5 m. Locally (depending on land morphology), Miocene loam was reached on a depth of 5 m.

The boundary between Quaternary sediments and Miocene sediments is generally on a depth of ~10 m b.g.l.

The first water-bearing level occurs at Quaternary formations. The water-bearing layer is formed by sands and silts. In a direct neighborhood of the river, within dusty soils and silts, the surface water is present on a depth of 0.5-1.5 m b.g.l. Furthermore, in sandy interlays occurring at cohesive sediments pressure-type water-table was identified (after drilling the water-table gets stabilized on the first surface level counting from the surface or is close to the water level in the river). Numerous leaks were identified on different depths (most often on a depth close to the water level in the River Serafa) within dusty-clay sediments. The level of Quaternary water in the surface is non-continuous, and presence of a typical water-bearing level was not identified in the area of planned dam. Only in the eastern part (top part of the planned reservoir's bowl) presence of waterlogged layer of all-in aggregate and fine sands with thickness of 1.1-2.8 m was identified. Temporarily (at droughts, intensive rainfall, spring thaw, bankful discharge at the River Serafa, etc.) the occurrence depth of surface water may be changed. The tests done prove that the water-table's level may vary within 0.4-0.6 m. The River Serafa has a draining character at low and average levels, whereas in case of freshets and floods it may cause short-term damming of surface water; thus, providing local submerged areas and marshes.

The essential utilitarian level of surface water is associated with Tertiary formations represented by Bogucice sands. Its water-table is tense. In several wells drilled its level is in the range of 60.0 – 200.0 m b.g.l. and its hydrostatic pressure is from ~5.0 to ~40.0 m, and it locally occurs as Artesian aquifer.

The planned dry Serafa 2 Reservoir is located in the area of Tertiary groundwater reservoir MGR 451. However, due to high depths of Tertiary water occurrence - ~60 – 100m – and presence of non-permeable insulating layers in the subbase, the impact of collected water on the quality of MGR 451 water is not anticipated. The water collected in the dry flood storage reservoir shall be there for too short time to infiltrate into the orogen.

The quantitative status and the qualitative status of ground water within the body of ground water covering the area of the planned contract is monitored on an ongoing basis within the framework of state environmental monitoring, and its results are cyclically published on websites[22] of the State Institute of Geology and of the State Research Institute.

Bodies of groundwater (BGW)

Division of the area of Poland into bodies of groundwater in the process of implementation for the Water Framework Directive is subject to modifications. The current version of the division contains 172 bodies and 3 sub-bodies, and is valid from the end of 2016. The analyzed Contract is located within the Body of Ground Water BGW 148 (European code: PLGW2000148).

The Water Management Plan for waters within the Vistula River Basin (Water MP), as approved by the Council of Ministers on October 18, 2016 (OJ 2016, item 1911), evaluates the quantitative status and the chemical status for BGW 148 as good. In terms of risk of not

[22] https://www.pgi.gov.pl/psh/psh-2/monitoring-wod-podziemnych.html and http://mjwp.gios.gov.pl/raporty-art/2017.html

achieving environmental objectives under the Plan, the unit no. 148 was defined as not being at risk.

Environmental objective: good chemical status, and good quantitative status.

In compliance with provisions under the Water Management Plan for the Vistula River Basin the main environmental objectives for BGW are as follows:

- Preventing the inflow or limitation of the inflow of pollutions to groundwater;
- Preventing the deterioration of status for all bodies of groundwater (including reservations listed under the Water Framework Directive);
- Assurance of balance between the intake and the supply for groundwater;
- Implementation of measures necessary for reversing significant and constantly increasing concentration trend for any pollution generated due to human actions.

In order to meet the requirements for the lack of deterioration for status of waterbodies having at least good chemical and quantitative status, the environmental objective for those would be maintenance of that status.

The designed dry reservoir shall not result in deterioration of the groundwater status, and infiltration of pollutions to the groundwater is not anticipated.

It has been stated that the development of planned water facilities and the intended use of water services shall not violate provisions of the binding Water Management Plan for the river-basin.

Location of the Contract in reference to the BGW was presented on the drawing given below (Fig. 4).

Fig. 4. Location of the Works Contract 3A.2/4 in reference to the BGW (source: own materials)

4.7 Acoustic climate

The Works Contract 3A.2/4 will be executed within the administrative borders of the Town of Wieliczka. Traffic noise has a significant impact on acoustic climate in that area. The acoustic climate at the reservoir in question is mainly affected by the traffic of vehicles at state road no. 94 and by the railway line no. 109 Cracow Bieżanów – Wieliczka Rynek [Market Square] running in vicinity.

In accordance with provisions of the valid Local Spatial Development Plan (LSDP), the areas located in the direct neighbourhood of the Serafa 2 Reservoir are marked as: MN – areas with detached houses, Z – areas of unordered greenery, MU – areas with residential and service development, U – areas of service development, MW – areas with multi-family residential buildings, and PU – areas of production and service development, storage sites and warehouses.

4.8 Nature

4.8.1 Protected natural habitats and protected species

Natural habitats from Appendix I of the Habitat Directive

The phytosociological inventory and the review of available literature data carried out at the stage of obtaining decisions on environmental conditions have revealed that:

- 1 type of natural habitats listed in Appendix 1 of the Habitat Directive have been found in the Works Contract 3A.2/4 implementation area and its close neighbourhood, i.e.:
  - 91E0 Riparian mixed forests of willow, poplar, alder and ash tree (*Salicetum albo-fragilis, Populetum albae, Alnenion glutinoso-incanae*) (in the area of the Contract implementation there is a fragment of a poplar riparian forest patch with an area of 3.77 ha, which is the western part of the larger patch of the above-mentioned habitat, with an area of 4.74 ha, growing along the River Serafa, east from the area of planned Serafa 2 reservoir).

Protected species of fungi and plants[23]

The botanical inventory and the review of available literature data carried out at the stage of obtaining decisions on environmental conditions have revealed that:

- no protected species of fungi were confirmed in the Works Contract 3A.2/4 implementation area and its close neighbourhood.
- the presence of two species of protected plants was confirmed in the Works Contract 3A.2/4 implementation area and in its close neighbourhood (Ostrich fern *Matteuccia struthiopteris*$^{(PP)}$ and Ramson *Allium ursinum*$^{(PP),LC}$). All stands of the aforementioned protected plants are located in the forest, in a small distance from allotment gardens.

Protected species of animals[24]

The zoological inventory and the review of available literature data carried out at the stage of obtaining decisions on environmental conditions have revealed that:

- the presence of two species of protected invertebrate was confirmed in the Works Contract 3A.2/4 implementation area and in its close neighbourhood. A common species of invertebrate under protection is present within the Contract implementation site – Roman snail *Helix pomatia*$^{(PP),LC}$. In the vicinity of the aforementioned site presence of another common species of invertebrate under protection was identified – Buff-tailed bumblebee *Bombus terrestris*$^{(PP),LC}$.

[23] The species protection status is given in the superscripts after the name of each species, according to the scheme:
(PP) – a partially protected species in Poland;
LC – a species included on the IUCN Red List, in the category: LC – a least-concern species.

[24] The species protection status is given in the superscripts after the name of each species, according to the scheme:
SP – a strictly protected species in Poland; **(PP)** – a partially protected species in Poland;
HDII,IV,V – species from Annex II, IV and/or V of the Habitat Directive;
LC – a species included on the IUCN Red List, in the category: LC – a least-concern species.

- It was identified that within the implementation site for the Works Contract the following protected species of amphibians are present: adult and juvenile specimens of green frogs (the type of Water frog *Pelophylax esculentus*$^{(PP),HDV,LC}$ and Pool frog *Pelophylax lessonae*$^{(PP),HDIV,LC}$) and brown frogs (the type of Common frog *Rana temporaria*$^{(PP),HDV,LC}$). In the implementation area for the Works Contract 3A.2/4 and in its close vicinity also the presence of adult and juvenile specimens of Common toad *Bufo bufo*$^{(PP),LC}$ was identified: Among reptiles, the following were identified within the implementation site for the Works Contract 3A.2/4: Sand lizard *Lacerta agilis*$^{(PP),HDIV,LC}$.
- within the implementation site for the Works Contract 3A.2/4 and in its close vicinity occurrence of at least twenty species of protected birds was identified (only species which are common and numerous in Poland).
- the presence of flying and/or feeding bats, including Common noctule *Nyctalus noctula*^{SP,HDIV,LC} and Common pipistrelle *Pipistrellus pipistrellus*^{SP,HDIV,LC} was confirmed in the Works Contract 3A.2/4 implementation area and its close surrounding. In addition, there is a potential possibility of using that area as a feeding ground by another five species of bats, i.e.: Daubenton's bat *Myotis daubentonii* ^{SP,HDIV,LC}, Natterer's bat *Myotis nattereri*^{SP,HDIV,LC}, Brown long-eared bat *Plecotus auritus*^{SP,HDIV,LC} and undetermined species of bats of genus Noctule *Nyctalus*, Pipistrelle *Pipistrellus*. Presence of hibernation sites and breeding sites of bats was not identified.
- Activity of European beaver *Castor fiber*$^{(PP),HDII,IV,LC}$ was identified in the implementation area of the Works Contract 3A.2/4 (one family group).

Location of the Contract in reference to the protected resources of the natural environment was presented on a map reproduced under Appendix 7 to the EMP – Map with location of the Contract in reference to natural habitats and protected species occurrence sites.

4.8.2 Protected areas

There are no areas and objects protected under the Act of April 16, 2004 on nature protection in the implementation area of the Works Contract 3A.2/4 and in its immediate surrounding (up to 100 m from the borders.

In the zone from 100 m to 1.0 km from the boundaries of the implementation site for the Works Contract 3A.2/4 there are the following areas and objects under protection:

- Krzyszkowicki Forest ecological use land
  (at a distance of about 850 m to the west of the boundaries of Works Contract implementation zone).
- 1 specimen of old tree under protection as natural monuments
  (at a distance of about 1000 m to the north of the boundaries of Works Contract implementation zone).

The closest nature reserve (Groty Kryształowe) is located in a distance of about 3 km southeast, and the closest Natura 2000 site (Łąki Nowohuckie [PLH120069]) – in a distance of about 7 km to the north of the boundaries of implementation zone for the Works Contract.

Location of the Contract in reference to the closest protected areas was presented on a map in Appendix 6 to the EMP – Map with location of the Contract in reference to protected areas and to NATURA 2000 sites.

4.9 Cultural landscape and monuments

The area of Works Contract 3A.2/4 implementation is located entirely within the area of conservatory protection – archaeological supervision zone (set out in the document titled *Amendment to the Study of Conditions and Directions of Spatial Development for the City of Cracow*).

There are no historic objects included in a heritage register or on a heritage list, including heritage protected based upon the regulation on the protection of heritage and on the care for heritage, within the Works Contract 3A.2/4 implementation area and in its close surrounding (up to 100 m from the boundaries).

The closest – in reference to the investment site – fixed monument entered into the heritage register is Kaim Memorial on the Kaim Hill (register no.: A-1495/M dated 04/02/2019). The object is located in a distance of over 300 m from the Works Contract implementation site's boundaries, beyond the reach of its impact.

4.10 Population

The dry Serafa 2 reservoir has been designed within the Town of Wieliczka.

According to data valid for December 31, 2019[25] the City of Wieliczka is inhabited by 23849 people, and the population density is 1778 people/km^2.

After the construction of a cascade of dry reservoirs in the Serafa River basin, the estimated number of people covered by improvements to flood safety downstream of the Bieżanów reservoir, in an area directly at risk of flooding with a probability of occurring once every 100 years (Q1%), taking into account the perspective development of the area until 2022 – in accordance with current Spatial Development Plans – is 2400 people.

Issues associated with the social context of the planned Contract 3A.2 is described in details in the *Land Acquisition and Resettlement Action Plan* (LA&RAP) for the Contract in question.

4.11 Remaining ES issues

ES related issues (i.e. the ones related to environmental, social and health and safety aspects) are regulated in Poland by several provision given in binding legal acts, including e.g. the Act of April 27, 2001 Environmental Protection Law, the Act of October 3, 2008 on access to information on the environment and its protection, public participation in environment protection and environmental impact assessments, the Act of April 16, 2004 on the nature protection, the Act of April 13, 2007 on preventing of damages to the environment and on repairing them, the Act of December 14, 2012 on waste, the Act of July 20, 1991 on Environmental Protection Inspectorate, the Act of March 14, 1985 on the State Sanitary Inspectorate, the Act of December 5, 2008 on preventing and combating infections and infectious diseases in humans, the Act of July 7, 1994 Construction Law, the Act of July 20, 2017 Water Law, the Act of June 26, 1974 Labour Code, the Act of April 13, 2007 on the State

[25] CSO – Demography Base: Results of Current Studies: Status and Structure of Population: Population: 2019: Status on 12/31: Population according to sex and cities: the whole Poland (source: http://demografia.stat.gov.pl/bazademografia/Tables.aspx).

Labour Inspectorate, the Regulation of the Council of Ministers of August 24, 2004 on the list of prohibited work for juveniles and the conditions for their employment in some of these work, the Act of December 3, 2010 on implementation of some provisions of the European Union in reference to equal treatment, the Act of April 23, 1964 Civil Code, the Act of June 6, 1997 Penal Code, and others.

Legal regulations included in those acts are to e.g.:

- assure proper condition for abiotic environment and for biotic environment on site and in the areas surrounding the implemented construction investments;
- assure safety and health of people in reference to implementation of construction investments;
- prevent cases of sexual harassment and mobbing on work sites;
- assure proper social and labour conditions, and payment for the personnel.

Supervision over observing of provisions included in the aforementioned legal acts is performed by e.g. such numerous institutions and state authorities as the: General Directorate for Environmental Protection, Regional Directorates for Environmental Protection, Environmental Protection Inspectorate, State Sanitary Inspectorate, Construction Supervision Authorities (including Provincial Construction Inspectorates and District Construction Inspectorates), State Labour Inspectorate, Ombudsman, Governmental Proxy for Equal Treatment, Governmental Proxy for Rights of the Disabled, Police, and others.

Nonetheless, considering the importance of ES issues and the requirements of international institutions financing the OVFM Project (including the World Bank), this Environmental Management Plan and other documents of the Contract contain numerous detailed conditions to assure the proper implementation of any valid provisions and to keep high proceeding standards in the aforementioned scope.

5 Summary of the Environmental Impact Assessment

5.1 Land surface and landscape

Impact on the landscape and on the land surface at performance of particular work stages requiring application of construction equipment. Adverse impact on surface of land shall be associated with relocation of soil; thus, with transformation of land within the framework of the planned development of dry reservoir. Acquisition of land has been detailed in the *Land Acquisition and Resettlement Action Plan* (LA&RAP) for the Contract in question. The aforementioned impacts shall be temporary and reversable, and their scale depends on the good organization of the site facilities. Adverse impact on the performance stage shall not be significant, while assuming the absence of emergency situations – temporary and reversable.

In case of the Serafa 2 Reservoir an area of about 2.4 ha shall be transformed. Impact of the works on the landscape structure shall be local. After completing the construction works the area of earthworks and the adjacent transformed area – e.g. due to the traffic of machines and means of transportation, etc. – shall be ordered and restored to the condition prior to the commencement of works.

Changes resulting from the removal of selected trees and shrubs from the performance area shall be permanent (the scope of planned logging was presented in Chapter 5.8). Therefore in the decision of RDOŚ in Cracow dated September 18, 2020 amending the decision on environmental conditions dated October 29, 2012 an obligation was imposed to provide replacement planting of trees and shrubs, which is to compensate damages to tree stands resulting from the necessary development of dry reservoir.

On the use stage the planned small dry flood storage reservoir shall not generate new adverse impacts. Operations of the reservoirs shall improve flood protection for areas in the Serafa River Valley. Impact on the surface of land may however be associated with emergency situations (damages to the reservoir or to the dam) or with the occurrence of water levels causing catastrophic floods. While adopting “regular” operations of the reservoirs, in accordance with the assumed objectives, impact on the surface of land shall not occur.

Mitigation measures planned to limit the Works Contract implementation impact on the surface of land and on the landscape were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.1.

5.2 Climate

Modification of climatic conditions

The designed reservoir shall be a dry reservoir filled-in with water only for a short time at a flood risk. Due to the short time of filling the reservoir in with water, it shall not affect any climatic events on the operational stage, and microclimate in its area shall not be changed. Construction of the reservoir is not linked to the emergence of factors which could have a significant impact on the modification of climate conditions, either on a regional or local scale (project implementation does not cause significant changes in the terrain, water conditions, or the current manner of using the area in question).

Emission of greenhouse gases

Due to combustion of fuel by vehicles and construction machines on the performance stage combustion gases shall be emitted, including carbon dioxide accounted as a greenhouse gas. Furthermore, there shall be a need for electric power due to the use of site facilities, operations of machines and devices and provision of lighting for the construction site (the use of electric power is connected with the emission of greenhouse gases during its production in power plants). In view of the scale of construction works planned to be carried out under Contract 3A.2/4, as well as the periodic and transient nature of emissions during the construction phase, the above-mentioned impacts can be considered to be insignificant in terms of their impact on climate change.

On the operational stage the need for electric power shall be associated with provision of lighting for the dam.

Adaptation of the Contract to adverse phenomena associated with climate change

The planned dry reservoir has been designed in accordance with binding hydraulic regulations, which include extreme events occurring in the environment due to the changes of climate (it is regulated by relevant regulations on designing, construction, and use of flood storage reservoirs). On the other hand, construction of new dry flood storage reservoir shall improve flood protection for developed areas located in Cracow and in its vicinity; thus, it would contribute to the reduction of effects of adverse phenomena accompanying the changes of climate.

5.3 Air quality

The impact of the planned project on the sanitary condition of the atmospheric air will take place mainly at the construction stage, as a result of non-organized emission of gases (exhaust gases from engines of construction vehicles and machines) and dust (dustiness connected with carrying out earthworks and during transport of construction materials) accompanying the construction works. Due to the planned actions limiting the risk and effects of the above-mentioned emissions, the execution of construction works within the scope of the Contract will not cause a significant negative impact on the sanitary condition of air.

On the operational stage, due to an automatic operation system for the reservoir, the traffic and nuisance associated with the impact of truck deliveries (emission of pollutions to the air) shall be limited only to the time of drives of vehicles transporting technical supervision services to inspect the dam. One shall deem that the construction stage shall not provide permanent adverse changes to the air.

Mitigation measures planned to limit the Works Contract implementation impact on the quality of air were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.3.

5.4 Soil and grounds

Impact on soils on the construction stage shall mainly be associated with direct transformations of the land surface (excavations), modification of soil structure at temporarily acquired land (technological roads, construction sites), as well as with the potential possibility of polluting the soil due to a leakage of diesel derivatives. Those impacts may be local.

After completing the construction works and after the properly done ground reinstatement one shall expect significant changes to soil and water conditions and to soil productivity within temporary acquisition sites.

Except for the listed impact forms there shall be no interference in the soil layer.

At keeping the environmental protection and H&S standards there shall be no significant impact on and deterioration of the quality of soil in connection with the performance of construction works under the Contract.

Mitigation measures planned to limit the Works Contract implementation impact on the quality of soils and grounds were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.4. Information on the amount of ground masses necessary for the Contract implementation and on the planned sources of their origin is given in Chapter 2.3.

5.5 Surface water

Construction of the planned dry flood storage reservoir Serafa 2 shall not affect the morphological continuity of the flowing waters, and shall also not affect their hydromorphological, biological, and physical-chemical elements. Only the excess of water, which would not be accommodated in the Serafa channel, shall be stored within the reservoir, and that storage would be periodical and temporary. The planned reservoir shall not change the volume and dynamics of flows in the Serafa River. The Works Contract in question shall not pose hazard to the achievement of environmental objectives determined for the BSW within the catchment they would be implemented. Implementation of the Works Contract shall not be associated with the intake of water and with the discharge of waste to the ground; thus, it shall not affect the quantitative status and the qualitative status of surface water and shall not pose risk for achieving the BSW's environmental objectives.

Impact on the water environment during the performance may occur due to interfering in the ground subbase and to the earthworks done with heavy equipment, including diesel machines and vehicles. Works of that type may be related to a risk of disturbing the water relations at the surface water-bearing layers and to a risk of harmful substances' leakage to the environment, i.e. increase of suspension in outflows, spillage of wastewater, fuel or other substances applied during the construction works. The occurrence of a flood wave during the performance may also cause washing-out / destruction of the objects to be developed (dams of the reservoir) and deterioration of the surface water quality. For the purpose of limiting the risk of the aforementioned events and to reduce their potential effects, this EMP plans relevant mitigation measures – described in Chapters 6.11 and 6.12.

For the purpose of limiting a risk of events that may result in adverse impact on the environment on the operational stage it is planned to provide regular inspection and technical conditions assessments for the reservoir, and – if necessary – also maintenance actions (e.g. removal of sediments from the reservoir bottom after accommodation of a flood wave). The use of the reservoir shall not modify the quality of surface water.

Mitigation measures planned to limit the Works Contract implementation impact on the quality of surface water were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.6.

5.6 Groundwater

Implementation of the Works Contract 3A.2/4 shall not relate to the intake of water or to the discharge of wastewater to the soil; thus, it shall neither affect the quantitative and the qualitative status of groundwater nor form a hazard for achieving the BGW's environmental objectives.

It is expected that in case of a flood wave causing necessary water storage in dry reservoir, the storage time shall not exceed 24 hours. Such a short time excludes the possibility of infiltration by huge volume of flood water into the ground within the reservoir, and therefore the contract shall not affect the water relations and water quality of the aquifers.

The use of reservoir shall not result in modification of the groundwater's quality.

Mitigation measures planned to limit the Works Contract implementation impact on the quality of groundwater were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.6.

5.7 Acoustic climate

The execution of the Works Contract 3A.2/4 is connected with periodical noise emission during the performance of construction works. The sources of noise will be the work of individual construction machines and vehicle traffic (including, among others, trucks). The acoustic nuisance resulting from the operation of construction machines and vehicles will be limited, both in time (only the period of works) and space (the area of works with its surroundings and access roads to the area of works). The Contract implementation area is located in vicinity of areas under acoustic protection (developed areas located mostly along the eastern half of the reservoir's length, on both banks of the Serafa River). On the performance stage periodic nuisances connected with noise emission may occur within those areas. The reduction of such impacts will be facilitated by limiting the performance of works to the daytime hours and by the Contractor's care for the technical condition of machines and equipment working on the site.

After the completion of the construction stage, the operation of the constructed reservoir does not involve significant noise emissions.

Mitigation measures planned to limit the Works Contract implementation impact on the acoustic climate were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.7.

5.8 Nature

5.8.1 Impact on the protected environmental habitats and on the protected species of plants, fungi, and animals

Impact of the Works Contract 3A.2/4 on the natural environment shall be related to:

- The removal of about 570 trees and accompanying bushes (about 30 m^2) (only non-protected species and specimens) directly colliding with the planned works, which are the habitat for the occurrence of protected species of birds and a feeding ground for protected species of bats (as described in Chapter 4.8.1);
- Liquidation of a part (approx. 1.12 ha, i.e. approx. 22.5% of area) of the larger patch of the natural habitat 91E0 (riverine poplar forest), growing in the vicinity and partly within the Contract implementation area (see description in Chapter 4.8.1);
- Scaring of 2 protected species of invertebrates that occur in the Works Contract implementation area and in its close neighbourhood – Roman snail and Buff-tailed bumblebee (see description in Chapter 4.8.1);
- Scaring of 4 protected species of amphibians – green frogs (the type of Water frog and of Pool frog), brown frogs and Common toad, and also scaring of specimens of 1 protected species of reptiles – Sand lizard (see description in Chapter 4.8.1);
- Scaring of few dozens of protected species of birds inhabiting trees and bushes in the vicinity of the works site (see description in Chapter 4.8.1);
- Scaring of some protected species of bats feeding and flying along the river and near the edges of trees and bushes in the Works Contract area (see description in Chapter 4.8.1);
- Scaring of specimens of a protected species of mammals (European beaver) whose activity is concentrated in the vicinity of an existing watercourse (see description in Chapter 4.8.1).

The above mentioned impacts – resulting mainly from the necessary acquisition of land, traffic of vehicles and machines in the construction period, and logging of trees and shrubs – shall be partially reduced due to the planned mitigation measures (including e.g. replacement planting of trees and shrubs) and in total they shall not have a significant negative impact on the state of resources of protected habitats and species in a supra-local scale. At the operational stage, the planned project does not have any negative impact on the protected resources of the natural environment (among others, it does not affect the conditions of migration of aquatic organisms – the reservoir shall dam the water only during high flood flows, until the bankful discharge ends only).

In accordance with the binding provisions, removal of habitats and disturbance of protected species shall require a prior obtainment of relevant administrative decisions allowing for exceptions from bans related to the protected species (according to conditions described under item 38 of Appendix 1 to the EMP).

Mitigation measures planned to limit the Works Contract implementation impact on the protected elements of natural environment were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.8.

5.8.2 Impact on protected areas

Implementation of the planned Works Contract 3A.2/4 – both: on the performance stage, as well as on the use stage – shall not cause an adverse impact on protected areas and objects located in its wide neighborhood. According to the information presented in Chapter 4.8.2, the nearest protected objects (ecological site and natural monument) are located at a distance of approx. 0.85 km and of approx.1.0 km from the borders of Contract implementation area (in case of Natura 2000 sites – not less than approx. 7 km from the borders). The scope of works planned to be carried out under the Works Contract does not cause any significant environmental impact beyond the boundaries of the works area and its immediate surroundings.

5.9 Cultural landscape and monuments

The area of Works Contract 3A.2/4 implementation is located within the archaeological supervision zone (see description in Chapter 4.9). The expected earthworks may potentially result in discovering new archaeological heritage; however, for now no archaeological sites were identified within the area in question nor in its close surrounding. The closest historic object is located in a distance of over 300 m from the Contract implementation boundaries (see description in Chapter 4.9), and the range of planned works does not cause significant impact beyond the investment boundaries and in its direct surroundings. As a consequence, there is no basis at the moment to forecast adverse impact of the planned works on the cultural landscape and on monuments.

Mitigation measures planned to limit the potential impact of Works Contract implementation on the cultural environment were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.9.

5.10 Material goods

In terms of protecting the material goods the development of small dry flood storage reservoirs falling within the scope of Contract 3A.2 (including Serafa 2 Reservoir) shall improve flood safety for developed areas in vicinity of the River Serafa, including the areas of e.g. Złocień Estate and Stary Bieżanów Estate in Cracow. Occurrence of impact on structures located in vicinity is possible in the neighborhood of construction yards and delivery routes. The occurrence of adverse impact on the material goods has not been identified.

Issues associated with the social context of the Contract 3A.2, including expropriation of properties, restriction of the previous use method, or access to properties, are described in details in the *Land Acquisition and Resettlement Action Plan* (LA&RAP) for the Contract in question.

5.11 Health and safety of people

The designed construction works performed under Contract 3A.2 may temporarily deteriorate the inhabitants' quality and standard of life, but that impact shall be small, temporary and reversable. Due to the performance there will be increased emission of noise in vicinity of the works and dusting shall increase locally, and – due to the increased traffic of trucks – emission of combustion gases shall raise. However it shall be emphasized that those impacts would be temporary and limited, and they would cease at the completion.

The operational stage is associated with a positive impact on the people and their properties. The main objective of the Contract is to protect people and their material goods against flooding by the Serafa River during periods of high water, e.g. as a result of heavy rainfall. Operations of the developed small dry flood storage reservoir shall increase the feeling of safety among people living in the areas located in the River Serafa Valley.

Mitigation measures planned to limit the Works Contract implementation impact on the health and safety of people were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.11.

5.12 Exceptional hazards to the environment

Implementation of the planned Works Contract is associated with a possibility of occurrence of the following crisis or emergency situations, which may cause exceptional hazard to the environment:

- Uncontrolled emission (leakage) of diesel substances

  There may be an emergency situation on the performance stage, what would result in a leakage of diesel derivatives from vehicles, construction machines, tanks, etc., polluting surface water of land surface (including soil). Limitation of the risk and effects of such events takes place based upon proper organization of the site facilities and care for the proper technical conditions of vehicles, and machines and equipment applied on site, and – in case of their occurrence – based upon application of procedures referring to crisis and emergence situations described in the EMP.

- Fire or explosion of flammable substances

  There may be an emergency situation on the performance stage associated with fire (e.g. due to equipment failure, negligence by the personnel, explosion of flammable substances, lightning strike, etc.). Limitation of the risk and effects of such events takes place based upon strict observance of H&S rules, proper organization of the site facilities and care for the proper technical conditions of vehicles, and machines and equipment applied on site, and – in case of their occurrence – based upon application of procedures referring to crisis and emergence situations described in the EMP.

- Identification of unexploded shells or ordnance

  Dangerous military materials, e.g. unexploded shells and ordnance, may be found on the performance stage. Limitation of a potential hazard associated with such events takes place based upon provision of an ongoing sapper supervision over the works, and – in case of identifying such materials – upon strict observance of procedures referring to cases of identifying presence of unexploded shells and ordnance described in the EMP.

- Immediate water raise, flood

  Water level may raise immediately in water-courses within the construction site or a flood may occur on the performance stage, what would pose risk to health and life of the personnel and cause material damage on site. In order to minimize potential effects of such events the Contractor shall consider flood threat at organizing the site facilities and the remaining part of the construction site, and shall develop a *Flood Protection Plan for the Construction Site* and shall strictly apply conditions contained therein.

- Possible failure of the reservoir at the operational stage

  Use of the dry flood storage reservoir is associated with a potential risk of spilling water over the dam crest or with a dam failure, due to the occurrence of e.g.: long-term storm rainfall, failure of discharge facilities, and others. Limitation of risk in case of such events takes place based upon particular design and technical solutions applied for the planned reservoir, in accordance with the guidelines binding for designing of hydraulic objects (e.g. particular dimensions of discharge facilities and of reservoirs' embankments, proper selection of materials to construct embankments, application of required membranes, works technology including necessary sufficient compaction of embankments, provision of reservoir with control and measurement apparatus, etc.). Considering that protection and the fact that the reservoir has been designed including hydrological data defining the scale of flows in water-courses within the discussed area in computational periods, it may be stated that the discussed hazard is highly potential and the probability of its occurrence is minor. On the operational stage the subject reservoir shall be applied in accordance with the use manual, including any formal and legal requirements on both: environmental and technical aspects, as well as safety of the structure.

Mitigation measures planned to limit the effects of potential crisis situations, which may emerge due to or in the time of Works Contract implementation were tabulated in Appendix 1 to this EMP – Plan of mitigation measures – and described in Chapter 6.12.

5.13 Other hazards related to ES

Implementation of the Works Contract 3A.2/4 may relate to numerous impacts related to ES issues (i.e. environmental, social and health and safety aspects). Except for the issues discussed above in Chapters 5.1-5.12, the following additional issues or hazards related to that subject may occur during implementation of the Contract, e.g.:

- Accidents and near misses, including participation of people associated with implementation of the Contract and/or of third parties;
- Cases of such unacceptable behavior on work sites as sexual harassment or mobbing;
- Cases of intentional or unintentional violation of labour law's provisions, including the ones associated with social conditions and labour conditions, and with payment to the personnel;
- Cases of infections with sexually transmitted diseases (including HIV/AIDS) or other infectious diseases (including those caused by coronaviruses, e.g. COVID-19), resulting from the lack of knowledge or from non-compliance with applicable rules on preventing and controlling infections of that type.

Due to significant social effects of those hazards, this Environmental Management Plan and other documents of the Contract contain numerous detailed conditions to prevent and efficiently react in case such events occur, and to assure proper implementation of any provisions of national legislation in that scope (see e.g.: Chapter 6.13).

5.14 Cumulative impact

Development of a small dry flood storage reservoir Serafa 2, being subjects of this EMP, shall be done in a relatively small distance from the planned development sites for the other three dry reservoirs under Contract 3A.2 (i.e. Malinówka 1, Malinówka 2, and Malinówka 3 Reservoirs), and in vicinity of the recently constructed Bieżanów Reservoir (see e.g.: description in Chapter 2). As informed in e.g. Environmental Management Plans under development for Works Contracts 3A.2/1, 3A.2/2 and 3A.2/3, and in the environmental decision issued for the aforementioned assignment (see: description in Chapter 3.5), development of any of those reservoir is associated with the occurrence of significant emission or other significant impact on the environment, scale of which would cause the possibility of significant impact on the abiotic environment or on the biotic environment, even in case of simultaneous performance at four reservoirs under Contract 3A.2. Analysis of mitigation measures described in EMPs for the aforementioned Works Contracts concludes with a statement that in case of performing the construction works in conformity with the conditions contained therein there is no risk of significant adverse cumulative impact, even in case of developing four small dry flood storage reservoirs in the planned locations simultaneously. Similarly, in case of the operational stage for the developed cascade of small dry flood storage reservoirs in the Serafa River Basin it is not expected to face adverse impact on the environment due to potential accumulation of potential impact of each of the reservoirs.

6 Description of mitigation measures

In order to limit potential adverse impact of the planned Contract onto particular elements of the environment, Appendix 1 to this EMP provides a list of mitigation measures binding for the Contractor of Works Contract 3A.2/4. The measures have been developed based upon the conditions included in the binding decision on environmental conditions, including a supplementation with additional conditions determined at the development of the EMP. A summary of main mitigation measures' categories has been presented in the following parts of this chapter, with a breakdown into particular components of the environment discussed in Chapters 4 and 5 of the EMP.

Notwithstanding the above (in accordance with the condition in item no. 93 in Appendix 1 to the EMP), the Contractor shall be obliged to apply and observe all ES policies' requirements and conditions (i.e. the ones related to environmental, social and health and safety issues) as determined in the Contract documents, in the Operational Policies and Procedures of the World Bank[26] concerning protection of health and environment, as well as safeguard policies, in the WBG's Environmental, Health and Safety (EHS) Guidelines[27], in the ES Code of Conduct (developed on the stage of filing a bid[28]), in documents of the Contractor listed in Chapter 6.14 and in item no. 73 in Appendix 1 to the EMP, and as results from the legislation valid in Poland (including the Labour Code, the Construction Law, and others).

Temporary and permanent land acquisitions in connection with the implementation of the Contract will take place according to the rules specified in the Land Acquisition and Resettlement Action Plan (LA&RAP).

6.1 Land surface and landscape

Basic forms of the potential adverse impact of the planned implementation of Works Contract 3A.2/4 on the surface of land and on the landscape were provided in Chapter 5.1.

In order to limit those impacts Appendix 1 to the EMP implements mitigation measures to e.g.:

- Limit the impact on the condition of land surface and landscape associated with land acquisition (e.g. items no. 5, 6, 9, 13, 14, 15, 25, 26, 35, 40, 42, 44, 45, 48);
- Limit the damage to landscape values associated with the removal of or damages to trees and shrubs (e.g. items no. 16, 18, 19, 20, 21, 22, 23, 24, 42, 46).

[26] Available on e.g. a website:
https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx#S3-2
(in part titled *Investment Project Financing / Environmental and Social Safeguard Policies*).

[27] The guidelines are published on the World Bank's internet service at::
https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-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

[28] In accordance with conditions given in the bidding documents.

6.2 Climate

Due to the absence of adverse impact on the climate (see: description under Chapter 5.2), it was not stated necessary to implement mitigation measures for that environmental component. Some mitigation measures – listed in Chapter 6.3 – are indirectly connected to the protection of climate, and they refer to the protection of air against contamination with combustion gas.

6.3 Air quality

Basic forms of potential adverse impact of the planned Works Contract 3A.2/4 on the air were presented in Chapter 5.3.

For the purpose of limiting those impacts Appendix 1 to the EMP implements mitigation measures to e.g.:

- Limit the contamination of air with combustion gas (e.g. items no. 51, 61);
- Limit the contamination of air due to emission of dust (e.g. items no. 62, 63, 69).

6.4 Soils and grounds

Basic forms of potential adverse impact of the planned Works Contract 3A.2/4 on soils and grounds were presented in Chapter 5.4.

For the purpose of limiting those impacts Appendix 1 to the EMP implements mitigation measures to e.g.:

- Limit the damage to soil due to land acquisition
  (e.g. items no. 5, 6, 13, 14, 15, 25, 26, 35, 40);
- Limit the loss of top-soil layer (e.g. items no. 41, 42, 43, 44, 45);
- Limit the risk of polluting the ground on the performance stage (e.g. items no. 47, 48, 49, 50, 51, 54, 55, 56,57, 58, 59, 60, 68, 69, 70, 71, 72).

6.5 Surface water

Basic forms of potential adverse impact of the planned Works Contract 3A.2/4 on surface water were presented in Chapter 5.5.

For the purpose of limiting those impacts Appendix 1 to the EMP implements mitigation measures to e.g.:

- Limit the risk of polluting the water on the performance stage (e.g. items no. 5, 6, 13, 14, 15, 25, 26, 35, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 68, 69, 70, 71, 72, 87);
- Limit the risk of polluting the water on the operational stage (e.g. items no. 47, 48, 50);
- Limit the risk of adverse impact on biological elements of the water quality (e.g. items no. 35, 36, 37, 52, 53, 87).

6.6 Groundwater

Due to the fact that the potential implementation impact of Works Contract 3A.2/4 on groundwater (as described in Chapter 5.6) essentially overlaps impacts on the ground environment and on the surface water (described in Chapters 5.4 and 5.5), it was not stated necessary to implement additional mitigating measures in that scope, i.e. other than mitigation measures for the ground environment (see: description in Chapter 6.4) and mitigation measures for the surface water (see: description in Chapter 6.5).

6.7 Acoustic climate

Basic forms of potential adverse impact of the planned Works Contract 3A.2/4 on the acoustic climate were presented in Chapter 5.7.

For the purpose of limiting those impacts Appendix 1 to the EMP implements mitigation measures to e.g.:

- Limit noise generated on the performance stage and to limit the impact of that noise on acoustically protected sites (e.g. items no. 14, 15, 61, 64, 65, 66, 67).

6.8 Nature

Basic forms of potential adverse impact of the planned Works Contract 3A.2/4 on the biotic nature's resources were presented in Chapter 5.8.

For the purpose of limiting those impacts Appendix 1 to the EMP implements mitigation measures to e.g.:

- Limit losses in environmental resources associated with land acquisition, including acquisition of environmental habitats and habitats of plants and animals (e.g. items no. 5, 6, 13, 14, 15, 26, 27, 35, 37, 41, 42, 43, 44, 45, 87);
- Limit losses in environmental resources associated with logging of or damages to trees and shrubs (e.g. items no. 16, 17, 18, 19, 20, 21, 22, 23, 24, 34, 37, 38, 39, 42, 46, 87);
- Eliminate or limit losses in environmental resources associated with accidental mortality of specimens of protected species on site (e.g. items no. 17, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 37, 39, 41, 52, 87);
- Eliminate or limit the performance impact on the results of breading and migration of protected animal species (e.g. items no. 25, 26, 27, 30, 33, 35, 36, 37, 38, 39, 49, 50, 52, 53, 64, 87);
- Eliminate or limit the performance impact on the spread of invasive plant species of foreign origin (e.g. items no. 28, 37, 87);
- Limit a risk of adverse impact on biological elements of the water quality (e.g. items no. 35, 36, 37, 52, 53, 87).

6.9 Cultural landscape and monuments

In accordance with a description given in Chapter 5.9, the planned implementation of Works Contract 3A.2/4 does not provide adverse impact on known cultural assets. In order to eliminate the potential adverse impact on yet undiscovered cultural objects, Appendix 1 to the EMP implements mitigation measures to assure the performance of works under current archaeological supervision and the implementation of relevant procedures in case of discovering mobile heritage or archaeological sites on the performance stage (items no. 84, 85, 88).

6.10 Material goods

In accordance with a description given in Chapter 5.10, the planned implementation of Works Contract 3A.2/4 does not provide significant adverse impact on the condition of material goods. In order to eliminate the potential adverse impact of the works on material goods, Appendix 1 to the EMP implements mitigation measures to provide protection for buildings, roads, and other infrastructural elements against unfavorable impact of the works and / or transportation associated with implementation of the Contract (items no. 5, 6, 7, 8, 9, 11, 12, 75). Some mitigation measures listed under Chapter 6.1, as well as measures listed under items no. 3 and 4 in Appendix 1 to the EMP – in reference to the purchase and to the compensation due to implementation of the Contract, are indirectly associated with the protection of material goods, and those are to limit the impact of land acquisition during the works (according to the rules specified in the Land Acquisition and Resettlement Action Plan).

6.11 Health and safety of people

Basic forms of potential adverse impact of the planned Works Contract 3A.2/4 on the health and safety of people were presented in Chapter 5.11.

For the purpose of limiting those impacts Appendix 1 to the EMP implements mitigation measures to e.g.:

- Limit the impact of the planned works on the sanitary condition of air (listed under Chapter 6.3);
- Limit the impact of the planned works on the acoustic climate
  (listed under Chapter 6.7);
- Eliminate or limit the risk of chemical contamination of water and ground on the performance stage (listed under Chapters 6.4, 6.5, and 6.6);
- Secure safety on site and in its vicinity
  (items no. 7, 8, 10, 11, 12, 49, 50, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 89, 93, 101, 102, 103);
- Assure proper reaction in case of exceptional hazards
  (items no. 80, 82, 83, 101).

6.12 Extraordinary hazards to the environment

Basic types of exceptional hazards (crisis situations), which may potentially occur due to the implementation of Works Contract 3A.2/4 were presented in Chapter 5.12.

In order to limit potential effects of crisis situations Appendix 1 to the EMP implements mitigation measures to e.g.:

- Eliminate or limit the risk of chemical contamination of water and ground on the performance stage (listed under Chapters 6.4, 6.5, and 6.6);
- Secure safety in case of fire (e.g. item no. 73);
- Secure safety in case of identifying unexploded shells and ordnance (e.g. items no. 73, 74, 83, 89);
- Secure safety in case of flood (e.g. items no. 80, 81);
- Assure proper reaction in case of exceptional hazards (items no. 80, 82, 83, 101).

6.13 Other ES hazards

Exemplary forms of additional hazards associated with ES issues (other than the ones discussed previously in Chapters 5.1-5.12) were presented in Chapter 5.13.

In order to prevent hazards of that type, except for the measures listed in Chapters 6.1-6.13, Appendix 1 to this EMP implements additional mitigation measures to e.g.:

- prevent accidents and near misses on work site and in other places related to the implementation of the Contract (e.g. items no. 93, 94, 95, 96, 101 and others listed in Chapters 6.11 and 6.12);
- combat such unacceptable behavior on work site as cases of sexual harassment or mobbing (e.g. items no. 97, 98, 101);
- assure proper social conditions, and labour conditions and payment to the personnel engaged in implementation of the Contract, in compliance with the law (e.g. items no. 99, 100, 101);
- assure proper procedures for ongoing information provision on issues and hazards associated with the aforementioned subject (e.g. item no. 101);
- reduce the risk of spreading infectious diseases, especially sexually transmitted diseases (including HIV/AIDS) and diseases caused by coronaviruses (e.g. COVID-19) (e.g. items no. 102, 103).

6.14 Requirements for implementation of action plans in the construction phase

For the purpose of providing proper performance organization, as well as for the proper implementation of conditions determined under Appendices 1 and 2 to the Environmental Management Plan, the Contractor is obliged to develop and obtain the Engineer's acceptance for the following documents, which shall subsequently be implemented (see also item no. 73 in Appendix 1 to the EMP):

- Construction site organization plan, which should contain such elements as e.g.:
  - location of the site facilities,
  - development of the site facilities,
  - protection of the site facilities,
  - service roads,
  - environmental protection on the site facilities, technological roads, and yards.
- Waste management plan, which should contain such elements as e.g.:
  - encountered and predicted types and volumes of waste,
  - means of preventing adverse impact of waste on the environment,
  - means of waste management considering collection, transportation, recovery and treatment of waste,
  - type of generated waste and method for its storage.
- Quality assurance plans (general one and detailed ones), which should contain such elements as e.g.:
  - works performance organization,
  - organization of traffic at the construction site, including marking of the works,
  - H&S and environmental protection,
  - list of working teams,
  - scope of duties of the key personnel,
  - quality control,
  - methods for controlling the level of noise emissions as well as air, soil and water pollution (to the extent relevant to the type of works),
  - laboratory tests.
- Flood protection plan for the site for the performance time, which shall contain the following:
  - monitoring of hydrological and meteorological conditions,
  - conditions for accommodation of flood flows during the performance,
  - the rules of work for the Contractor's team in the period of flood risk,
  - basic duties of the managing staff during the flood risk,
  - list of managing staff in the period of flood risk,
  - list of equipment and transport means needed to conduct rescue actions.

- Health and safety plan (BIOZ Plan), which should contain such elements as e.g.:
  - indication of plot or land development elements, which may create a risk to safety and health of people,
  - information concerning expected hazards that could occur during the performance, defining the scale and types of hazards and the place and time of occurrence, including reference to the natural environment,
  - information on designation and marking for construction work sites, according to the type of hazard,
  - information on the method of training for the employees prior to the commencement of particularly hazardous works,
  - determining the method of storing and transport of hazardous materials, goods, substances and preparations at the construction site,
  - indication of technical and organizational means of safeguarding against hazards connected with the construction works in increased health risk zones, or in their immediate vicinity, including means of safe and efficient communication allowing for quick evacuation in the case of fire, failure, and other hazards,
  - indication of the storage location for construction site's documentation and documents necessary for proper operation of machines and other technical devices,
  - information related to the current rules of conduct in case of an epidemic state or an epidemic risk state being announced (including conditions given in item no. 103 in Appendix 1 to the EMP).

At developing the aforementioned documents the Contractor shall include e.g. provisions of the decision on environmental conditions (and of other administrative decisions related to the environmental protection, if applicable), conditions determined in the EMP, the appropriate Operational Policies and Procedures of the World Bank[29] concerning protection of health and environment, as well as safeguard policies, the WBG's Environmental, Health and Safety (EHS) Guidelines[30], the ES Code of Conduct (developed on the stage of filing a bid[31]) and binding provisions of the state law (including the Labour Code, the Construction Law, and others).

[29] Available on e.g. a website:
https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx#S3-2
(in part titled *Investment Project Financing / Environmental and Social Safeguard Policies*).

[30] The guidelines are published on the World Bank's internet service at::
https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-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

[31] In accordance with conditions given in the bidding documents.

7 Description of measures related to environmental monitoring

Appendix 2 to this EMP provides a summary of monitoring measures binding for the Contractor for the Works Contract 3A.2/4. Those measures have been developed based upon the conditions included in the valid decision on environmental conditions, along with additional conditions established on the stage of EMP development.

Monitoring measures listed in Appendix 2 to the EMP belong to one category:

- Monitoring for implementation of mitigation measures from Appendix 1 to the EMP (items no. 1-103 of Appendix 2 to the EMP).

8 Public consultations

8.1 Public consultations on Environmental and Social Management Framework (2015)

The draft ESMF was subject to public consultations conducted in accordance with the World Bank's operational policy OP 4.01. Their purpose was to allow the society to acknowledge contents of that document and to assure the possibility of filing potential remarks, enquiries, and applications to its contents.

Documentation on the public consultations process for the ESMF is available on a website of the Odra-Vistula Flood Management Project Coordination Unit[32,33].

8.2 Public consultations on the EIA stage (2012 and 2019-2020)

In accordance with the Polish EIA procedure, on the stage of issuing a decision on environmental decision the Works Contracts forming Contract 3A.2 (including planned development of small dry flood storage reservoir Serafa 2 on the Serafa River) shall be subject to obligatory public consultations. On the EIA procedure stage the consultations with the public were done by the unit issuing the ED, i.e. RDOŚ in Cracow.

The description of individual stages of the EIA proceedings conducted at the stage of issuing the decision dated October 29, 2012 on environmental conditions and at the stage of issuing the decision dated September 18, 2020 amending the aforementioned decision on environmental conditions, together with the description of public consultations conducted by RDOŚ in Cracow within the framework of the aforementioned proceedings, is presented in the text of the decision of the Regional Director for Environmental Protection in Cracow dated October 29, 2012 on environmental conditions (ref. no..: OO.4233.13.2012.BM – Appendix 4a to this EMP) and in the text of the decision of the Regional Director for Environmental Protection in Cracow dated September 18, 2020 amending the aforementioned decision on environmental conditions (ref. no..: OO.420.4.3.2019.BM – Appendix 4h to this EMP).

[32] http://www.odrapcu.pl/doc/OVFMP/RPZSiS_Zalacznik_08_Raporty_z_procedury_upublicznienia_projektu_EMAF.pdf

[33] http://www.odrapcu.pl/doc/OVFMP/RPZSiS_Zalacznik_09_Raporty_z_konsultacji_spolecznych_RAF.pdf

8.3 Public consultations on EMP (2020)

The draft of this EMP was subject to the procedure of public consultations conducted in accordance with the operational policies of the World Bank (OP 4.01). Due to the threats associated with coronavirus epidemic causing COVID-19 disease, the action plan related to publication of the EMP took into account guidelines under the Technical Note of the World Bank *"Public Consultation and Stakeholder Engagement in World Bank Supported Activities, in the event of restrictions on public meeting"*[34].

After preparing the draft EMP and obtaining – upon its basis – the OVFM Project Coordination Unit's acceptance (so-called "OK") for commencing the publication procedure, on October 26, 2020 a digital version of the draft EMP was published at the following publicly accessible websites: on the website of PGW WP RZGW in Cracow – *https://krakow.wody.gov.pl* (Fig. 5), OVFM Project Coordination Unit – *www.odrapcu2019.odrapcu.pl* (Fig. 6), City Office of Cracow – *www.bip.krakow.pl* (Fig. 7), and Town and Municipality Office of Wieliczka – *www.wieliczka.eu* (Fig. 8).

Detailed information on the access to that document and on the possibility of informing conclusions and comments (along with indication of detailed contact data: snail mail addresses, e-mail address, telephone number) were publicly informed in the Announcement (Fig. 9) available between 10/27/2020 and 11/17/2020 in the following locations:

- website of PGW WP RZGW in Cracow – *https://krakow.wody.gov.pl* (Fig. 5),
  website of OVFM Project Coordination Unit – *www.odrapcu2019.odrapcu.pl* (Fig. 6),
  website of the City Office of Cracow – *www.bip.krakow.pl* (Fig. 7),
  and website of the Town and Municipality Office of Wieliczka – *www.wieliczka.eu* (Fig. 8);
- notice boards in offices of the institutions mentioned above;
- websites of local press,
  at *https://dziennikpolski24.pl* and *https://gazetakrakowska.pl* (Fig. 10 and 11);
- printed local press – in *Dziennik Polski* (Fig. 12).

The aforementioned announcement also included information on the possibility of taking part in a publicly accessible teleconference (webinar), which was planned for November 17, 2020 (including information on date and time of the teleconference), and information on a link allowing for downloading "*Step by step manual*" and a link allowing for accessing the teleconference.

Information on the commenced publication procedure for the draft EMP and on the possibility of notifying motions and remarks has also been e-mailed to the following persons, institutions, and organizations:

- Mayor of Cracow;
- Mayor of Wieliczka;

[34] In case of procedures applied prior to the occurrence of coronavirus pandemic, one has resigned of providing a hard copy of the draft EMP for review in offices and in public offices, the publication period has been extended (up to 15 working days), and an open public debate in the end of the publication period for the draft EMP was cancelled. Instead of the aforementioned debate, a teleconference (webinar) was organized on the last day of consultations, and it consisted of a presentation of the draft EMP and a Q&A session.

- City Council of Cracow;
- Environmental Development Department in Cracow;
- Environmental Development Committee at the City Council of Cracow;
- Town Council of Wieliczka;
- Department of Communal Management and Environmental Protection in Wieliczka;
- Akcja Ratunkowa dla Krakowa [Emergency for Cracow];
- Fundacja Ekorozwoju [Eco-development Foundation];
- Koalicja Ratujmy Rzeki [Save the Rivers Coalition];
- Siostry Rzeki [Sisters of the River];
- Stowarzyszenie Kraków dla Mieszkańców [Cracow for Citizens Association];
- Strajk dla Ziemi Kraków [Strike for Earth Cracow];
- Towarzystwo na Rzecz Ochrony Przyrody [Society for Protection of Nature];
- Towarzystwo na rzecz Ziemi [Society for Earth].

The publication of the draft EMP, officially launched on October 27, 2020, was completed after 15 working days, i.e. on November 17, 2020.

On the last day of the publication period – November 17, 2020, from 5:00 pm to 7:00 pm – the publicly accessible teleconference (webinar) was organized for interested people, organizations, and institutions, and it consisted of a presentation on the draft EMP for the Works Contract 3A.2/4 and of a Q&A session (Fig. 13 and 14). At least 15 people attended the teleconference (according to anonymous data available from Microsoft Teams software).

Participants of the teleconference have been e.g. familiarized with three proposals, which have been notified – by e-mail – within the public consultation period for the draft EMP (until November 17, 2020). Particular proposals, along with answers provided, are given below[35]:

1) *Designing of a paved educational-natural path (park alley) with pedestrian-bicycle character on the right side of the reservoir, within the artery of Za Torem Street in Wieliczka (according to detailed data given in the inhabitant's e-mail)*

   As an answer it was informed that in case of the discussed proposal a binding reference to it shall be possible just after execution of relevant detailed analyses – due to necessary analysis of various formal-technical aspects associated with its eventual implementation – after completion of public consultations (the proposal in question has been informed one day prior to the teleconference; thus, neither the Consultant nor the Investor were able to provide a binding standpoint in such a short time). After completing the aforementioned analyses the proposal's author shall be provided with a relevant answer[36].

[35] Particular proposals notified during the public consultations (prior to commencing the teleconference), as well as e-mail answers referring to them, have been quoted by the speaker in the first part of Q&A session (in case of the first of the aforementioned items, e-mail answer comprised the results of analyses for that proposal done after completing the public consultations, according to the description given in the final part of the chapter).

[36] Results of the analyses in question have been presented in the final part of this chapter.

2) *Planting of trees and shrubs along the left bank and the right bank of the reservoir (including: "especially a wide zone on the left side of the developed reservoir, in order to mitigate noise generated at the close provincial road", in accordance with details given in the inhabitant's e-mail)*

   As an answer it was informed that supplementation of the designed investment with planting of trees and shrubs in selected locations is not feasible due to the lack of access for the Investor to relevant sites allowing for execution of the aforementioned planting. Due to the binding rule on minimization of the range of permanent acquisition, the investment boundaries have been set out in the narrowest possible range. In case of the dry flood storage reservoir Serafa 2 a significant part of the area within the designed reservoir is and shall remain afforested (especially in the entire eastern part of the reservoir). Logging of trees has been planned only where – due to performance and/or maintenance reasons – it is necessary to secure the absence of trees and shrubs, and therefore it is not possible to plant trees and shrubs within sites from which they have been removed due to implementation of the investment. Planting of trees and shrubs in locations indicated by the proposal's author would therefore result in necessary obtainment of access to additional sites – located beyond the boundaries of the designed reservoir – by the Investor, which is not possible on the current stage of preparation for commencement of investment implementation due to formal and procedural reasons (it would cause e.g. necessary delay of commencement for the works, and would question the possibility of keeping the schedules for implementation of Works Contracts, as agreed with institutions financing the OVFM Project). On the other hand, it shall be indicated that the logging of trees and shrubs planned under the Works Contract 3A.2/4 shall not change the level of noise reaching developed sites at Za Torem Street on the provincial road's side (Krakowska Street), as Za Torem Street is located along the eastern part of the reservoir, i.e. in a reach where the logging of trees and shrubs is not planned within the reservoir.

3) *Supplementation of commissioning procedures for the works done under the investment with a condition of obtaining "a positive assessment for condition of access roads issued by the Engineer after visiting the access roads", after completing the construction works*

   As an answer it was clarified that a positive assessment for condition of access roads to the construction site done by Road Administrators after completing the construction works is one of the conditions binding for the Works Contracts implemented under the OVFM Project. According to the rules for the aforementioned contracts, the Contractors are obliged to e.g. conclude relevant agreements/arrangements with Road Administrators to determine conditions of application for the access roads to the construction site, and imposing an obligation to develop and establish a draft traffic organization amendment (if applicable) and containing an inventory of technical conditions for the access roads to the construction site prior to the commencement of works. In the performance period the Contract Engineer along with a team of Supervising Inspectors provides constant monitoring over fulfilment of obligations determined in the agreements/arrangement concluded with Road Administrators by the Contractor. After completing the works the Contractor shall be obliged to e.g. restore the access roads to the condition determined by the Road Administrator, provide a statement of the Site Manager on the proper management of sites adjacent to the construction site, and provide (within as-built documentation) a protocol on the technical condition of roads with

positive commissioning by the Road Administrator. In accordance with the rules for Works Contracts, just after meeting the aforementioned conditions the Contract Engineer shall be able to recommend a positive final commissioning to the Investor for developed engineering objects.

Except for proposals notified by e-mail, as listed above, during the public consultations for the draft EMP, the attendees asked some additional questions during the teleconference (using an on-line form available to all persons attending the webinar). Particular questions asked during the teleconference are discussed below, including the answers provided[37]:

1) *What is the purpose of tree logging in the reservoir's bowl?*

   As an answer it was clarified that a purpose of logging the trees in the reservoir's bowl is allowing for performance of the construction works, including development of designed reservoir's objects (e.g. front dam, side dam, Serafa river-bed in a transfer reach and in a discharge reach, and others) and provision of site grading on the right bank of the reservoir (with 1% drop towards the river-bed to secure returning of dammed water to the river-bed after bankful discharge ends). Tree logging has been designed only in the western part of the Contract implementation site (about 200 m east from the reservoir's front dam), and it is not planned to log trees and shrubs within the entire eastern part of the reservoir (up to about 400 m west from the eastern boundary of the Contract implementation site, including the site along Za Torem Street).

2) *What is the planned time for commencement of the works?*

   As an answer it was informed that according to the currently binding schedule for implementation of the Works Contract 3A.2/4, the construction works should be commenced in the second quarter of 2021.

3) *Where an access route to the construction site for trucks shall be set out?*

   As an answer it was clarified that the access route to the construction site has been planned only on the southern side (i.e. from the provincial road – Krakowska Street). Access from the northern side is not possible due to necessary traffic of construction vehicles within railway tracks, and administrators of railway sites did not agree for that.

4) *Shall areas within the reservoir's bowl be available to the public after completing the works?*

   As an answer it was informed that the Investor does not forecast restrictions in the access for the public to areas within the dry flood storage reservoir's bowl on the use stage (except for a small fenced site in the area of the front dam, including e.g. a maneuvering yard and surroundings of a container used for servicing the reservoir).

5) *What is a detailed course of regulation process for the Serafa River bank within boundaries of the project – along Za Torem Street? How will the river banks be protected? How long may such works take?*

   As an answer it was informed that regulation of the Serafa river-bed has been designed only within a section of shaping a new transfer channel and a new discharge channel (upstream and downstream of the front dam, over a length of about 100 m in total).

[37] Answers to questions asked during the teleconference were provided by members of the Consultant's Team, including the senior supporting expert for environmental management – Artur Adamski, and the designer – Dariusz Adamek.

The river banks in that section shall be protected using rip-rap. The works shall likely last no longer than few months. No works associated with regulation of the Serafa river-bed in the area of Za Torem Street are planned.

6) *It seems that the scope of works along Za Torem Street has been reduced in comparison to initial data. Shall the resulting range of expropriation for properties along the river also be decreased?*

As an answer it was clarified that both: the scope of works to be performed under the Works Contract 3A.2/4, as well as the range of expropriation associated with its implementation have not been changed in comparison to data presented previously. Detailed information on expropriation shall be presented during another teleconference to be organized within the framework of public consultations for the draft Land Acquisition and Resettlement Action Plan (LA&RAP).

After answering all of the questions the teleconference was over.

In the evening of November 17, 2020 (about 4 hours after finishing the teleconference) the PIO was notified by e-mail about two additional remarks referring to design solutions and performance solutions under Contract 3A.2/4. Both remarks were presented below, along with answers submitted by e-mail to the author of those remarks:

1) *Damming of water in the River Serafa as a result of the aforementioned project shall cause more frequent and longer than before flooding of an access road to parcels at Za Torem Street in Wieliczka – from no. 1 to no. 25. That access road is often flooded at the moment, and it disables the access for emergency services and inhabitants of those parcels (crossing of Za Torem Street and Morsztynów Street just before a railway viaduct – not shown on all of the maps), while providing a realistic threat to life and health*

As an answer it was informed that during a hydraulic analysis for the Serafa river-bed and during evaluation of impact for the designed dry flood storage reservoir on the level of water in the river-bed a series of simulations was done, and they provided elevations of the water level in the river-bed in the existing condition and just after development of the reservoir. In accordance with valid regulations calculations were done for water with occurrence probability of 0.2% (a flood that statistically happens once in 500 years), 0.5% (a flood that statistically happens once in 200 years), and 1% (a flood that statistically happens once in 100 years). Dam of the dry reservoir – designed at chainage km 9+223 of the River Serafa – shall generate backwater at bankful discharge, what would result in raising the water-table in the River Serafa in a reach upstream of the dam. The range of backwater generated during bankful discharge shall depend on the size of water flow in the river (i.e. from the volume of water transferred to the reservoir). For the flow with probability of 0.2% the backwater reach ends at km 10+345 (distance from the dam: 1122 m), for probability of 0.5% the backwater reach ends at km 9+950 (distance from the dam: 727 m), for probability of 1% the backwater reach ends at km 9+890 (distance from the dam: 667 m). Structures located at Za Torem Street are present starting from km 10+050. Damming of Serafa water shall occur at that chainage only once in 500 years, due to temporary damming of water in the reservoir, and it shall amount to 7 cm. In case of a section of Za Torem Street located in vicinity of a crossing with Morsztynów Street (at the railway viaduct, i.e. at chainage km 10+520 of the River Serafa),

operations of the reservoir shall not have any adverse impact on changes of the water level in both: the river-bed, as well as at banks of the Serafa River.

2) *There is no idea and plan for accessing the construction site from the eastern side (Za Torem Street is narrow and does not allow for passing of two cars within a section of about 500 m; intensity of traffic for trucks related to the construction process shall result in crushing and damaging the existing fragile course of that road)*

   As an answer it was clarified that the access to the construction site for the reservoir is planned from the south (i.e. from Krakowska Street in Wieliczka – distance of about 70 m from the construction site). The Designer does not expect any traffic of construction vehicles from the side of Za Torem Street, due to too small width of that road and significant distance from the dam (distance from the end of Za Torem Street to the reservoir's dam is over 600 m). The access to the construction site from Za Torem Street would not be possible also due to limitations resulting from the close location of a railway line in vicinity of the Serafa river-bed.

Furthermore, in the period after completing the public consultations for the draft EMP, the Consultant and the Investor analyzed a possibility of implementing a proposal of designing a paved educational-natural path, having a pedestrian-bicycle character, on the right side of the reservoir, within the artery of Za Torem Street in Wieliczka, as notified by e-mail during the public consultations (see: the first of public proposals discussed during the teleconference, as above).

The results of analyses done proved that implementation of the notified proposal for extending the scope of Works Contract 3A.2/4 by development of the aforementioned pedestrian-bicycle route is not possible on the current stage of preparation for commencement of the construction works. Updating the design of dry flood storage reservoir Serafa 2 with the aforementioned element would be associated with e.g. extension of the scope of investment determined in administrative decisions that have already been issued, necessity of acquiring (purchasing) additional sites by the Investor through permanent acquisition, necessary obtainment of PKP's consents for implementation of an additional scope of works within railway sites [development of a pedestrian crossing through railway tracks], as well as – depending on precise location of the aforementioned pedestrian-bicycle route – it would likely cause necessary additional logging of trees and shrubs in the eastern part of the reservoir (within the present boundaries of the designed investment there are no available non-afforested sites allowing for development of the pedestrian-bicycle path). The proposed additional function of the pedestrian-bicycle route, as an alternative service road for the reservoir, is not justified in the eastern areas within the investment boundaries (it is not necessary to develop a service road in that part of the reservoir). Furthermore, the proposed development of the pedestrian-bicycle path does not also refer to the range of flood defenses, implementation of which is feasible based upon provisions of the Special Flood Act. While not questioning the sense of an idea of developing such a pedestrian-bicycle route in the indicated location, PGW WP RZGW in Cracow – remaining the Investor for the planned development of the dry flood storage reservoir Serafa 2 – states that development of the aforementioned artery should be designed and implemented under a separate investment that may be executed and financed beyond the OVFM Project (e.g. within the framework of assignments from participatory budget, communal budget, and others). The answer has been submitted to the author of the proposal in question by e-mail.

After completing the public consultations period and after provision of the aforementioned answers to proposals of the public, the Report on public consultations of the draft EMP and the Final version of the EMP for the Works Contract 3A.2/4 were prepared. Subsequently, both of these documents were submitted to the World Bank for the final approval clause, the so-called "No objection".

Regionalny Zarząd Gospodarki Wodnej w Krakowie

Zbiornik Świnna Poręba | Kontrast | Układ | Czcionka

Państwowe Gospodarstwo Wodne Wody Polskie

O Wodach Polskich | Aktualności | Nasze działania | Zamówienia publiczne | Media | Kontakt

Wody Polskie / Aktualności / Konsultacje społeczne Planu Zarządzania Środowiskiem 3A.2/4

Konsultacje społeczne Planu Zarządzania Środowiskiem 3A.2/4

Utworzono: 26 październik 2020

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OBWIESZCZENIE

podaje się do publicznej wiadomości, co następuje:

Państwowe Gospodarstwo Wodne Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie (PGW Wody Polskie RZGW w Krakowie), Jednostka Realizująca *Projekt ochrony przeciwpowodziowej w dorzeczu Odry i Wisły* (JRP OPDOW) udostępniła zainteresowanym osobom i instytucjom **PROJEKT PLANU ZARZĄDZANIA ŚRODOWISKIEM** dla Kontraktu 3A.2/4 *Zwiększenie zabezpieczenia powodziowego w dolinie rzeki Serafy – zbiornik Serafa 2* (nazywany dalej PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM) sporządzony w ramach Komponentu 3 Projektu OPDOW – *Ochrona przed powodzią Górnej Wisły*, Podkomponentu 3A – *Ochrona przed powodzią Krakowa i Wieliczki*.

Z uwagi na stan zagrożenia epidemicznego w Polsce i w trosce o Państwa bezpieczeństwo zdrowotne zmianie ulega formuła prowadzenia konsultacji publicznych projektu dokumentu Planu Zarządzania Środowiskiem. Nie odbędzie się spotkanie otwarte dla wszystkich zainteresowanych, lecz konsultacje przeprowadzone zostaną w formie elektronicznej przy wykorzystaniu dostępnych (bezpiecznych) kanałów komunikacji elektronicznej.

Każdy zainteresowany może:

1.zapoznać się z PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM
od dnia **27 października 2020 r.** do dnia **17 listopada 2020 r.** włącznie (15 dni roboczych)
poprzez strony internetowe:

- Państwowego Gospodarstwa Wodnego Wody Polskie Regionalnego Zarządu Gospodarki Wodnej w Krakowie, pod adresem: https://krakow.wody.gov.pl,
- Biura Koordynacji Projektu Ochrony Przeciwpowodziowej Dorzecza Odry i Wisły, pod adresem: odrapcu2019.odrapcu.pl,
- Urzędu Miasta Krakowa, pod adresem: bip.krakow.pl,
- Urzędu Miasta i Gminy Wieliczka, pod adresem: wieliczka.eu.

2.składać uwagi i wnioski odnośnie PROJEKTU PLANU ZARZĄDZANIA ŚRODOWISKIEM:

- w formie pisemnej na adres Państwowego Gospodarstwa Wodnego Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie, ul. Marsz. J. Piłsudskiego 22, 31-109 Kraków,
- w formie elektronicznej na adres e-mail: krakow@wody.gov.pl,
- telefonicznie każdego dnia roboczego trwania upublicznienia pod numerem telefonu **+48664 084 039** w godzinach **9:00-14:00**,

w dniach od **27 października 2020 r.** do **17 listopada 2020 r.** włącznie.

Instytucją właściwą do rozpatrzenia uwag i wniosków jest PGW Wody Polskie RZGW w Krakowie – adres e-mail: jrp.krakow@wody.gov.pl.

W 15. dniu roboczym udostępnienia dokumentu, tj. w dniu **17 listopada 2020 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://krakow.wody.gov.pl/aktualnosci, gdzie we wpisie poświęconym konsultacjom społecznym projektu Planu Zarządzania Środowiskiem dla Kontraktu 3A.2/4 zamieszczony będzie link do webinarium. Zostanie ono przeprowadzone w oparciu o program Microsoft Teams. Link oraz instrukcja „Krok po kroku" zostaną umieszczone na ww. stronie co najmniej 10 dni przed planowanym elektronicznym spotkaniem konsultacyjnym.

Obwieszczenie to zostało podane do wiadomości poprzez ogłoszenie w lokalnej prasie (*Dziennik Polski* oraz w wersji elektronicznej na stronach: https://dziennikpolski24.pl/, https://gazetakrakowska.pl/), wywieszenie na tablicy ogłoszeń PGW WP RZGW w Krakowie, Urzędu Miasta w Krakowie oraz Urzędu Miasta i Gminy Wieliczka, a także na stronach internetowych instytucji wskazanych powyżej.

--> Dokumenty do pobrania <--

POLECANE ARTYKUŁY

Konsultacje społeczne Planu Zarządzania Środowiskiem 3A.2/4

NASZE JEDNOSTKI

Wody Polskie

Ta mapa została utworzo

Estonia | Łotwa | Litwa | Dania | Białoruś | Niemcy | Czechy | Austria | Węgry | Mołdawia | Rumunia | Chorwacja | Serbia | Włochy | Bułgaria | Google My Maps

Fig. 5. Announcement on public consultations for the draft EMP with a link for downloading the documents and to a webinar, as published at the website of the PGW WP RZGW in Cracow

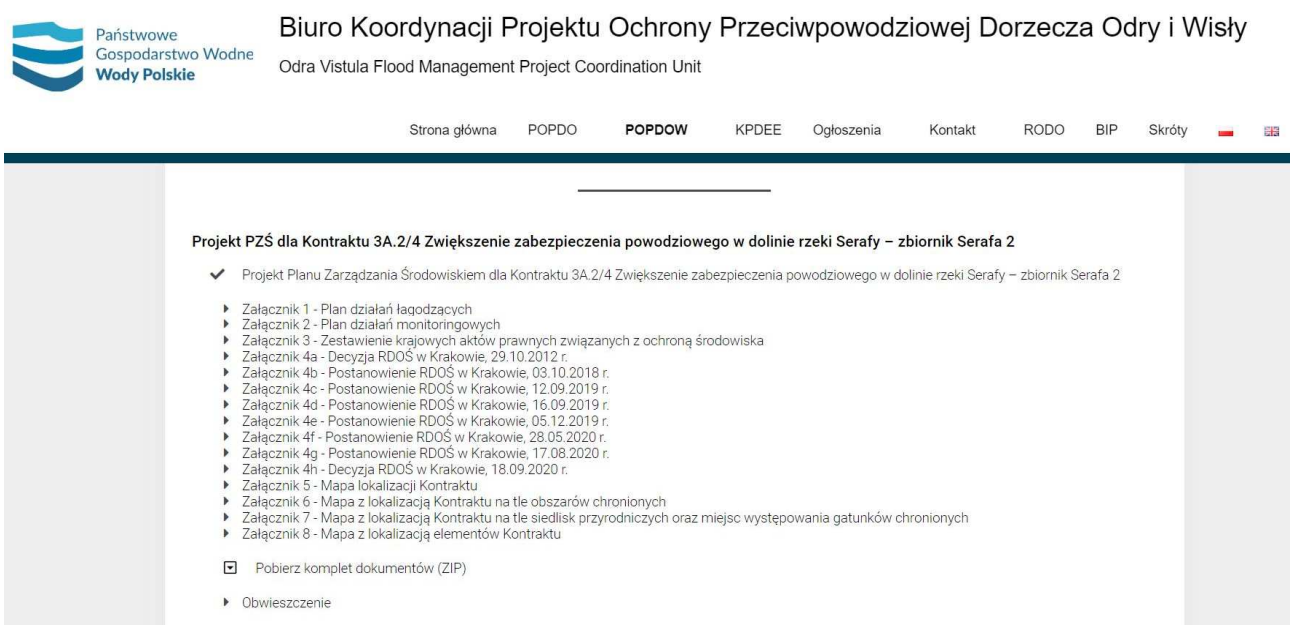

Fig. 6. Digital version of the draft EMP
and announcement on public consultations for the draft EMP
as published at the website of the OVFM PCU

Fig. 7. Announcement on public consultations for the draft EMP
with a link for downloading the documents,
as published at the website of the City Office of Cracow

Fig. 8. Announcement on public consultations for the draft EMP with a link for downloading the documents, as published at the website of the Town and Municipality Office of Wieliczka

ANNOUNCEMENT

it is hereby made known to the public that:

State Water Holding Polish Waters, Regional Water Management Authority in Cracow (PGW WP RZGW in Cracow), Project Implementation Unit (PIU) for the *Odra-Vistula Flood Management Project* (OVFMP) have made it available for the interested individuals and institutions **THE DRAFT TO THE ENVIRONMENTAL MANAGEMENT PLAN** (EMP) for 3A.2/4 Contract *Flood protection in Serafa Valley – Serafa 2 reservoir* (hereinafter referred to as the DRAFT ENVIRONMENTAL MANAGEMENT PLAN) implemented within Component 3 of the OVFMP – *Flood Protection of the Upper Vistula*, Sub-component 3A – *Flood Protection of Upper Vistula Towns and Cracow*.

Owing to the state of epidemic threat in Poland, bearing in mind your health safety, the form of conducting the public consultations within the EMP document has been changed. In connection with the situation, the consultations will be conducted in electronic form, taking advantage of the available (safe) electronic communication channels.

Everyone interested in it can:

A) get to know the DRAFT ENVIRONMENTAL MANAGEMENT PLAN, starting from **October 27th 2020** until **November 17th 2020** (15 business days, in total) through the following websites:
- State Water Holding Polish Waters, Regional Water Management Authority in Cracow at https://krakow.wody.gov.pl,
- Odra-Vistula Flood Management Project Coordination Unit at www.odrapcu2019.odrapcu.pl,
- City Office of Cracow at www.bip.krakow.pl,
- City and Municipality Office of Wieliczka at www.wieliczka.eu.

B) remarks and conclusions concerning the DRAFT ENVIRONMENTAL MANAGEMENT PLAN can be submitted:
- in writing, addressed to: State Water Holding Polish Waters, Regional Water Management Authority in Cracow, 22. Piłsudskiego Str., 30-110 Cracow,
- in electronic form to the e-mail address: jrp.krakow@wody.gov.pl,
- by calling, each business day when the document is available to the public, at the telephone no **+48 664 084 039** between **9:00-14:00**,

from **October 27th 2020** to **November 17th 2020**, inclusive.

The institution competent to consider the remarks and applications is State Water Holding Polish Waters, Regional Water Management Authority in Cracow. E-mail address: jrp.krakow@wody.gov.pl.

On the 15th day when the document is available to the public, i.e. **November 17th 2020**, **from 17.00 to 19.00**, an electronic consultation meeting will be held in a form of a webinar – open to all the interested parties, during which information about the DRAFT ENVIRONMENTAL MANAGEMENT PLAN will be presented and it will also be possible to ask questions and submit motions.

To participate in the webinar, please enter the website https://krakow.wody.gov.pl/aktualnosci and, in the part devoted to the consultation meeting for DRAFT ENVIRONMENTAL MANAGEMENT PLAN for 3A.2/4 Contract, a link to the webinar will be published. It will be held based on Microsoft Teams software. The link and "step by step" instructions will be published on the website at least 10 days before the planned electronic consultation meeting.

The announcement has been made available to the public by being published in the local press (newspaper *Dziennik Polski* and in electronic versions on the websites: https://dziennikpolski24.pl/, https://gazetakrakowska.pl/), announced in the information board of the PGW WP RZGW in Cracow, City Office of Cracow, and City and Municipality Office of Wieliczka, as well as the websites of the institutions listed hereinabove.

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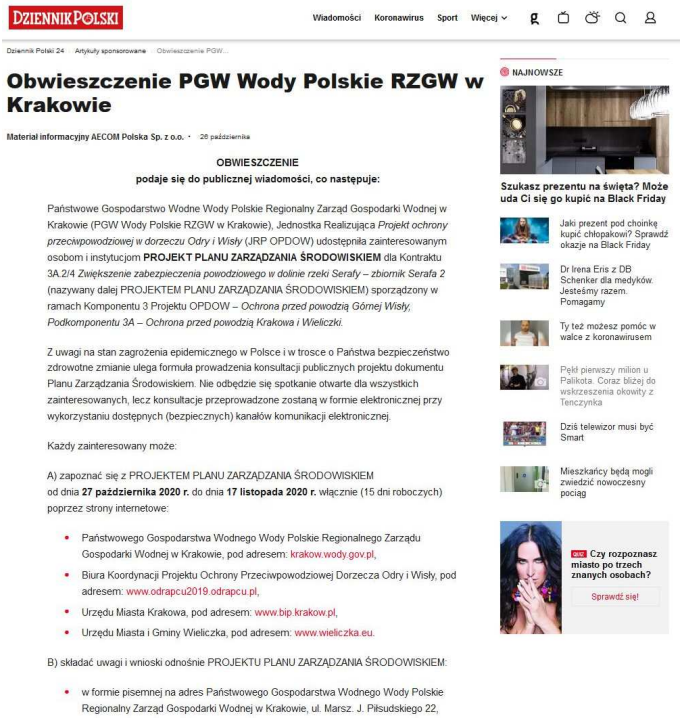
Fig. 9. Announcement on public consultations for the draft EMP submitted to the local press and published on the web sites and on the notice boards



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podaje się do publicznej wiadomości, co następuje:

Państwowe Gospodarstwo Wodne Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie (PGW Wody Polskie RZGW w Krakowie), Jednostka Realizująca *Projekt ochrony przeciwpowodziowej w dorzeczu Odry i Wisły* (JRP OPDOW) udostępniła zainteresowanym osobom i instytucjom **PROJEKT PLANU ZARZĄDZANIA ŚRODOWISKIEM** dla Kontraktu 3A.2/4 *Zwiększenie zabezpieczenia powodziowego w dolinie rzeki Serafy – zbiornik Serafa 2* (nazywany dalej PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM) sporządzony w ramach Komponentu 3 Projektu OPDOW – *Ochrona przed powodzią Górnej Wisły, Podkomponentu 3A – Ochrona przed powodzią Krakowa i Wieliczki.*

Z uwagi na stan zagrożenia epidemicznego w Polsce i w trosce o Państwa bezpieczeństwo zdrowotne zmianie ulega formuła prowadzenia konsultacji publicznych projektu dokumentu Planu Zarządzania Środowiskiem. Nie odbędzie się spotkanie otwarte dla wszystkich zainteresowanych, lecz konsultacje przeprowadzone zostaną w formie elektronicznej przy wykorzystaniu dostępnych (bezpiecznych) kanałów komunikacji elektronicznej.

Każdy zainteresowany może:

A) zapoznać się z PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM od dnia **27 października 2020 r.** do dnia **17 listopada 2020 r.** włącznie (15 dni roboczych) poprzez strony internetowe:

- Państwowego Gospodarstwa Wodnego Wody Polskie Regionalnego Zarządu Gospodarki Wodnej w Krakowie, pod adresem: krakow.wody.gov.pl,
- Biura Koordynacji Projektu Ochrony Przeciwpowodziowej Dorzecza Odry i Wisły, pod adresem: www.odrapcu2019.odrapcu.pl,
- Urzędu Miasta Krakowa, pod adresem: www.bip.krakow.pl,
- Urzędu Miasta i Gminy Wieliczka, pod adresem: www.wieliczka.eu.

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

- w formie pisemnej na adres Państwowego Gospodarstwa Wodnego Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie, ul. Marsz. J. Piłsudskiego 22,

NAJNOWSZE

Szukasz prezentu na święta? Może uda Ci się go kupić na Black Friday

Jaki prezent pod choinkę kupić chłopakowi? Sprawdź okazje na Black Friday

Dr Irena Eris z DB Schenker dla medyków. Jesteśmy razem. Pomagamy

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Pękł pierwszy milion u Palikota. Coraz bliżej do wskrzeszenia okowity z Tenczynka

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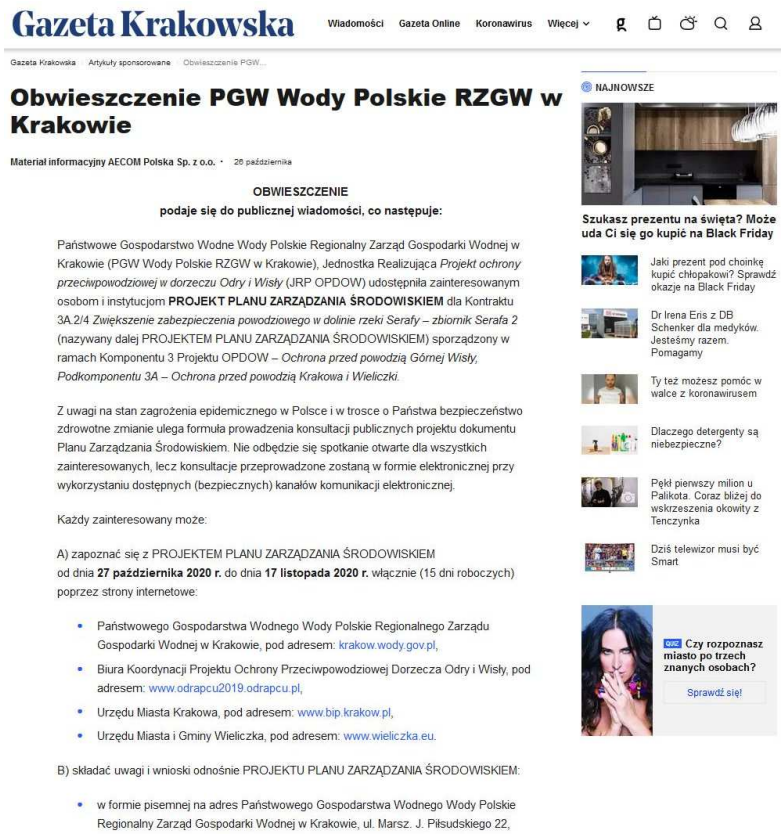
Mieszkańcy będą mogli zwiedzić nowoczesny pociąg

QUIZ Czy rozpoznasz miasto po trzech znanych osobach?

Sprawdź się!

Fig. 10. Announcement on public consultations for the draft EMP published in the local press (*Dziennik Polski* – internet issue)



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Obwieszczenie PGW Wody Polskie RZGW w Krakowie

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OBWIESZCZENIE
podaje się do publicznej wiadomości, co następuje:

Państwowe Gospodarstwo Wodne Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie (PGW Wody Polskie RZGW w Krakowie), Jednostka Realizująca *Projekt ochrony przeciwpowodziowej w dorzeczu Odry i Wisły* (JRP OPDOW) udostępniła zainteresowanym osobom i instytucjom **PROJEKT PLANU ZARZĄDZANIA ŚRODOWISKIEM** dla Kontraktu 3A.2/4 *Zwiększenie zabezpieczenia powodziowego w dolinie rzeki Serafy – zbiornik Serafa 2* (nazywany dalej PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM) sporządzony w ramach Komponentu 3 Projektu OPDOW – *Ochrona przed powodzią Górnej Wisły, Podkomponentu 3A – Ochrona przed powodzią Krakowa i Wieliczki.*

Z uwagi na stan zagrożenia epidemicznego w Polsce i w trosce o Państwa bezpieczeństwo zdrowotne zmianie ulega formuła prowadzenia konsultacji publicznych projektu dokumentu Planu Zarządzania Środowiskiem. Nie odbędzie się spotkanie otwarte dla wszystkich zainteresowanych, lecz konsultacje przeprowadzone zostaną w formie elektronicznej przy wykorzystaniu dostępnych (bezpiecznych) kanałów komunikacji elektronicznej.

Każdy zainteresowany może:

A) zapoznać się z PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM od dnia **27 października 2020 r.** do dnia **17 listopada 2020 r.** włącznie (15 dni roboczych) poprzez strony internetowe:

- Państwowego Gospodarstwa Wodnego Wody Polskie Regionalnego Zarządu Gospodarki Wodnej w Krakowie, pod adresem: krakow.wody.gov.pl,
- Biura Koordynacji Projektu Ochrony Przeciwpowodziowej Dorzecza Odry i Wisły, pod adresem: www.odrapcu2019.odrapcu.pl,
- Urzędu Miasta Krakowa, pod adresem: www.bip.krakow.pl,
- Urzędu Miasta i Gminy Wieliczka, pod adresem: www.wieliczka.eu.

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

- w formie pisemnej na adres Państwowego Gospodarstwa Wodnego Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie, ul. Marsz. J. Piłsudskiego 22,

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Fig. 11. Announcement on public consultations for the draft EMP published in the local press (*Gazeta Krakowska* – internet issue)

Dziennik Polski
Poniedziałek, 26.10.2020

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REKLAMA

Spółdzielnia Mieszkaniowa „Kurdwanów Nowy" w Krakowie
30-612 Kraków, ul. Wincentego Witosa 39,
tel. 12 654 40 05.

Ogłasza przetarg nieograniczony na wykonanie robót budowlano-montażowych instalacji ciepłej wody użytkowej w 9. budynkach mieszkalnych przy ul. Witosa, będących w zasobach Spółdzielni Mieszkaniowej „Kurdwanów Nowy" w Krakowie.

Specyfikacja Istotnych Warunków Zamówienia z załącznikami udostępniana będzie po wniesieniu opłaty w kwocie 80 zł w siedzibie Spółdzielni przy ul. W. Witosa 39 w Krakowie (pokój nr 8).

Pisemne oferty należy złożyć za pośrednictwem operatora pocztowego lub osobiście w sekretariacie SM „Kurdwanów Nowy" w Krakowie przy ul. W. Witosa 39 (I piętro) pok. nr 10 nie później niż do dnia 16.11.2020 r. do godz. 15.00. Oferty złożone po terminie nie będą rozpatrywane.

REKLAMA

OBWIESZCZENIE
podaje się do publicznej wiadomości, co następuje:

Państwowe Gospodarstwo Wodne Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie (PGW Wody Polskie RZGW w Krakowie), Jednostka Realizująca *Projekt ochrony przeciwpowodziowej w dorzeczu Odry i Wisły* (JRP OPDOW) udostępnia zainteresowanym osobom i instytucjom **PROJEKT PLANU ZARZĄDZANIA ŚRODOWISKIEM** dla Kontraktu 3A.2/4 *Zwiększenie zabezpieczenia powodziowego w dolinie rzeki Serafy – zbiornik Serafa 2* (nazywany dalej PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM) sporządzony w ramach Komponentu 3 Projektu OPDOW – *Ochrona przed powodzią Górnej Wisły*, Podkomponentu 3A – *Ochrona przed powodzią Krakowa i Wieliczki*.
Z uwagi na stan zagrożenia epidemicznego w Polsce i w trosce o Państwa bezpieczeństwo zdrowotne zmianie ulega formuła prowadzenia konsultacji publicznych projektu dokumentu Planu Zarządzania Środowiskiem. Nie odbędzie się spotkanie otwarte dla wszystkich zainteresowanych, lecz konsultacje przeprowadzone zostaną w formie elektronicznej przy wykorzystaniu dostępnych (bezpiecznych) kanałów komunikacji elektronicznej.
Każdy zainteresowany może:

A) zapoznać się z PROJEKTEM PLANU ZARZĄDZANIA ŚRODOWISKIEM od dnia **27 października 2020 r.** do dnia **17 listopada 2020 r.** włącznie (15 dni roboczych) poprzez strony internetowe:
- Państwowego Gospodarstwa Wodnego Wody Polskie Regionalnego Zarządu Gospodarki Wodnej w Krakowie, pod adresem: https://krakow.wody.gov.pl,
- Biura Koordynacji Projektu Ochrony Przeciwpowodziowej Dorzecza Odry i Wisły, pod adresem: www.odrapcu2019.odrapcu.pl,
- Urzędu Miasta Krakowa, pod adresem: www.bip.krakow.pl,
- Urzędu Miasta i Gminy Wieliczka, pod adresem: www.wieliczka.eu.

B) składać uwagi i wnioski odnośnie PROJEKTU PLANU ZARZĄDZANIA ŚRODOWISKIEM:
- w formie pisemnej na adres Państwowego Gospodarstwa Wodnego Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie, ul. Marsz. J. Piłsudskiego 22, 31-109 Kraków,
- w formie elektronicznej na adres e-mail: jrp.krakow@wody.gov.pl,
- telefonicznie każdego dnia roboczego trwania upublicznienia pod numerem telefonu **+48 664 084 039** w godzinach **9:00-14:00**,

w dniach od **27 października 2020 r.** do **17 listopada 2020 r.** włącznie.
Instytucją właściwą do rozpatrzenia uwag i wniosków jest PGW Wody Polskie RZGW w Krakowie – adres e-mail: jrp.krakow@wody.gov.pl.
W 15. dniu roboczym udostępnienia dokumentu, tj. w dniu **17 listopada 2020 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://krakow.wody.gov.pl/aktualnosci, gdzie we wpisie poświęconym konsultacjom społecznym projektu Planu Zarządzania Środowiskiem dla Kontraktu 3A.2/4 zamieszczony będzie link do webinarium. Zostanie ono przeprowadzone w oparciu o program Microsoft Teams. Link oraz instrukcja „Krok po kroku" zostaną umieszczone na ww. stronie co najmniej 10 dni przed planowanym elektronicznym spotkaniem konsultacyjnym.
Obwieszczenie to zostało podane do wiadomości poprzez ogłoszenie w lokalnej prasie (*Dziennik Polski* oraz w wersji elektronicznej na stronach: https://dziennikpolski24.pl/, https://gazetakrakowska.pl/), wywieszenie na tablicy ogłoszeń PGW WP RZGW w Krakowie, Urzędu Miasta w Krakowie oraz Urzędu Miasta i Gminy Wieliczka, a także na stronach internetowych instytucji wskazanych powyżej.

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OBWIESZCZENIE

Zgodnie z wymaganiami Banku Światowego (polityka operacyjna OP 4.12), instytucji współfinansującej realizację *Projektu ochrony przeciwpowodziowej w dorzeczu Odry i Wisły*,

podaje się do publicznej wiadomości, co następuje:

Państwowe Gospodarstwo Wodne Wody Polskie Regionalny Zarząd Gospodarki Wodnej w Krakowie (PGW WP RZGW w Krakowie) - Jednostka Realizująca *Projekt ochrony przeciwpowodziowej w dorzeczu Odry i Wisły* (JRP OPDOW) udostępnia do wglądu wszystkim zainteresowanym osobom i instytucjom **PROJEKT PLANU POZYSKANIA NIERUCHOMOŚCI I PRZESIEDLEŃ** dla Kontraktu na roboty 3A.6 *Budowa stanowiska pompowego dla pomp mobilnych dla odwodnienia kompleksu Lesisko*, Podkomponent 3A – *Ochrona przed powodzią Krakowa i Wieliczki*, Komponentu 3 - *Ochrona przed powodzią Górnej Wisły*, (nazywany dalej PROJEKTEM PLANU POZYSKANIA NIERUCHOMOŚCI I PRZESIEDLEŃ lub Projektem PPNiP)

Z UWAGI NA STAN ZAGROŻENIA EPIDEMICZNEGO W POLSCE I W TROSCE O PAŃSTWA BEZPIECZEŃSTWO ZDROWOTNE NIE ODBĘDZIE SIĘ SPOTKANIE KONSULTACYJNE W FORMIE DEBATY PUBLICZNEJ JEDNAK W CELU ZAPEWNIENIU PAŃSTWU MOŻLIWOŚCI ZAPOZNANIA SIĘ Z DOKUMENTEM PPNiP ORAZ MOŻLIWOŚCI WNOSZENIA WNIOSKÓW I UWAG, PODJĘTO DECYZJĘ O PRZEPROWADZENIU KONSULTACJI W FORMIE KORESPONDENCYJNEJ PRZY WYKORZYSTANIU DOSTĘPNYCH (BEZPIECZNYCH) KANAŁÓW KOMUNIKACJI

Projekt PPNiP został udostępniony na stronach internetowych:
- PGW WP RZGW w Krakowie pod adresem – https://krakow.wody.gov.pl/aktualnosci/,
- Urzędu Miasta Kraków pod adresem – www.bip.krakow.pl,
- Biura Koordynacji Projektu Ochrony Przeciwpowodziowej Dorzecza Odry i Wisły pod adresem – http://odrapcu2019.odrapcu.pl/ogloszenia/,
- Rady Dzielnicy XVIII Nowa Huta pod adresem: www.dzielnica18.krakow.pl/index.php/konsultacje-spoleczne.

Każdy zainteresowany może składać uwagi i wnioski odnośnie PROJEKTU PLANU POZYSKANIA NIERUCHOMOŚCI I PRZESIEDLEŃ w formie pisemnej (tj. listownej) na adres JRP w Krakowie:

Państwowe Gospodarstwo Wodne Wody Polskie
Regionalny Zarząd Gospodarki Wodnej w Krakowie
ul. Marszałka J. Piłsudskiego 22
31-109 Kraków

w formie elektronicznej na adres e-mail:
jrp.krakow@wody.gov.pl
oraz telefonicznie pod numerami:
505 028 137, 601 824 298 (w dniach roboczych od godziny 9:00 do godziny 17:00)
w dniach od **26.10.2020 r. do 16.11.2020 r.** włącznie (21 dni).
Instytucją właściwą do rozpatrzenia uwag i wniosków jest PGW Wody Polskie RZGW w Krakowie.
Po ww. okresie udostępnienia dokumentu do wglądu, w dniu **18.11.2020 r. o godzinie 17:00** odbędzie się **webinarium otwarte** dla wszystkich zainteresowanych, na którym przedstawione zostaną informacje o PROJEKCIE PLANU POZYSKANIA NIERUCHOMOŚCI I PRZESIEDLEŃ oraz odbędzie się publiczna dyskusja dotycząca tego dokumentu, a także uwag i wniosków złożonych do niego wcześniej lub w trakcie spotkania. Link do strony umożliwiającej włączenie się do telekonferencji zostanie opublikowany na stronie internetowej PGW WP RZGW w Krakowie: https://krakow.wody.gov.pl/aktualnosci na 5 dni przed planowaną datą telekonferencji wraz z instrukcją „Krok po kroku" jak można włączyć się do planowanej telekonferencji.
Obwieszczenie to zostało podane do wiadomości poprzez ogłoszenia w prasie (czasopismach o zasięgu lokalnym): **Dzienniku Polskim** oraz w wersji elektronicznej czasopisma **Gazeta Krakowska** (na stronie: https://gazetakrakowska.pl/), wywieszone na tablicach ogłoszeń w: PGW WP RZGW w Krakowie, Urzędzie Miasta Krakowa, Rady Dzielnicy XVIII Nowa Huta, jak również na stronach internetowych instytucji wskazanych powyżej, serwisie internetowym Rady Dzielnicy XVIII Nowa Huta, profilu Facebook Rady Dzielnicy XVIII Nowa Huta oraz w miejscach realizacji robót.

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Fig. 12. Announcement on public consultations for the draft EMP published in the local press (*Dziennik Polski* – printed version)

Fig. 13. Presentation on the draft EMP for the Works Contract 3A.2/4 presented during the teleconference (webinar) of Noveber 17, 2020 – first slide

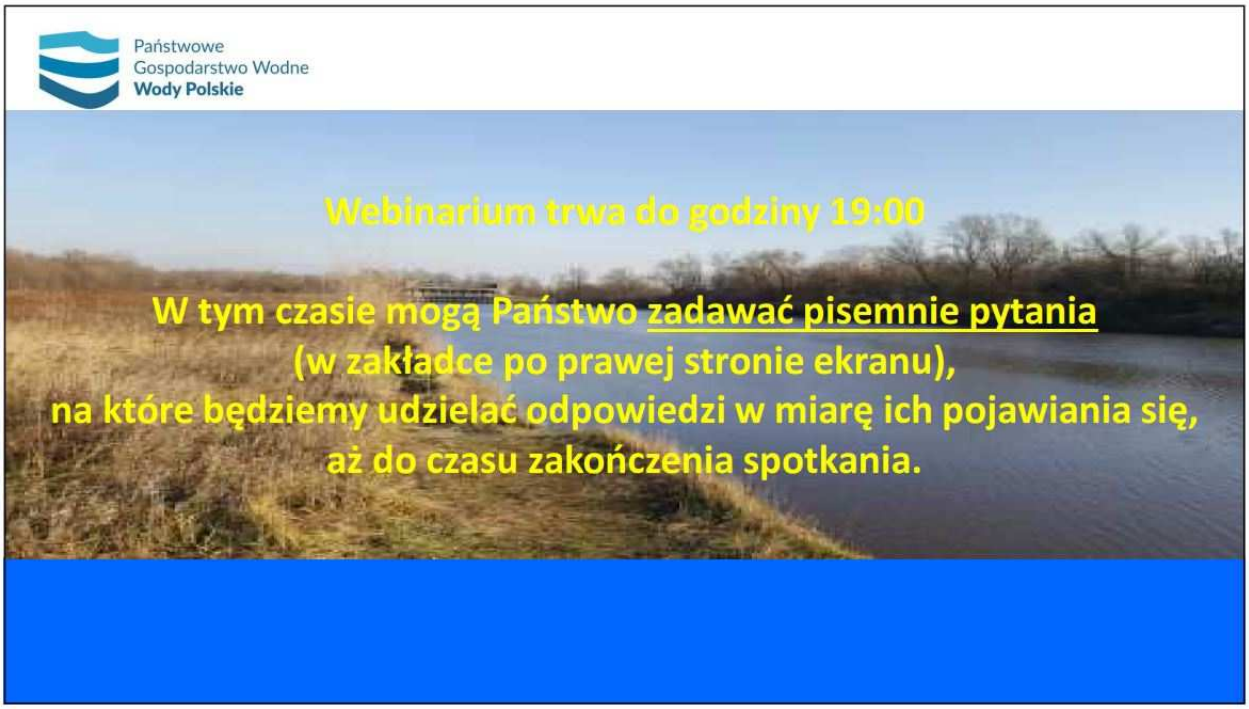

Fig. 14. Presentation on the draft EMP for the Works Contract 3A.2/4 presented during the teleconference (webinar) of November 17, 2020 – penultimate slide

9 Organizational structure of EMP implementation

Contract 3A.2 is a part of the Odra-Vistula Flood Management Project co-financed from the funds of the World Bank, the Council of Europe Development Bank, the European Union Cohesion Fund, and the State budget. Therefore, the structure of supervision over implementation of the EMP must correspond to both: regulations of the Polish law, as well as the requirements of the World Bank.

9.1 Odra-Vistula Flood Management Project Coordination Unit

The overall coordination of the implementation of the individual EMPs within the Project is the responsibility of the Project Coordination Unit (PCU), which functions as an organisational unit within the structures of the National Water Management Authority (KZGW), which is an organisational unit of the State Water Holding Polish Waters (PGW WP).

The PCU assignments are as follows:

- management of tasks of Project Implementation Units (PIU/JRP) and Project Implementation Units (PIU/JWP), within the scope of tasks included in the Project;
- technical assistance and support to the PIU/JRP and PIU/JWP in the implementation of the tasks of the Project, including the application of World Bank procedures on procurement, environmental protection and social issues;
- preparation of annual work programmes for the Project and evaluation of their progress;
- supervise the work of the Project and evaluate their progress;
- ongoing control and monitoring of funds allocated for the implementation of the Project and participation in the management of funds of the Project;
- reporting, including preparation and submission of quarterly reports on the implementation of the Project to the World Bank, the CEB and the Steering Committee.

9.2 Project Implementation Unit

An entity which is directly responsible for implementation of the EMP for the Contract and for monitoring of the progress of its implementation is the Project Implementation Unit (PIU), i.e. State Water Holding Polish Waters, Regional Water Management Authority in Cracow.

Due to implementation of the OVFM Project, the Project Implementation Office (PIO) was assigned within the PIU structure, which is a separate structure supervised by the President of State Water Holding Polish Waters. This structure is transparent and has a high decisive level, which increases the effectiveness of the Contract implementation.

As a part of EMP implementation supervision, the PIO fulfils the following assignments:

- monitoring of the EMP implementation progress;
- financial management and bookkeeping;
- preparation of required reports for the needs of EMP implementation monitoring and coordination of its execution by all services engaged in the EMP implementation.

The scope of PIO employees' duties connected with the fulfilment of supervision over EMP implementation[38] is as follows:

- managing, coordinating, and supervising the EMP implemented by the Designer, the Consultant, and the Contractor;
- direct supervision over the correct Contract implementation;
- cooperation with the PCU;
- conducting an administrative and legal supervision over EMP implementation;
- verifying the Reports and studies on EMP implementation, as prepared by the Consultant and by the Contractor;
- conducting a financial supervision over EMP implementation;
- supervising the proper application of formal procedures during implementation of the EMP, as required by the Works Contract, the Building Law, the Environmental Protection Law, and others.

9.3 Engineer - Consultant

The role of the Engineer is to support the PIU (PGW WP RZGW in Cracow) in an effective conduction of the whole Works Contract process (from preparation of the Contract to its settlement).

The Consultant/Engineer shall be selected using QCBS method (quality and cost based selection), in accordance with the "Guidelines: Selection and Employment of Consultants by World Bank Borrowers".

In accordance with the scope specified in the Contract Engineer Agreement, the Engineer/Consultant shall be obliged to perform e.g. the supervision over EMP implementation[39], comprising the following:

- monitoring of EMP implementation, as done by the Contractor;
- monitoring of the Contractor's activities;
- checking the quality of construction works performed by the Contractor and built-in construction products, and especially preventing the usage of building materials which are defective and not accepted for use in the construction industry;
- representing the Investor on site by performing the control of the compliance of the construction process with the design and with the construction permit/investment project implementation permit, and with regulations related to the environmental protection and technical know-how;
- supervision over all issues related to the environmental protection by specialists experienced in the field of environmental protection (including a key environmental management expert) and by other Engineer's personnel;
- constant monitoring over proper implementation of measures mitigating the adverse environmental impact;

[38] That supervision is done by e.g. an Environmental Specialist of the PIO team.

[39] That supervision is done by e.g. the following: Key Environmental Management Expert, H&S Expert, Supervising Inspectors, and Resident Engineer.

- conduction of additional tests, if it would be necessary to verify the reports of the Contractor;
- identifying problems resulting from harmful environmental impact caused by the construction works, and presentation of solutions to those problems;
- verifying and accepting construction works being covered or of concealed works, participation in tests and technical commissioning of technical installations and devices, as well as preparation of and participation in performing the commissioning activities for finished engineering objects and handing them over for use;
- confirmation of the works factually completed and of the removal of defects, as well as, at the request of the Investor, verification of site's settlements.

9.4 Contractor

A Contractor shall be selected for the purpose of performance, and it shall be responsible for implementation of individual EMPs. The Contractor's liabilities in that scope are as follows:

- conducting construction works according to the rules specified in the EMP, in accordance with contract conditions and design documentation, pursuant to applicable legal provisions and requirements of administrative decisions issued for this Contract;
- designation of the EMP Coordinator, discussed under item no 86 of Appendix 1 to the EMP;
- assurance of permanent environmental supervision (including environmental experts listed in item no. 87 of Appendix 1 to the EMP), sapper supervision (according to item no. 89 of Appendix 1 to the EMP), and archaeological supervision (according to item no. 88 of Appendix 1 to the EMP);
- ensuring the permanent H&S supervision, discussed under item no. 95 of Appendix 1 to the EMP;
- assurance of the Sexual Harassment and Mobbing Prevention Specialist, discussed under items no. 97 and 98 of Appendix 1 to the EMP;
- implementation of the Engineer's recommendations (including environmental supervising experts and the Investor's supervising inspector) concerning implementation of the EMP;
- ensuring – prior to the commencement of works – the preparation of: BIOZ Plan, Waste Management Plan, Quality Assurance Plan/Plans, Flood Protection Plan for the site for the performance time, and Construction Site Organization Plan;
- if it will be necessary, the Contractor's environmental team would develop necessary materials and applications for the obtainment of permits/decisions for departures from bans to protect species of plants, fungi or animals based upon the rules of and in the mode specified by the NP Act (of April 16, 2004). The above-mentioned decisions issued by RDOŚ/GDOŚ are to be requested for by the Contractor. The Contractor's duty is to implement the provisions of obtained decisions for departure from the protection of species of plants, fungi or animals;
- keeping the construction site records;

- drafting the reports (e.g. monthly report and final report, report to the RDOŚ and/or to the GDOŚ [the latter only in the scope resulting from decisions obtained from those authorities on the implementation stage, if the Contract would need to obtain such decisions]);
- preparing memos and reports concerning the environmental protection;
- applying to the Investor for modification of design solutions, if it is justified by a necessity of increasing safety for performance of the construction works or improving the construction process related to implementation of the EMP;
- repairing the potential faults/defects, which would be notified by the Engineer and/or by the Investor (in case the notification period for defects, guarantee, and warranty would be supported by the Engineer) during the works and during the defects, guarantee, and warranty notification period. The Contractor is obliged to report any actions implemented to remove the faults/defects. The report shall be filed to the Engineer/Investor.

10 EMP implementation schedule and reporting procedures

Implementation of the EMP shall allow the parties involved in the preparation, performance and supervision of the Works Contract, for:

- identifying different environmental aspects which have a considerable impact on the state of the environment, and therefore allow for controlling, correcting, and reducing them, but which consequently generate economic effects;
- rectifying adverse consequences of the works conducted during the implementation to the benefit of the environment and financial results;
- determining the aims and measures performed within the adopted environmental policy, covered by the EMP, which require expenditures and bring tangible effects;
- identifying and eliminating prospective hazards and failures, preventing and removing the environmental effects, which may be connected with them and which may entail losses disproportional to the preventive costs;
- using the natural resources reasonably, with minimum environmental loss and optimum generation of costs.

Furthermore, implementation of recommendations and measures required under the EMP may reduce or even eliminate a risk of occurrence of adverse social, environmental and economic events and phenomena related to the Contract, and in particular:

- a risk to ignore the environmental protection issues during the process of implementation of measures by the Contractor;
- a risk of escalation of the local community protests as a result of a failure of the Contractor to adhere to technologies for conducting the works and environmental procedures approved by the Engineer;
- a risk of additional environmental penalties;
- a risk of additional damage to the environment.

Taking into account the significance of the aspects specifying the environmental conditions and community conditions, the following EMP implementation procedures are anticipated:

- prior to the selection of the Contractor, the Employer shall submit a draft of this EMP to the PCU in order to obtain its opinion;
- after the PCU expresses no objection with regard to the submitted documentation of the EMP, the document will be included in the tender documentation for the selection of the Contractor;
- the EMP will then be subject to public consultation according to the procedure currently in force;
- at the same time, the Employer shall submit to the World Bank a draft of this EMP in order to inform about the ongoing procedure and, if possible, to secure an opinion;
- following the public consultation, the EMP will be supplemented with the results of the consultation and the final version will be submitted for approval by the World Bank (issuance of “no objection”);

- after the issuance of “no objection” by the World Bank for this EMP, it will be published in the final version applicable in the Contract and included in the tender documentation for the selection of the Contractor;
- this inclusion will take place no later than before selecting the Contractor and signing the Works Contract with them, in such a way that the final price of the Contractor’s offer relates to and takes into account all the conditions contained in the EMP;
- all activities of the Contractor shall be systematically reported (once a month), in Polish and, if required, in English, in paper and in electronic versions, with reference to the obligations required by the EMP and other contractual documents. Those reports shall be subject to the approval of the Engineer and the Employer.

Furthermore, relevant units involved in implementation of the Contract shall be obliged to fulfil additional obligations related to monitoring and reporting of issues associated with the environmental protection, as determined in administrative decisions issued for the subject Contract (see: Chapter 3.5) and given in Appendix 1 and Appendix 2 to this EMP (Plan of mitigation measures, Plan of monitoring measures).

Monitoring at the works execution stage involves the preparation of summary reports on monitoring of nature by the Contractor, confirmed by the experts of the Contractor's environmental team, approved by the Engineer's environmental team, and submitted to RDOŚ by the PIU. Detailed contents of the report shall be defined by the Engineer (commencement report, periodical reports – monthly, ad-hoc, closure); it shall also determine the due dates.

The progress reporting system under the Project shall also base on monthly reports submitted by Contractors to the PIO through the Engineer, and upon Engineer's monthly and quarterly reports. Monthly and quarterly reports on the EMP implementation (Contractor's and Engineer's) shall be prepared as a part of monthly and quarterly reports or as a separate documents.

The PIU shall supply the PCU with quarterly reports in the part referring to measures implemented by them. They shall contain a required set of information and descriptions allowing for the preparation of the Project’s quarterly report by the PCU. Furthermore, especially in the case of problems with the Works Contract implementation, the PCU shall expect the PIU to submit summaries and data in the monthly periods.

The following reporting procedures were established:

1. Reporting:
    a) Reports (monthly, quarterly, ad-hoc, final) shall be developed by the Contractor;
    b) Report review by the Engineer;
    c) Submission of the report to the Employer (for information);
    d) Provision of a report to RDOŚ and / or GDOŚ (only in a range resulting from administrative decisions issued on the performance stage, if they would require reporting of measures in question);
    e) Submission of a PIU’s quarterly report to the PCU;

f) Final report on implementation of the EMP prepared by the Engineer (after verification by the PIU and by the PCU, submitted to the World Bank not later than 3 months after the completion of works).

2. Filing system:

a) the Contractor: 1 copy of each report in an electronic version for 5 years from the date of the Works Contract completion;

b) the Engineer: 1 copy of each report in an electronic version for 5 years from the date of the Works Contract completion;

c) the Employer: 1 copy of each report in an electronic version for 5 years from the date of the Works Contract completion.

3. Evaluation:

a) ongoing assessment of the outcomes of the planned measures implementation which arise from the EMP;

b) ongoing analysis of documentation (Reports of the Contractor) by the Engineer;

c) providing the Employer with reliable information on the course of the construction process, with special consideration of implementation of the measures limiting the adverse impact on the environment, and recommendations arising from environmental decisions;

d) development and provision of quarterly reports to the World Bank by the PCU.

The following is planned:

- *ex-ante* evaluation: Report prior to the commencement of the Works Contract implementation (Engineer's Report),
- ongoing evaluation: Engineer's quarterly reports,
- *ex-post* evaluation:
  - Report upon the completion of the works (final reports on implementation of the EMP developed by the Contractor and by the Engineer),
  - EMP Report upon expiry of the Defects, Guarantee and Warranty Notification Period drawn up by the Contractor.

11 Source materials

1. Environmental Impact Report – dry flood storage reservoir in the Serafa River Basin, Cracow, May 2012.
2. Decision of the Regional Director for Environmental Protection in Cracow dated October 29, 2012, on environmental conditions for the planned development of five small dry flood storage reservoirs in the Serafa River Basin (ref. no.: OO.4233.13.2012.BM).
3. MasterPlan for the Vistula River Basin. National Water Management Authority, Warsaw 2014.
4. Environmental Impact Report – amending the decision on environmental conditions dated September 18, 2020, in the scope referring to the development of reservoirs Malinówka 3 and Serafa 2, Cracow, June/July 2020.
5. Decision of the Regional Director for Environmental Protection in Cracow dated September 18, 2020, amending the decision on environmental conditions for the planned development of five small dry flood storage reservoirs in the Serafa River Basin (dated October 29, 2012), in the scope referring to the development of reservoirs Serafa 2 and Malinówka 3 (ref. no.: OO.420.4.3.2019.BM).
6. Architectural-construction design for Contract 3A.2 Flood Protection in Serafa Valley:
   - 3A.2 Flood Protection in Serafa Valley, Water-Law Study – Serafa 2 Reservoir, Cracow 2020;
7. Report on the environment for Małopolskie Province in 2017, Provincial Inspectorate for Environmental Protection in Cracow, Cracow 2018.
8. Environmental Protection Program and Waste Management Plan for the City of Cracow remaining its element – plan for the years 2005-2007, including tasks done in 2004 and perspective for the years 2008-2011 – Volume I Environmental Protection Program.
9. World Bank Operational Policy OP 4.01 – Environmental Impact Assessment (https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx#S3-2 [in the part titled *Investment Project Financing / Environmental and Social Safeguard Policies*]).
10. Environmental and Social Management Framework, final document, April 2015 (http://odrapcu2019.odrapcu.pl/en/popdow_documents/).
11. Poland – Odra-Vistula Flood Management Project: environmental and social management framework (http://documents.worldbank.org/curated/en/2015/04/24502899/poland-odra-vistula-flood-management-project-environmental-social-management-framework).
12. Odra-Vistula Flood Management Project – Project Operations Manual, Wrocław 2015 (http://www.odrapcu.pl/doc/POM_PL.pdf)
13. Website: http://odrapcu2019.odrapcu.pl/en/popdow_documents/
14. Website: www.isok.gov.pl/
15. Acoustic maps for the City of Cracow (https://www.krakow.pl/encyklopedia_krakowa/13140,artykul,mapa_akustyczna_miasta_krakowa.html)
16. Geo-service GDOŚ http://geoserwis.gdos.gov.pl/mapy/

12 List of Drawings

13 Appendices

Appendix 1. Plan of mitigation measures

Appendix 2. Plan of monitoring measures

Appendix 3. List of national legal acts related to environmental protection

Appendix 4. Decisions, resolutions, permits, notices

- Appendix 4a. Decision of the RDOŚ in Cracow dated October 29, 2012 on environmental conditions
- Appendix 4b. Resolution of the RDOŚ in Cracow dated October 3, 2018
- Appendix 4c. Resolution of the RDOŚ in Cracow dated September 12, 2019
- Appendix 4d. Resolution of the RDOŚ in Cracow dated September 16, 2019
- Appendix 4e. Resolution of the RDOŚ in Cracow dated December 5, 2019
- Appendix 4f. Resolution of the RDOŚ in Cracow dated May 28, 2020
- Appendix 4g. Resolution of the RDOŚ in Cracow dated August 17, 2020
- Appendix 4h. Decision of the RDOŚ in Cracow dated September 18, 2020 amending the decision on environmental conditions
- Appendix 4i. Resolution of the RDOŚ in Cracow dated November 18, 2020
- Appendix 4j. Decision of the RDOŚ in Cracow dated December 30, 2020 allowing for departure from bans binding in reference to protected species

Appendix 5. Map with location of the Contract

Appendix 6. Map with location of the Contract in reference to protected areas

Appendix 7. Map with location of the Contract in reference to natural habitats and protected species occurrence sites

Appendix 8. Map with location of the Contract's elements