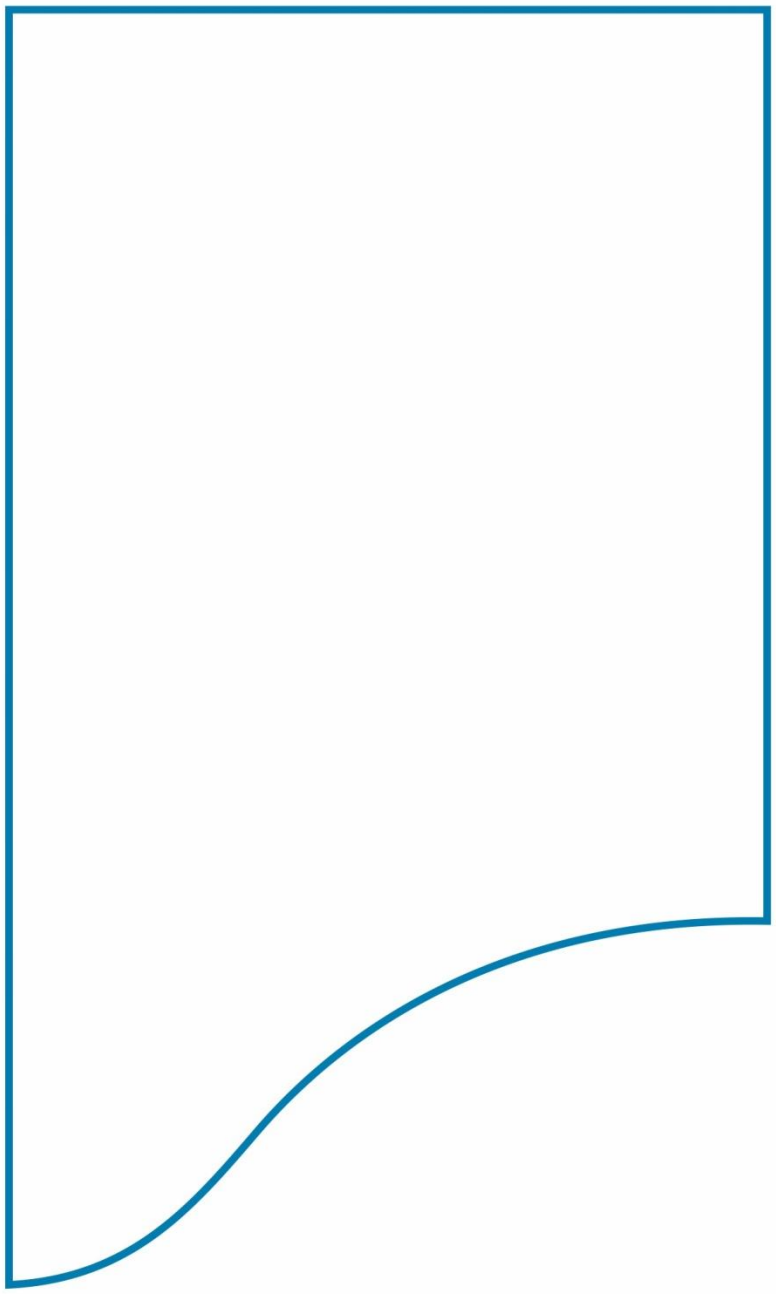
ENVIRONMENTAL MANAGEMENT PLAN



ODRA-VISTULA FLOOD MANAGEMENT PROJECT

Projekt Ochrony Przeciwpowodziowej w Dorzeczu Odry i Wisły

Państwowe Gospodarstwo Wodne **Wody Polskie**

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ENVIRONMENTAL MANAGEMENT PLAN

DRAFT VERSION

ODRA-VISTULA FLOOD MANAGEMENT PROJECT

PROJECT IMPLEMENTATION UNIT - IN ACCORDANCE WITH WB OP 4.01

COMPONENT 2:

Flood protection of the Kłodzka Valley

SUBCOMPONENT 2B:

Passive protection

WORKS CONTRACT 2B.2/1
Flood protection of the Biała Lądecka River valley and Morawa River
Facilities: Stronie Śląskie and Lądek Zdrój

ISSUE	DATE	AUTHOR	REVIEWER	CLIENT'S APPROVAL	DESCRIPTION
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PROJECT IMPLEMENTATION UNIT:

State Water Holding Polish Waters represented by the director of the
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ODRA-VISTULA FLOOD MANAGEMENT PROJECT:

World Bank (WB), Loan Agreement no. 8524 PL
Council of Europe Development Bank (CEB), Framework Loan Agreement no. LD 1866
State Budget

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List of basic definitions and abbreviations used in the EMP

Name	Description
rWMP	Revision of the Water Management Plan for the Odra River Basin (Regulation of the Council of Ministers of 18 October 2016 on the *Water Management within the Odra River Basin*)
IBRD / WB	The International Bank for Reconstruction and Development/ the World Bank
PCU / PCU OVFMP	Project Coordination Unit/ Project Coordination Unit of the Odra-Vistula Flood Management Project
BP	Bank Procedure[1]
C-ESMP	The Contractor's Environmental and Social Management Plan
Environmental decision / DEC	Decision on environmental conditions
Species decision	Decision authorizing activities subject to prohibitions applicable to protected animal, plant or fungi species
Epidemic	The occurrence of a significantly higher number of infections or infectious diseases in a given area than in the previous period or the occurrence of infections or infectious diseases not yet occurring.
ESMF	Environmental and Social Management Framework for OVFMP[2]
ES	World Bank Environmental and Social Policy (ES) concerning environmental and social issues (i.e. environmental protection, health and safety at work and community, gender equality, protection of minors, vulnerable people (including disabled people), sexual harassment, sexual violence, awareness and prevention of HIV / AIDS).
GDDKiA:	General Director of National Roads and Motorways
GRM	Grievance Redressal Mechanism. Details of the procedure are discussed in POM
CSO	Central Statistical Office (GUS)
Investor / Employer / PIU	State Water Holding Polish Waters in Warsaw represented by the Director of the Regional Water Management Authority Wrocław / Project Implementation Unit of the Odra-Vistula Flood Management Project
USWB	Unified Surface Water Body
UGWB	Unified Groundwater Body
PIU	OVFM Project Implementation Unit in PGWWP RZGW in Wrocław
PDS	Project Data Sheet
Consultant / Engineer / Contract Engineer	Company or legal entity providing the Investor with the service of Technical Assistance Consultant within the OVFMP Project
Contract / Works contract / Task / Investment	Works Contract *2B. 2/1 Flood protection of Biała Lądecka River valley and Morawa River*
LAMP	Local Area Management Plan

[1] Operational Policies and Procedures of the World Bank are presented in The World Bank Operational Manual, available at: *https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx*.

[2] The document is available at the PCU OVFMP's website: http://odrapcu2019.odrapcu.pl/popdow_dokumenty/ and at the website of the World Bank, at the website: *http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework*.

Name	Description
Facility	A project forming part of Task 2B.2/1 consisting of two Facilities: Lądek-Zdrój and Stronie Śląskie.
EIA	Environmental Impact Assessment
OP	World Bank's Operational Policy[1]
PAD	Project Appraisal Document for ORFP[2] or OVFMP[3]
WMORB / WMP	Water MANAGEMENT plan within the Odra River Basin of 22.02.2011 (M.P. 2011 no. 40 item 451)
SWH PW	State Water Holding Polish Waters
HASP	Health and Safety Plan
SEM	State Environmental Monitoring
OPIE	Operational Programme Infrastructure and Environment
POM	Project Operations Manual for OVFMP[4]
LARAP	Land Acquisition and Resettlement Action Plan
ORFPP / ORFP Project	Odra River Basin Flood Protection Project
OVFMP / OVFM Project	Odra-Vistula Flood Management Project
FRMP	Flood Risk Management Plan
EMP	Environmental Management Plan
RDOŚ	Regional Directorate for Environmental Protection
EIA Report	Report on the Environmental Impact Assessment of the Project
SDF	Standard Data Form: The Standard Data Form (SDF) is a uniform template describing a Natura 2000 site. It is approved by a decision of the European Commission and compulsory for use in all Member States
Natural habitats	The concept of *natural habitats* used in the text refers to the definition of natural habitats and the listing of their types in The Directive of the Council no. 92/43/EEC of 21st May 1992 on conservation of natural habitats as well as wild fauna and flora (OJ EU L 206, 22.07.1992, as amended). (The Polish nomenclature of natural habitats is set out in the Regulation of the Minister of the Environment of 13 April 2010 *on natural habitats and species of Community interest and the criteria for the selection of areas eligible for recognition or designation as Natura 2000 sites* (consolidated text in Journal of Laws of 2014, item 1713), the Regulation specifies, inter alia, the types of natural habitats of Community interest which require protection in the form of designation of Natura 2000 sites, with the indication of priority natural habitat types)

[1] See footnote for BP (World Bank Procedure).

[2] A document available on the World Bank website: *http://documents.worldbank.org/curated/en/552201468145748680/pdf/31771.pdf*.

[3] Document available on the World Bank's website: *http://documents.worldbank.org/curated/en/320251467986305800/Poland-Odra-Vistula-Flood-Management-Project*.

[4] The document is available at PCU OVFMP's website: *http://odrapcu2019.odrapcu.pl/popdow_dokumenty/*.

Name	Description
State of the epidemic	The legal situation introduced in the area in question in connection with the occurrence of an epidemic with a view to taking up the measures laid down in the Act of 5 December 2008 *on preventing and combating infections and infectious diseases in humans* (unified text: Journal of Laws of 2019, item 1239 as amended) of anti-epidemic and preventive actions to minimize the effects of the epidemic.
Epidemic emergency	The legal situation introduced in the area in question in connection with the occurrence of an epidemic with a view to taking up the preventive measures laid down in the Act of 5 December 2008 *on preventing and combating infections and infectious diseases in humans* (Journal of Laws of 2019, item 1239 as amended)
Construction area/construction site	Construction area / construction site means places where Permanent Works are to be carried out, including storage and working places where Equipment and Materials are to be supplied, as well as other places indicated in the Contract as being part of the Construction Site. The terms "construction area" and "construction site" are interchangeable terms and are understood in the Conditions of the Contract as "Construction Site".
IPSW	Integrated Part of the Surface Waters
EU	European Union
EHS Guidelines	The World Bank's Environmental, Health, and Safety (EHS) Guidelines, General EHS Guidelines[1].
WMC	Voivodship Monument Conservator
Contractor / Task Contractor / Contractor for Part of the Contract	Environmental Management Plan for Works Contract *2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River*
Road and bridge managing entity	An organizational unit performing duties of managing public roads and maintaining within the meaning of *the Act on Public Roads* or duties of managing non-public roads, including bridge structures.

List of abbreviated names of legal acts used in the EMP

The names of the legal acts referred to in the text of this EMP are given in abbreviated form. The full names of the individual legal acts are given in the list below.

Name in the text	Full name (including publication reference)
Bird Directive/BD	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (OJ L 288, 06.11.2007)
Habitat Directive/HD	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.07.1992, as amended)
Water Framework Directive (WFD)	Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, as amended)
EIA Regulation	Regulation of the Council of Ministers of 10 September 2019 on investments likely to exert significant impact on the environment (Journal of Laws of 2019, item 1839).
EIA Act	Act of 3 October 2008 on disclosing information on the environment and its protection, public participation in environmental protection and environmental impact assessments (unified text: Journal 2020, item 283 as amended)

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

Name in the text	Full name (including publication reference)
Act on Public Roads	Act of 21 March 1985 on public roads (unified text Journal of Laws of 2020, item 470)
Nature Conservation Act	Act of 16 April 2004 on nature protection (unified text Journal of Laws of 2020 item 55)
Monument Conservation Act	Act of 23 July 2003 on protection and care of monuments (unified text Journal of Laws of 2020, item 282)
Waste Act	Act of 14 December 2012 – Waste Act (Journal of Laws of 2020 item 797);
Construction Law Act	Act of 7 July 1994 – Construction Law Act (unified text Journal of Laws of 2019 item 1186 as amended)
The Environment Protection Law Act	Act of 27 April 2001 – Environment Protection Law (unified text Journal of Laws of 2019 item 1396 as amended);
The Water Law Act	Act of 20 July 2001 – Water Law (Journal of Laws of 2020 item 310);

ABSTRACT

This Environmental Management Plan (EMP) refers to the Works Contract *2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River*

This EMP presents, inter alia, the following information:

- brief description of the OVFM Project;
- description of the Contract covered by this EMP (Chapter 2);
- characteristics of institutional, legal and administrative conditions of Contract implementation, including the current status of the EIA procedures for the Contract (Chapter 3);
- description of the individual elements of the environment surrounding the Contract (Chapter 4);
- summary of the Contract's environmental impact assessment (Chapter 5);
- description of mitigation measures to eliminate or reduce potential negative impact of the Contract on the environment (Chapter 6), together with a tabular list of these activities (Appendix no. 1 to the EMP);
- description of environmental monitoring activities applicable to the Contract (Chapter 7), together with a tabular list of these activities (Appendix no. 2 to the EMP);
- description of the course of public consultations carried out at the different stages of development of environmental documentation for the Contract (Chapter 8);
- description of the organizational structure of EMP implementation (Chapter 9);
- schedule for the implementation of the EMP and a description of reporting procedures (Chapter 10);
- list of source materials cited in the EMP (Chapter 11);
- list of Appendices to the EMP (Chapter 12);
- summary of national environmental legislation (Appendix no. 3 to EMP);
- copies of the decisions on environmental conditions issued by the Regional Director for Environmental Protection in Wrocław: decision of 12 November 2020 (ref.: WOOŚ.420.8.2020.AP.19) for the Lądek-Zdrój facility – Appendix 4a, decision of 6 November 2020 (ref.: WOOŚ.420.9.2020.AP.20) for the Stronie Śląskie facility – Appendix 4b),
- location of the main elements of the Contract in relation to protected areas (Appendix no. 5),
- location of the main elements of the Contract (Appendices no. 6a and 6b).

Characteristics of the Contract

Contract 2B.2/1 consists in the construction, rebuilding, reconstruction and reinstatement of regulatory structures together with the facilities connected with them technically and functionally. The Contract will be implemented within the riverbed of the Biała Lądecka River and Morawa Stream. The sections covered by the activities include the Biała Lądecka river at the section from approx. km 30+450 to km approx. 32+500 and the Morawa stream at the section from km approx. 0+000 to km ok. 1+800 (Stronie Śląskie) and the Biała Lądecka river from km approx. 21+000 to km approx. 25+350 and at km approx. 26+414, where the ichthyological flow improvement of the watercourse and the estuaries of the following streams: Wiosennik, Wądół, Przyrwa and Rudawka (Lądek-Zdrój) is planned.

Scope of the Contract

The Contract entails:

- reprofiling the existing regulatory walls and revetments of slopes by cleaning and supplementing the joints, filling in the losses of stone.
  In addition, reprofiling means the execution of works to adapt the existing walls/bank revetments to the flow of flood waters with the probability of occurrence of p=10%. As part of the works, it is anticipated that the existing walls/bank revetments will be levelled or raised to the flow of flood waters with the probability of occurrence of p=10%;
- sectional demolition of the destroyed regulatory walls;
- reconstruction of the regulatory walls in the place and along the route of the existing walls;
- reinforcing the existing regulatory walls by executing a band (set-off) in the foot of the wall;
- strengthening of the slopes on the banks (with regulation of the bankline) with a wedged rip-rap;
- conversion of two existing permanent barrages in the Biała Lądecka riverbed to ramps, at km 30+900 ÷ 30+920 and 31+417 (Stronie Śląskie), without changing the bottom level of the headwater and tailwater station of the facility (flow capacity improvement for migration of ichthyofauna);
- renovation of the inactive water intake in the Biała Lądecka riverbed together with the right-hand span of the bridge at km od 31+435 ÷ 31+473 (Stronie Śląskie);
- ichthyological flow capacity improvement by building a fish pass in the channel of the former mill race (section km 23+685÷ 23+800 of the Biała Lądecka on the area of Biała Lądecka), without changing the bottom level of the headwater and tailwater station of the structure,
- renovation of three sills in scope of their overflow crest and bottom revetments in the Biała Lądecka riverbed at km 23+685 ÷ 23+800 (Lądek-Zdrój),
- ichthyological flow capacity improvement of the sill in the Biała Lądecka riverbed located at km 26+414 by building a ramp,
- sectional ichthyological flow improvement of the Morawa stream below the dam of the dry reservoir at km from approx. 1+550 to km approx. 1+750,

- renovation of the existing bottom revetments of the Morawa stream together with the concentration of the sill development below the dry reservoir's discharge devices,
- renovation of the estuary sections of the following streams: Wiosennik, Wądół, Przyrwa and Rudawka,
- increasing the flow capacity of the riverbed by removing locally the deposits of debris from the riverbed, notably: in the clearance of bridges.

Institutional, legal and administrative conditions

The Contract, with regard to its characteristics, anticipated potential environmental impacts and location in relation to protected areas, is carried out in accordance with relevant national environmental legislation and relevant World Bank policies.

Status of administrative procedures for the EIA

For the Contract in question, in accordance with the requirements of national legislation, the Investor, the State Water Holding Polish Waters, obtained the decisions on the environmental conditions of the Contract implementation (hereinafter: environmental decisions). The decisions were issued by the Regional Director for Environmental Protection in Wrocław: the decision of 12 November 2020 (ref.: WOOŚ.420.8.2020.AP.19) for the Lądek-Zdrój facility and the decision of 6 November 2020 (ref.: WOOŚ.420.9.2020.AP.20) for the Stronie Śląskie Facility. The copies of the decisions are attached as Appendix 4a and 4b to the EMP.

Condition of environmental elements in the vicinity of the Contract

As a result of works connected with the identification of natural and cultural assets, it was found that the area of Contract implementation and its surroundings are characterized, among others, by the following environmental conditions:

- The analyzed area is located in the macroregion of the East Sudetes, mesoregions: the Złote Mountains and the Śnieżnik Massif and is characterized by a very varied land form, having a mountain character;
- The area of the Contract is within the range of the Kłodzko region, within a moderately cool climatic floor, characterized by a 4-month winter period with no thermal summer and high total annual precipitation;
- As far as the air quality is concerned, the biggest problem in the area of works is exceeding the permissible number of days with exceeding the target ozone level. High concentrations of PM10 and benzo(a)pyrene are a big problem, especially observed during the heating period. In 2018[1], however, there were no exceedances of the PM10 average daily rate recorded;
- In the geological structure of the Biała Lądecka catchment area, fragments of geological units belonging to the Sudetes Mountains can be distinguished: the Kłodzko - Złotostocki granite massif and the Lądek and Śnieżnik metamorphoses. These units are separated by the Złoty Stok - Skrzynka tectonic zone, running along the north-western border of the Lądek-Zdrój commune;
- The valleys of the Biała Lądecka and Morawa rivers, within which the Contract is located, are dominated by podzolic soils of mountainous areas. They occur together with

[1] the last year for which data from air quality measurements in Lądek-Zdrój and Stronie Śląskie are available.

the brown soils of the mountain subfamily, often as podzolic-brown soils. Along the riverbeds, there are narrow strips of sandy-gravel alluvial soils and, less frequently, alluvial soils with a high proportion of gravels and boulders, deposited by the waters of flowing streams;

- The Contract is located within the limits of two unified surface water bodies: *USWB Biała Lądecka from Morawka to Nysa Kłodzk*a with the code RW60008121699 and *USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica* with the code RW60004121629. Their status in 2017 and 2018 was evaluated as poor;
- The Contract area is located within the reach of UGWB No. 126 with the code PLGW6000126. Its qualitative and quantitative status was evaluated as good. It is not at risk of failure to reach the environmental objectives;
- Based on the conducted nature inventory, seven natural habitats from Annex I of Directive 92/43/EEC were found to occur at the performance site and its surroundings;
- A total of 13 protected and/or rare species of vascular plants, mosses, liverworts, macroscopic algae and lichens were recorded at the implementation site and in the surroundings of the planned works. The most valuable element of the plant cover are the patches of Water-crowfoot *Batrachium penicillatum*, forming a habitat with the code 3260 in the Biała Lądecka riverbed. This habitat is the main object of protection of the Biała Lądecka Natura 2000 site PLH020036;
- There are no legally protected species identified among the aquatic macro-invertebrates in the Biała Lądecka. However, invertebrate communities revealed significant species diversity which indicated good ecological status of the river,
- In Biała Lądecka, three species of fish (Rainbow Trout, European Bullhead, Stone Loach) and one species of lamprey (Brook Lamprey) were recorded;
- Five representatives of herpetofauna were found in the project area: two species of amphibians (European toad, Common frog) and three species of reptiles (Sand lizard, Grass snake, Slowworm);
- Six bird species were found to occur in the Contract area. None of the species are listed in the Annex I of the Bird Directive, but all are under strict species protection in Poland;
- In the studied area, mammals are represented mainly by the otter. This species occurs in the whole analyzed section of the Biała Lądecka River and the Morawa stream;
- There are seven species of bats in the Project area. The species found both in Stronie Śląskie and in Lądek-Zdrój is Daubenton's Bat associated with the water habitat.
- The following Natura 2000 sites are located in the implementation site and in the vicinity of the Contract implementation area:
  - Biała Lądecka PLH020035 - fully coincides with sections of planned works in the Biała Lądecka riverbed,
  - Bialskie Mountains and Śnieżnik Group PLH020016 - the minimum distance of works from the borders of the area is approx. 650 m for the Stronie Śląskie facility and approx. 3 km for the Lądek-Zdrój facility;
  - Złote Mountains PLH020096 - the minimum distance from the area of works is approx. 30 m for the Stronie Śląskie facility and approx. 1 km for the Lądek-Zdrój facility;

  - Krowiarki Range PLH020019 - the minimum distance of the Site from the area of works is approx. 600 m for the Stronie Śląskie facility and approx. 4 km for the Lądek-Zdrój facility;
  - Czarne Urwisko koło Lutyni PLH 020033 - the minimum distance of the Site from the area of works is approx. 6 km for the Stronie Śląskie Facility and approx. 2 km for the Lądek-Zdrój Facility;
- There are no national parks, nature reserves, protected landscape areas or nature and landscape complexes within 5 km from the area of the planned works. The area is located entirely in the buffer zone of the Śnieżnicki Landscape Park;
- There is one natural monument in the immediate vicinity of the works area (i.e. up to approx. 20 m);
- There are 23 monuments protected under the Act of 23 July 2003 *on the protection and care of monuments* in the vicinity of the Contract area (up to 0.5 km).

Potential impact of the Contract on environment

The surface of the earth and landscape

The implementation of the investment will have a minimal impact on the surface of the earth during the construction phase. Impacts on the surface of the earth will be associated with temporary land occupation along the riverbeds. No permanent change of the earth surface is planned, except for short sections of riverbeds, where it is planned to shape the bank line, build slope reinforcements and convert the barrages to ramps. Due to the small total length of these sections and the small scope of interference with the current shape of the land surface, their impact is not significant in the scale of the analyzed area.

The implementation of the Contract will have an effect on changes in the landscape, which is connected with the presence of construction site facilities, technological roads, equipment and machines needed to carry out the works, as well as temporary storage places for materials generated during demolition works and removal of material deposited within the riverbed. Impacts on landscape values at the operation stage will not be significant.

Climate

The Project will not affect the climate and climate change at both the implementation and operation stages.

Air quality

At the stage of investment implementation, two types of air emissions are expected to occur: exhaust gas emissions resulting from the operation of machinery and heavy construction equipment and the movement of vehicles transporting construction and demolition materials, and dust emissions resulting from the operation of construction machinery and vehicle traffic and the movement of earth and excavated material. It is expected that at the implementation stage the investment, due to its linear character and dispersion of works generating pollution, will not have a significant negative impact on the environment and will be limited to the closest vicinity of the work sites. No emissions of pollutants into the air at the operation stage are expected.

Soil and land

Impacts on soil and land will be associated with direct interference with bed sediments, alluvial soils (spot and selected river sections covered by the works), temporary transformation of the land surface and changes in soil structure on the temporarily occupied land (technological roads, construction site facilities). During the execution of the works, the potential threat is soil contamination due to equipment failure and leakage of petroleum substances from working machines. After completing the construction works and after the properly done ground reinstatement, no significant changes to soil and water conditions and to soil productivity within temporary occupation sites are expected.

Surface waters

With regard to the planned renovation and rehabilitation works, these works do not essentially interfere with the shape of the riverbed and bank zone, as they relate to places where there are already hydrotechnical buildings and infrastructure. Thus, the impacts on individual elements of the assessment of the ecological status of water bodies do not cause permanent negative impacts. Most of the adverse impacts on water status include the implementation phase and cease after its completion.

Permanent changes in the riverbeds of the Biała Lądecka and the Morawa stream concern the sections where the regulation of the bank line and sectional reinforcement of banks is planned, the reconstruction of permanent barrages and sills into ramps and fish passes. The regulation of riverbeds for the Stronie Śląskie facility is planned on the sections with a total length of approx. 1150 m, which constitutes less than 2% of the length of both USWBs. The regulation of riverbeds for the Lądek-Zdrój Facility is planned on the sections with a total length of approx. 950 m, which constitutes less than 3% of the length of both USWBs. Given the small spatial scope of works on the scale of both analyzed USWBs, the changes in the riverbed are not so significant as to lower the assessment of the ecological status of the analyzed USWBs and threaten the achievement of environmental objectives set for the analyzed unified water bodies.

Groundwater

The works connected with the planned investment will not change the existing water conditions in the area of its implementation and adjacent areas. At the implementation stage, there may potentially be negative impacts on the status of groundwater as a result of equipment failure, and similar events which cannot be predicted at present and completely eliminated only by determining the appropriate organization and technology of works execution. After completion of the works, at the operation stage, no impact on the quantitative and chemical status of UGWBs is expected.

Natural habitats

Negative impacts on three types of natural habitats are expected to occur at the stage of Contract implementation in the area of Stronie Śląskie, including the habitat 3260 Lowland and foothill rivers with Batrachion vegetation. Negative impacts are also expected to occur in the Lądek-Zdrój area on three natural habitats, including habitat 3260 and 91E0.

Flora

Negative impacts are expected to occur at the implementation stage on eight species of rare and/or protected plants, aphids and lichens for the Stronie Śląskie Facility and on three species for the Lądek-Zdrój Facility. This is also expected in respect of Water-crowfoot *Batrachium penicillatum* and Linnaeus *Lemanea fluviatilis* also at the investment operation stage.

Fauna

It is expected that weak to moderate negative impacts will occur on four species of invertebrates in the area of Stronie Śląskie and on four species in the area of Lądek-Zdrój at the Contract implementation stage. No negative impacts on invertebrates are expected during the operation phase of the project.

The implementation of works will affect the living conditions of ichthyofauna through periodic changes in water physiochemistry and flow, including suspension inflow. The impacts will only relate to the phase of construction and will disappear after a few/a dozen or so hours after completion of works. Therefore, they will not be significant for the local populations of these species. There will be positive sustainable impacts on the migration of fish and lampreys at the operation stage. In order to reduce possible fish mortality at the works performance stage, appropriate technology has been introduced to carry out the works and to anticipate the fishing on the sections covered by the works.

Negative weak to moderate impacts on amphibians and reptiles are expected at the implementation stage. These impacts will be associated with a potential increase in the incidental mortality of individuals as a result of increased vehicle traffic in the works area. No negative impacts are expected during the operation phase.

The impacts on avifauna during the implementation phase are primarily related to the startling and scaring of bird species directly related to the riverbed and habitats occurring on the bank slopes, but also to the local felling of trees with hollows or nests. Moderate negative impacts may occur at both facilities during the operation stage related to: White Wagtail, Grey Wagtail, White-Throated Dipper and Spotted Flycatcher.

Moderate negative impacts on the otter are expected to occur, as well as weak impacts on the Mole, Ural Field Mouse and Montane Water Vole at the Contract implementation stage. The otter will be scared during the period of works performance. No negative impacts are expected during the operation phase.

No negative impacts on bat species inventoried in the Stronie Śląskie area are expected. There is a possibility of weak impact on Serotine Bat and Barbastella Bat in the area of Lądek-Zdrój.

Natura 2000 sites

Negative impacts on the objects of protection of the Biała Lądecka Natura 2000 site PLH020035 are expected to occur during the implementation phase (habitats: 3260 and 9170; European Bullhead, Brook Lamprey, European otter). Both negative and positive impacts are expected at the stage of operation (habitat: 3260; European Bullhead – positive impact, Brook Lamprey – positive impact).

There will be no impact on the habitats which are subject to their protection in the case of the remaining Natura 2000 sites adjacent to the investment area. Negative impacts on animal species, which are the objects of protection of the areas at the implementation stage, are expected to occur. On the other hand, a lasting impact at the operation stage will be positive - the improvement of the ichthyological flow capacity of the Biała Lądecka section will improve the integrity and connection of Natura 2000 sites.

Other protected areas

The implementation of the Contract does not generate negative impacts on other protected areas, such as national parks, nature reserves, protected landscape areas, nature and landscape complexes and ecological sites, which are located outside the Project's direct and indirect impact zone. The works will be carried out in the distance of several dozen meters from the Śnieżnicki Landscape Park, the work area is located in its buffer zone. The impact of the works carried out on the Śnieżnicki Landscape Park at the implementation stage will be insignificant. A negative impact at the implementation stage of the Project on one natural monument located in Stronie Śląskie in the vicinity of the works is expected.

Acoustic climate

Negative impacts in the form of noise emissions will occur at the Contract implementation stage. These will be short-term impacts varying over time, mainly related to the operation of machinery and heavy construction equipment and the movement of construction vehicles. Hydrotechnical structures covered by the scope of the Contract do not generate noise. Hence, their operation does not permanently affect the acoustic status of the environment of the adjacent areas, except for the periods of maintenance works in the riverbed and on the bank slopes.

Cultural monuments

No significant risk was found at the stage of the Contract implementation for the sites deemed to be protected on the basis of an entry in the register or monument register. At the operation stage, a positive impact on historic buildings is expected due to the reduction of the flood risk level.

Material goods

Impacts on material goods at the stage of construction works will mainly result from the execution of works and movement of vehicles and machines in built-up and inhabited areas. There is a potential risk of hazards during the performance of demolition works related to, notably, the reconstruction of the set-offs of regulatory walls and the foundation of new facilities (regulatory walls). These works pose the following risks for structural buildings located in their vicinity: subsidence or uneven subsidence of the structure, rotation, tilting,

deflection, displacement of the structure; occurrence of structural vibrations causing discomfort to users and lowering the functionality of the structure, as well as damages related to the occurrence of scratches and cracks of structural elements, affecting the safety of the structure, and for non-structural elements - lowering the aesthetics of the structure. These impacts have been identified as potential, these aspects will be monitored at the investment implementation stage. The effect of the Contract implementation will be a more effective protection of material goods (including, first of all, urban development and infrastructure) located in flood plains in the event of flooding.

Human health and safety

The impacts of the Contract at the implementation stage will be the impacts typical for medium-sized construction sites. These will be: noise emissions, pollution emissions and traffic nuisance (related to increased vehicle traffic). These impacts will be temporary (limited to the construction period).

Waste

It is estimated that approx. about 16700 m3 of waste will be generated at the implementation stage. This will be typical construction and renovation and demolition waste (including soil and earth). It is also possible to produce waste related to the operation of mechanical equipment and construction machinery powered by combustion engines, including hazardous waste. Municipal waste will be generated within the construction site facilities during the period of conducting the works. If the generated waste is properly handled and managed, the construction process will not have a negative impact on the environment during the implementation stage.

Cumulative and transboundary impacts

The implementation of all tasks included in the cumulative impact assessment (chapt. 5.14) does not pose a threat to the status of the USWBs in question, and also UGWB no. 126 or to the achievement of WFD environmental objectives referred to in Article 57 and 59 of the Water Law. The prerequisite is to apply correct technical solutions and the planned minimization measures.

Due to the nature of the generated impacts and its location, the Project does not pose a risk of the occurrence of transboundary impacts. There is no possibility that the possible impacts would extend to areas within the borders of the Czech Republic that are several to a dozen or so kilometers away.

Mitigation measures and monitoring measures

Chapters 6 and 7 and in the Appendix 1, 2 to EMP describe and present in a table form a set of mitigation and monitoring measures to eliminate or reduce the negative environmental impacts of the Contract and to ensure the effective implementation of the conditions of the EMP. These measures include the conditions specified in the environmental decisions issued for the Contract, as well as additional conditions formulated at the stage of works over the EMP.

Public consultations

Chapter 8 of the EMP presents an account of public consultations carried out as part of the procedures related to the environmental impact assessment of the planned Contract, including:

- public consultations of the Environmental and Social Management Framework Plan for OVFMP (2015);
- public consultations carried out at the stage of issuing the environmental decisions for the Contract (2020);
- public consultations for this Environmental Management Plan (2021).

1. INTRODUCTION

This Environmental Management Plan (EMP) refers to the Works Contract *2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River.*

1.1. ODRA-VISTULA FLOOD MANAGEMENT PROJECT (OVFMP)

The aim of the Odra-Vistula Flood Management Project (OVFMP) is to increase the level of flood protection for people living in selected areas of the Odra and Upper Vistula river basins and to strengthen the institutional capacity of government administration to provide more effective protection against summer and winter floods and flash floods.

The project consists of five Components:

Component 1 - Flood Protection of Middle and Lower Odra River, including:

Subcomponent 1A - Flood protection of areas in Zachodniopomorskie voivodship;

Subcomponent 1B Flood – Flood Protection on the Middle and Lower Odra;

Subcomponent 1C Flood – Flood protection of Słubice city.

Component 2 - Flood protection of the Kłodzko Valley, including:

Subcomponent 2A - Active protection;

Subcomponent 2B - Passive protection.

Component 3 - Flood Protection of Upper Vistula, including:

Subcomponent 3A - Flood protection of Krakow and Wieliczka;

Subcomponent 3B - Flood protection in Sandomierz and Tarnobrzeg;

Subcomponent 3C - Passive and active protection in the Raba River basin;

Subcomponent 3D - Passive and active protection in the San river basin.

Component 4 - Institutional strengthening and upgrading of the forecasting system

Component 5 - Project Management and developing further studies

Detailed information and additional documents concerning the OVFM Project are available on the website of the Project Coordination Unit for the Odra-Vistula Flood Management Project (http://odrapcu2019.odrapcu.pl/) and on the website of the World Bank (http://documents.worldbank.org/curated/en/docsearch/projects/P147460).

1.2. FLOOD PROTECTION OF THE KŁODZKA VALLEY (COMPONENT 2 OF OVFMP)

Component 2 of OVFMP titled *Flood protection of the Kłodzka Valley* aims to reduce the existing flood risk in the problem area (hot spot) of the Kłodzko Valley.

In accordance with the provisions of the FRMP and rWMP, as part of the Odra-Vistula Flood Management Project (OVFMP), 2 Subcomponents are comprised within Component 2:

1. Subcomponent 2A - active protection:
   - 2A.1/1 Construction of the "Boboszów" dry flood control reservoir on Nysa Kłodzka River,
   - 2A.1/2 Construction of the "Roztoki Bystrzyckie" dry flood control reservoir on the Goworówka stream,
   - 2A.2/1 Construction of a dry flood protection reservoir Krosnowice on the Duna stream near Krosnowice,
   - 2A.2/1 Construction of "Szalejów Górny" dry flood control reservoir on Bystrzyca Dusznicka River;
2. Subcomponent 2B - passive protection:
   - 2B.1/1 Flood Protection of the Nysa Kłodzka Valley,
   - **2B.2/1 Flood protection of the Biała Lądecka River valley and Morawka River**,
   - 2B.2/2 Flood protection of the Bystrzyca Dusznicka River and the Kamienny Potok River.

Contract 2B.2/1 consists of two Facilities:

1) Contract 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Lądek Zdrój Facility,
2) Contract 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Stronie Śląskie Facility.

2. CONTRACT DESCRIPTION

2.1. CONTRACT LOCATION

The Contract is located within the riverbed of the Biała Lądecka River and Morawa Stream and in their immediate vicinity within the boundaries of the town and commune of Stronie Śląskie, district: Stronie Śląskie and Goszów and within the administrative borders of the town of Lądek-Zdrój, districts: Stare Miasto, Nowy Zdrój and Stary Zdrój. These areas are located in Kłodzko Poviat, Lower Silesia Voivodship. 90% of the length of watercourses where works will be carried out are located in built-up areas.

The sections covered by the study include:

- Morawa stream at the section from km 0+000 to km 1+800 with a length of approx. L=1.80 km (Stronie Śląskie Facility),
- Biała Lądecka River at the section from km 30+450 to km 32+500 with a length of approx. L=2.05 km (Stronie Śląskie Facility),
- Biała Lądecka River at the section from km 21+000 to km 25+350 with a length of approx. 4.35 km (Lądek-Zdrój Facility),
- estuary sections of the following streams: Wiosennik, Wądół, Przyrwa and Rudawka (Lądek-Zdrój Facility).

Apart from the compact scope of works in the area of Lądek-Zdrój, the scope of the Contract also includes the conversion of the sill to ramps in the Biała Lądecka riverbed at km 26+414 (within the boundaries of the Lądek-Zdrój Commune).

The location of the Contract is presented in appendices 6a and 6b and in Fig. 1 and 2.

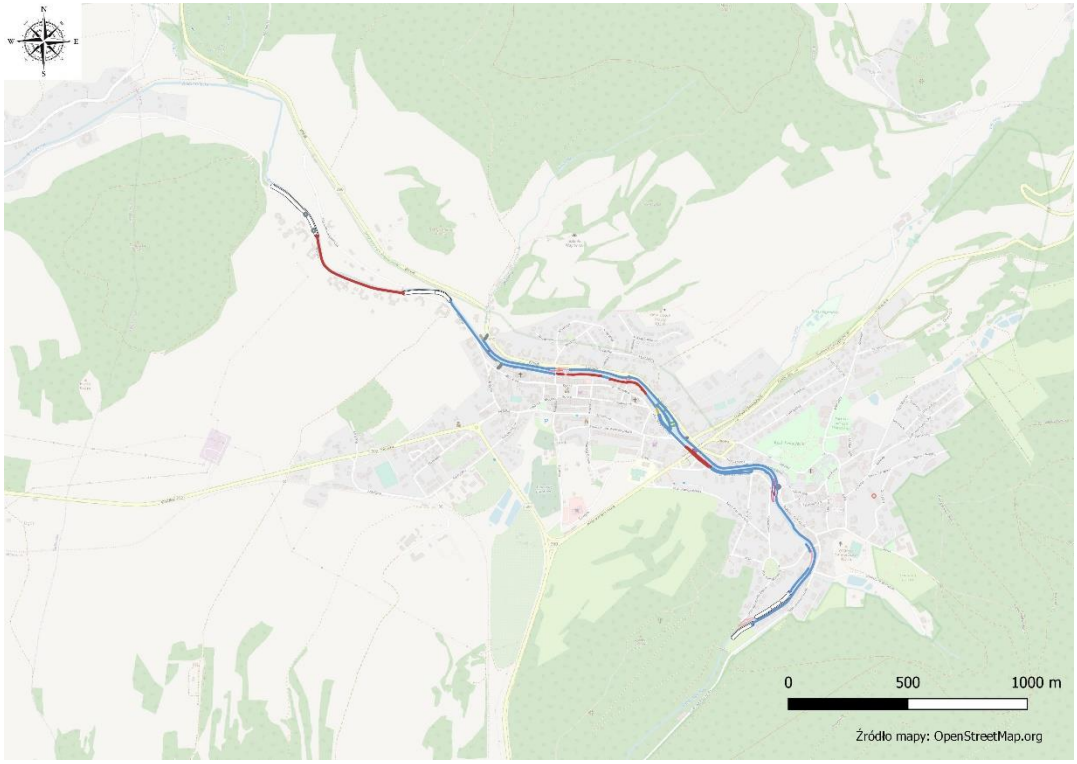

Fig. 1 River sections included in Contract 2B.2/1 Lądek-Zdrój Facility.

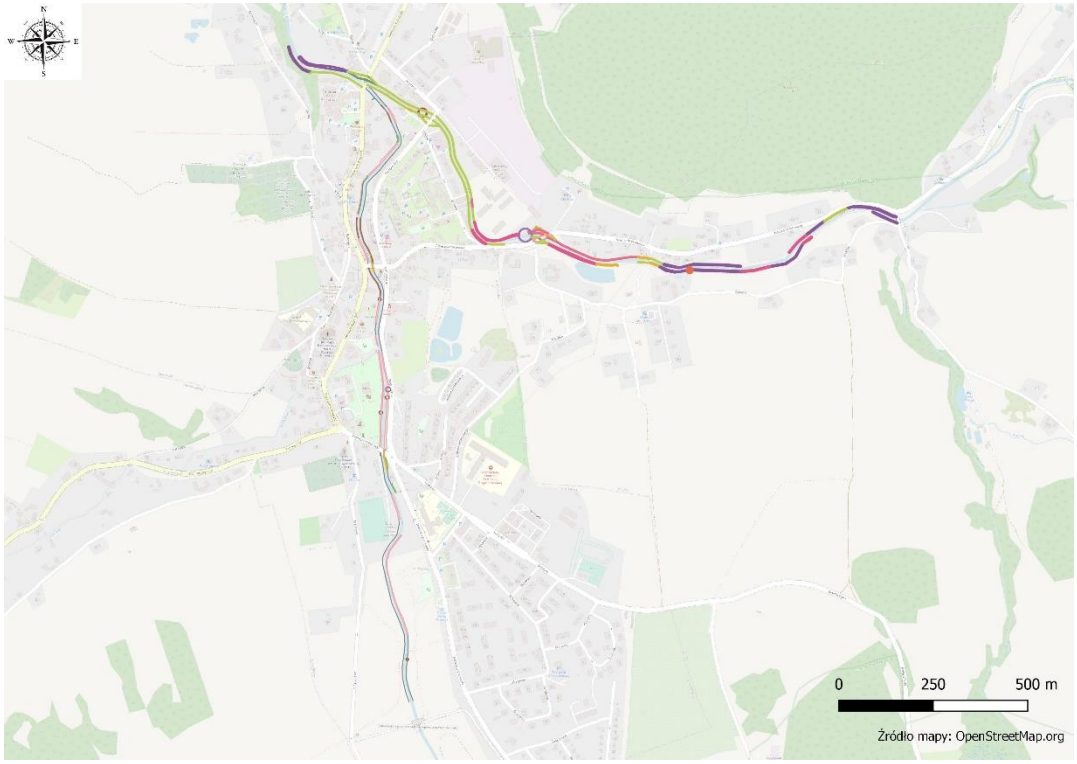

Fig. 2 Location of Contract 2B.2/1 Stronie Śląskie Facility.

2.2. CONTRACT QUALIFICATION

The planned construction works under this Contract qualify as an investment in scope of flood protection structures within the meaning of the Act of 8 July 2010 *on special rules on preparing*

to investment implementation within the scope of flood control structures (i.e. Journal of Laws of 2017, item 1377 and 1381) (special flood act).

In accordance with Article 2(1) of the special flood act, the scope of works to be carried out was classified to the following categories as part of flood protection structures: construction, reconstruction and renovation of regulatory structures together with facilities related to them technically and functionally.

The planned duration of the works covered by the Contract is about 15 months.

2.3. TYPE OF TECHNOLOGY

DESIGN ASSUMPTIONS

The planned project has generally a nature of renovation and restoration works. They consist in improving the technical condition of the existing regulatory bed development and stabilizing the course of the bed in the plan as well as in the longitudinal profile. The design solutions were elaborated using typical types of protection for mountain river areas.

Basic design assumptions:

- increasing the flood protection of bank areas with particular emphasis on built-up areas and traffic routes,
- improving the ichthyological flow capacity by eliminating transverse barriers,
- ensuring the durability and stability of the cross-section and longitudinal section by renovating the revetments,
- increasing the flow throughput capacity of the riverbed by elimination of the so-called bottlenecks of the bed route,
- protecting the city of Stronie Śląskie and Lądek-Zdrój against damage to regulatory and bridge structures during the passage of a flood wave.

It is planned to attain the above objectives through:

- reprofiling the existing regulatory walls and slope revetments by cleaning them and supplementing the joints, filling in the losses of stone,
- construction of new sections of regulatory walls,
- demolition of destroyed regulatory walls,
- reconstruction of regulatory walls in the place and along the route of the existing walls (damaged or planned for demolition) consisting in the local felling of trees and shrubs, removing the layer of humus, excavating a trench in the bottom of the bed, constructing a reinforced concrete structure of the wall, backfilling the space behind the wall from the land side with soil, executing a stone lining of the wall from the bed side; the area behind the wall crest will be covered with humus and sown with a native blend of grasses,
- sectional reinforcement of the existing walls by means of a band (set-off), consisting of excavating a trench in the bottom of the bed and then a concrete screed under the foot of the wall,

- reconstruction of the bottom revetments at km 1+550 ÷ 1+750 of the Morawa stream together with the concentration of the sill development below the dry reservoir's discharge devices (located at km 1+800 of the Morawa stream) in order to reduce the bottom erosion, together with the application of solutions for the ichthyological flow capacity improvement,
- renovation of the closed water intake to the steelworks at km 31+458 of the Biała Lądecka River,
- ichthyological flow capacity improvement through the use of a ramp on the barrages in the Biała Lądecka riverbed at km 30+900 ÷ 30+920 and km 31+417 - ramps made in the form of inclined ramps with an inclination of about 1:25,
- renovation of three sills as regards their overflow crest at the section of the Biała Lądecka river at km 23+685 ÷ 23+800,
- ichthyological flow capacity improvement by using a fish pass in the channel of the former mill race the height of the cascade of three barrages in the Biała Lądecka riverbed at km 23+685 ÷ 23+800,
- ichthyological flow capacity improvement of the sill in the Biała Lądecka riverbed located at km 26+414 consisting in the reconstruction of the sill into a ramp made in the form of inclined ramps with an inclination of about 1:25,
- local slope reinforcement with a wedged stone rip-rap - the works will consist in local felling of trees and shrubs, removal of the humus layer, execution of sloping, laying geotextile fabric and laying boulders; the slope above the rip-rap is to be covered with humus and sown with a mixture of native grasses,
- cutting down the trees and shrubs colliding with the scope of other works performed (apart from the one described above),
- removing the debris deposits from the channels of watercourses in the clearance of bridges.

DETAILED SCOPE OF WORKS

I. Scope of works on the Morawa stream in the area of the town of Stronie Śląskie

1. **Renovation and reconstruction works** (are given with a division into the length of works carried out on the right or left bank):

- reprofiling the existing stone bank wall: LB ≈ 300 m; RB ≈ 600 m; total of ~1000 m,
- demolition of the existing and reconstruction of the stone bank wall: LB ≈ 300 m; RB ≈ 150 m; total of ~ 500 m,
- reconstruction/rebuilding/construction of the set-off in the wall foot: LB ≈ 200 m; RB ≈ 500 m; total of ~700 m,

- reprofiling the existing stone bank revetments of the slope: LB ≈ 550 m; RB ≈ 450 m; total of ~ 1000 m,
- shaping (regulation) of the bank line and construction of the slope revetment (stone placed with wedging): LB ≈ 600 m; RB ≈ 600 m; total of ~1200 m,
- construction of a bank band in the form of a bank wall with a reinforced slope above, connected to the existing area: LB= 250 m; RB ≈ 0 m; total of ~250 m,

- removal of mudslides in order to improve the flow capacity of the riverbed, including internal diameter of bridges: LB ≈ 250 m; RB ≈ 250 m; total of ~ 500 m,
- renovation of the existing stormwater drainage outlets to the stream bed; ~3 pcs,
- renovation of the water intake at km 0+903.

2. **Renovation and compaction of the existing sill development (increasing the number of sills) below the dry reservoir's discharge devices at km approx. 1+550 ÷ 1+750** (considering the conditions for fish migration).

II. Scope of works on the Biała Lądecka River at km 30+450÷32+500 in the area of the town of Stronie Śląskie

Renovation and reconstruction works (are given with a division into the length of works carried out on the right or left bank):

- reprofiling the existing stone bank wall: LB ≈ 850 m; RB ≈ 650 m; total of ~1500 m,
- demolition of the existing and reconstruction of the stone bank wall: LB ≈ 150 m; RB ≈ 150 m; total of ~ 300 m,
- reconstruction/rebuilding/construction of the set-off in the wall foot: LB ≈ 850 m; RB ≈ 650 m; total of ~1500 m,
- reprofiling the existing stone bank revetments of the slope: LB ≈ 350 m; RB ≈ 350 m; total of ~ 700 m,
- shaping (regulation) of the bank line and construction of the slope revetment (stone placed with wedging): LB ≈ 550 m; RB ≈ 550 m; total of ~ 1100 m,
- construction of a bank band in the form of a bank wall with a reinforced slope above, connected to the existing area: LB= 0 m; RB ≈ 400 m; total of ~400 m,
- removal of mudslides in order to improve the flow capacity of the riverbed, including internal diameter of bridges: LB ≈ 500 m; RB ≈ 500 m; total of ~ 1000 m,
- renovation of elements of the water intake maintained as an element of historical technical infrastructure of Stronie Śląskie: walls/footbridge/grille at the inlet/gate with drives etc. in the river km approx. 31+458 - 31+473,
- demolition of the existing permanent water weirs and execution of the ramps at km 30+900 ÷ 30+920 and at km 31+417, without changing the bottom level of the headwater and tailwater station of the structure,
- renovation of the estuary section of the ditch at km about 31+875.

III. Scope of works on the Biała Lądecka River at km 21+000÷25+350 in the area of the town of Lądek-Zdrój

1. Renovation and reconstruction works (are given with a division into the length of works carried out on the right or left bank):

- reprofiling the existing stone bank wall: LB ≈ 1730 m; RB ≈ 2020 m; total of ~3750 m,
- construction of a new stone bank wall: LB ≈ 140 m; RB ≈ 0 m; total of ~140 m,
- shaping (regulation) of the bank line and construction of the slope revetment (stone placed with wedging): LB ≈ 950 m; RB ≈ 150m; total of ~1100 m,
- reinforcing the existing walls by executing a band (set-off) in the foot of the wall;

- renovation of three sills as regards their overflow crest and bottom revetments in the Biała Lądecka riverbed at km 23+685 ÷ 23+800,
- increasing the flow capacity of the riverbed by removing locally the deposits of debris from the riverbed, notably: in the clearance of bridges;
- ichthyological flow capacity improvement of the sill in the Biała Lądecka riverbed located at km 26+414.

2. Construction of the fish pass in the channel of the former mill race (km 23+685 ÷ 23+800 of the Biała Lądecka river)

In connection with the construction of the fish pass, it is necessary to dismantle the walls on the both banks of the existing mill race and rebuild them in accordance with the new conditions of water flow with a certain probability in the riverbed.

2.3.1. CONDITIONS FOR PERFORMANCE OF WORKS AND REQUIREMENTS FOR BACK UP FACILITIES

The works in the Stronie Śląskie and Lądek Zdrój facilities will be carried out simultaneously, observing the principle of starting the works from the top of each of the sections of the works (excluding places where the works will be carried out locally, such as bridges, fish pass, fish migration ramps). The sequential execution of works in time and space will enable to maintain an appropriate distance between successive locations of works along the same river (it refers to linear works within the riverbank slopes).

The implementation of the project will be limited in space to the riverbed of the Biała Lądecka and the Morawa stream and their immediate surroundings (a strip not exceeding the width of about 10 ÷ 20 m from the bank line). The sectional works will have to be carried out using "from the water" technology. For this purpose, it is planned to build temporary, sectional cofferdams in the bed, i.e.: the lower, upper and longitudinal cofferdam, built of the natural material (e.g. sandbags with possible sealing with construction foil). The equipment used for performance of works along the river bank slopes will move in the drained part. For the duration of works, the drained part of the riverbed will be lined with a natural material in the form of fascine mattresses, laid out in the whole technological belt of machine movement, in order to limit direct impact on the riverbed.

Works will be carried out in short sections, in an alternating manner. The sections of the above-mentioned riverbed separation with cofferdams will be limited on one side with adjusting them to the scope of works at the length of approx. 15 ÷ 50 m. After the execution of works within the section of works on one bank slope (module of separation for works), the zone of works will be transferred, in a by passing manner, to the opposite slope (applies to cases where on a given section of the river both bank slopes are covered by works) or in the case of masonry works (concreting of the wall body) on the same bank, for the every other module in order to stage the works. Due to the scope and place of works, i.e. in the immediate vicinity of strict urban development and/or technical infrastructure, it is necessary to stage these works and carry them out with short sections alternately. This type of performing the works will also limit the time during which certain sections of the riverbed will be deprived of water.

Due to the length of the section covered by the investment, it is suggested to locate the construction facilities in 4-5 locations, at least two locations each for Facility.

The construction site facilities and technological roads and yards should be located outside the areas covered by high greenery (trees, shrubs), the boundaries of the identified natural habitats and the habitats and sites of protected species. Such facilities are to serve for storage of building materials and topsoil, garage, refueling and current repairs of machinery and devices, storage of fuels and oils, location of social facilities (a room for construction team, portable sanitary cabins with full equipment) and waste containers. The construction site facilities and all technological roads, where machinery and vehicles will move, should be covered with concrete road slabs on subcrust. In the vicinity of machine garaging and filling there should be a stand with sorbent serving to eliminate any leaks and spills of petroleum substances.

Each site selected by the Contractor for the location of construction site facilities and for the course of technological roads must be approved by a team of environmental experts established for the purpose of carrying out the works.

2.3.2. LAND OCCUPATION

Some of the works will be carried out under conditions of temporary or permanent occupation of private land directly adjacent to the watercourse bed.

Temporary occupations will be implemented in accordance with the contents of the Land Acquisition and Resettlement Action Plan for Contract 2B.2/1 and the Operational Policy of the World Bank OP. 4.12[1]. The LARAP contains a detailed list of activities and procedures related to land acquisition for permanent and temporary occupations resulting from the execution of the Contract. This document is subject to the procedure of public consultation before the commencement of works, therefore each person and entity that may be affected by the execution of Contract 2B.2/1 will have the opportunity to get acquainted with the content of the document and make any comments and proposals.

Activities related to the acquisition of land for the purposes of investment implementation are also carried out in accordance with the procedures set out in the LARPF (Land Acquisition and Resettlement Policy Framework[2]). Reservations and comments to the content of the LARAP as well as any reservations regarding the implementation of land acquisition in accordance with Polish law, shall be qualified as complaints and applications (*Grievance Redressal Mechanism*). This mechanism also covers the filing and management of any complaints that may be made in the course of the project by persons and entities affected by any of its impacts. This issue was discussed in detail in the POM for the OVFM Project[3].

Permanent occupation will be necessary in selected locations on the land adjoining the riverbeds for the execution of Facilities Lądek-Zdrój and Stronie Śląskie. The principles of making

[1] https://policies.worldbank.org/sites/ppf3/PPFDocuments/090224b0822f89db.pdf

[2] http://odrapcu2019.odrapcu.pl/doc/OVFMP/Ramowy_dokument_dotyczacy_Przesiedlen_i_Pozyskiwania_Nieruchomosci.pdf

[3] http://odrapcu2019.odrapcu.pl/doc/POM_PL.pdf

permanent and temporary occupation will be determined in detail in the Land Acquisition and Resettlement Action Plan for Contract 2B.2/1.

In accordance with the provisions of LARAP, at the stage of project preparation and its implementation, mitigation measures will be applied, the aim of which is to limit and compensate for all negative socio-economic effects of project implementation.

2.4. TREES AND SHRUBS FELLING

In connection with the implementation of the necessary scope of works, it is necessary to cut down trees and shrubs. The detailed scope of the trees and shrubs to be felled will be determined at the stage of detailed design works.

Mitigation measures will be taken during the implementation stage of the works concerning the possibility of preserving specific specimens at the stage of performing works through appropriate technology and organization of works. Works will be carried out under the ongoing supervision of a team of environmental experts.

The implementation of measures involving the restoration of greenery in the ratio 1:1 is also planned. Ultimately, the state of greenery should be reconstructed, analogous to the state before the start of the investment. The plantings made will also be checked during the warranty period for works. Only native species adapted to local habitat conditions should be used for planting. Planting should be done first of all in the town of Lądek Zdrój and Stronie Śląskie, along the river channels. Detailed conditions of planting will be determined by a dendrologist.

3. INSTITUTIONAL, LEGAL AND ADMINISTRATIVE CONDITIONS

3.1. INSTITUTIONS INVOLVED IN CONTRACT IMPLEMENTATION

The Investor of the Contract is the State Water Holding Polish Waters in Warsaw represented by the Director of Regional Water Management Authority in Wrocław, 34 C. K. Norwida Street, 50- 950 Wrocław, acting for and on behalf of the State Treasury.

Additionally, during the construction and operation phase, the implementation of the Contract may require the involvement of public administration bodies at central, regional and local level. The day-to-day coordination of the OVFM Project implementation and the Contracts executed within its framework is ensured by a specially established organizational unit - the Odra-Vistula Flood Management Project Coordination Unit in Wrocław. Institutionally, it forms part of the SWH PW.

3.2. NATIONAL ENVIRONMENTAL PROTECTION LEGISLATION IN FORCE

The Polish law stipulates that the investment process in the field of environmental protection is regulated by several acts and regulations. A list of selected basic legal acts related to the above-mentioned thematic scope and in force during the works over the EMP was presented in Appendix no. 3 to the EMP. The number and content of the legal acts listed therein may be subject to change, together with changes in national environmental legislation. In any case, the Contractor shall be obliged to comply with all current legal regulations applicable in Poland throughout the term of the Contract.

3.3. EIA PROCEDURE IN POLAND

The environmental impact assessment procedure valid in the Polish legislation is described in the *Environmental and Social Management Framework Plan* (ESMF), published, among others, at the websites of the Odra-Vistula Flood Management Project Coordination Unit[1] and the World Bank[2].

3.4. WORLD BANK GUIDELINES

The said Contract is co-financed by the World Bank and the conditions for its implementation in the field of environmental protection are consistent with the Bank's Operational Policies and Bank Procedures in the field of environmental protection, including, notably, such policies and procedures as *OP/BP 4.01* (concerning environmental impact assessment), *OP/BP 4.04* (concerning natural habitats), *OP/BP 4.11* (concerning cultural resources). The source texts of these policies and procedures can be found in *The World Bank Operational Manual*[3] and their descriptions are presented, in particular, in the ESMF.

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[1] At: *http://odrapcu2019.odrapcu.pl/popdow_dokumenty/*

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

[3] At: *https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx*.

3.5. EIA PROCEDURE FOR CONTRACT 2B.2/1

Pursuant to the provisions of the Regulation of the Council of Ministers of 10 September 2019 *on investments likely to exert significant impact on the environment*, the planned investment, i.e. *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River - Lądek Zdrój and Stronie Śląskie Facility* is a project that may potentially have a significant impact on the environment.

For the Contract in question, in accordance with the requirements of the national legislation, the Investor i.e. State Water Holding Polish Waters, was awarded two decisions on environmental conditions (environmental decisions). Two environmental impact assessment reports were prepared as part of the procedure:

- The environmental impact report for *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Stronie Śląskie Facility (passive protection), July 20202;*
- The environmental impact report for *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Lądek Zdrój Facility (passive protection), July 20202.*

The competent authority for issuing the environmental decision for investment activities included in *Task 2B.2/1* was the Regional Director for Environmental Protection in Wrocław. The Investor applied to the Regional Director for Environmental Protection in Wrocław on 13 February 2020 for issuing a decision on environmental conditions for the above-mentioned elements of the Contract and for making them immediately enforceable.

Data on the applications for issuing a decision on environmental conditions are included in the publicly available list of data on documents containing information on the environment and its protection (http://www.ekoportal.gov.pl/) under the number: 84/2020 for *the Lądek-Zdrój facility* and 85/2020 for *the Stronie Śląskie facility*.

The Regional Director for Environmental Protection in Wrocław, by the notices of 16 March 2020, ref.: WOOŚ.420.8.2020.AP.3 and the ref.: WOOŚ.420.17.2020.AP, informed the parties to the proceedings, in particular: on initiating the administrative procedure on issuance of the decision on environmental conditions for the above-mentioned investments, on the authorities competent to issue the decision and about the possibility to familiarize oneself with the case files and submit comments and applications at each stage of the procedure.

In the course of the proceedings, the Regional Director for Environmental Protection in Wrocław, in the letters of 16 March 2020, requested an opinion on the necessity to conduct an environmental impact assessment, and if such a need is identified, on the scope of the environmental impact report to: the Minister of Maritime Economy and Inland Navigation and to the State Poviat Sanitary Inspector in Kłodzko.

The State Poviat Sanitary Inspector in Kłodzko in a decision of 2 April 2020, ref. NS-ZNS-72-13/AZ/20 *(Lądek-Zdrój facility*) and in the decision of 3 April 2020, ref.: NS-ZNS-72-14/AZ/20 (*Stronie Śląskie Facility*) expressed an opinion on the lack of the need to conduct an environmental impact assessment.

The Minister for Maritime Economy and Inland Navigation in the letter of 2 April 2020, ref.: DOK.DOK2.9750.1.10.2020.SL *(Lądek-Zdrój facility*) and of 3 April 2020, ref.: DOK.DOK2.9750.1.11.2020.SK (*Stronie Śląskie facility*) requested the local authority to summon the applicant to supplement the Project Data Sheets. The local authority, by the letter of 8 April 2020, ref.: WOOŚ.420.8.2020.AP.9 *(Lądek-Zdrój facility*) and of 9 April 2020, ref.: WOOŚ.420.9.2020.AP.9 (*Stronie Śląskie facility*) summoned the investor's representative to supplement the PDS to the extent indicated by the Minister of Maritime Economy and Inland Navigation. With the letter of 30 April 2020 *(Lądek-Zdrój facility*) and the letter of 7 May 2020 *(Stronie Śląskie facility*), the representative submitted supplementation to the documentation.

In connection with supplementation of the documentation, the Regional Director for Environmental Protection in Wrocław, with the letter of 4 May 2020, ref.: WOOŚ.420.8.2020.AP.10 (*Lądek-Zdrój facility*) and the letter of 13 May 2020, ref.: WOOŚ.420.9.2020.AP.10 (*Stronie Śląskie facility*), handed over the supplementation of the evidence to the Minister of Maritime Economy and Inland Navigation and with the letters of 18 May 2020, ref.: WOOŚ.420.8.2020.AP.11 (*Lądek-Zdrój facility*) and WOOŚ.420.9.2020.AP.11 (*Stronie Śląskie facility*), the local authority also applied for a new opinion on the necessity to conduct an environmental impact assessment of the planned projects or to maintain the above-mentioned position to the State Poviat Sanitary Inspector in Kłodzko.

The Minister for Maritime Economy and Inland Navigation in the opinion of 20 May 2020, ref. DOK.DOK2.9750.1.10.2020.SL (*Lądek-Zdrój facility*) and in the opinion of 4 June 2020, ref.: DOK.DOK2.9750.1.11.2020.SK (*Stronie Śląskie facility*) stated that there is no need to conduct an environmental impact assessment for the above-mentioned projects, indicating at the same time the necessity to consider the conditions and requirements specified in the above-mentioned opinions in the decisions on environmental conditions.

The State Poviat Sanitary Inspector in Kłodzko issued a position on the *Lądek Zdrój Facility* after the statutory deadline, which according to the current regulation of Article 78(4) of the *EIA Act,* is considered to constitute the lack of objections. As regards the *Stronie Śląskie Facility,* in the letter of 5 June 2020, they maintained the position expressed in the decision of 2 April 2020, ref.: NS-ZNS-72-13/AZ/20, on the lack of the need to conduct an environmental impact assessment.

The Regional Director for Environmental Protection in Wrocław has analyzed the collected documentation in the context of the provisions of Article 63(1) of the cited act. In consideration of the information included in the PDS, it was found that the said investment projects may have a significant environmental impact and it is therefore required to conduct an environmental impact assessment. In connection with the above, on 25 June 2020, the local authority issued the decision ref. WOOŚ.420.8.2020.AP.12 (*Lądek-Zdrój Facility*) and WOOŚ.420.9.2020.AP.13 (*Stronie Śląskie Facility*) on the obligation to conduct an environmental impact assessment and determined the scope of environmental assessment reports for the projects. No complaint has been filed against the above-mentioned decisions of the Regional Director for Environmental Protection in Wrocław.

With the letter of 30 June 2020, the investor's representative submitted the environmental impact report for the project titled “Task 2B.2/1 Flood protection of the valley of the Biała Lądecka River and the Morawa stream (passive protection) - Lądek-Zdrój Facility”. With the

letter of 21 July 2020, the investor's representative submitted “The environmental impact report for the project entitled: “Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River (passive protection) - Stronie Śląskie Facility”.

After analyzing the above-mentioned Reports and the submitted documentation, the Regional Director for Environmental Protection in Wrocław with the letter of 20 August 2020, ref.: WOOŚ.420.9.2020.AP.13 (*Stronie Śląskie facility*) and of 21 August 2020, ref.: WOOŚ.420.8.2020.AP.15 (*Lądek-Zdrój facility*) summoned the applicant to supplement the content. The documentation submitted in the case, including the both Reports, was finally supplemented on 15 September 2020.

The Regional Director for Environmental Protection in Wrocław, by the notice of 23 September 2020, ref.: WOOŚ.420.8.2020.AP.16 (*Lądek-Zdrój facility*) and WOOŚ.420.9.2020.AP.17 (*Stronie Śląskie* facility) made information about the planned projects publicly available. The notices were made public from 24 September 2020 to 26 October 2020 (inclusive). No comments or applications were lodged during the conducted public consultations, there were no entities and persons, either, that would approach the authority conducting the proceedings to be admitted to participate in the proceedings with the rights of a party.

The Regional Director for Environmental Protection in Wrocław, based on the analysis of the collected evidence, issued decisions on environmental conditions for implementing the elements of the Contract: the decision of 12 November 2020 (ref.: WOOŚ.420.8.2020.AP.19) for the Lądek-Zdrój facility, the decision of 6 November 2020 (ref.: WOOŚ.420.9.2020.AP.20) for the Stronie Śląskie facility (copies of the decisions are included in App. 4a and 4b to EMP).

Moreover, the Regional Director for Environmental Protection in Wrocław has found that it is necessary to make the decisions immediately enforceable and has thus approved the investor's application. Hence, the decisions are made immediately enforceable.

4. DESCRIPTION OF ELEMENTS OF THE ENVIRONMENT SURROUNDING THE CONTRACT

4.1. EARTH SURFACE AND LANDSCAPE

The analyzed area is located in the macroregion of the East Sudetes, mesoregions: the Złote Mountains and the Śnieżnik Massif, between which the conventional border is the Biała Lądecka. The East Sudetes form domed hills, growing over wide, flat ridges, cut by deep valleys of the Nysa Kłodzka tributaries.

The landscape of the **Stronie Śląskie** commune is typically mountainous, with high relative altitudes. The variety of the land form is mainly due to the cutting of the vast massif of the Bialskie Mountains with a dense network of streams, whose valleys have the character of deeply indented hollows. The main river flowing through Stronie Śląskie is the Biała Lądecka, flowing along the eastern and northern outskirts of the commune, forming a wide flat-bottom valley below Nowy Gierałtów.

The town of Stronie Śląskie - a developing tourist center of the Bialskie Mountains and Śnieżnik Massif - is situated in a wide valley of the Biała Lądecka, Morawa and Janówka rivers. The area around Stronie Śląskie belongs to a physico-geographical unit called Lądek and Stronie Śląskie Depression (Staffa 1993).

Also, the area of the **Lądek-Zdrój** commune is characterized by a very diversified land form, having a mountain character. The abundance of morphological forms reflects the resistance diversity of the bedrocks, the tectonic movements that took place here in the past and the associated different intensity of denudation and river erosion processes. An additional, important element in the land form are anthropogenic forms, related to the transformation of the original landscape by human economic activity. The Biała Lądecka valley in the commune area has a flat-bottomed character and forms a wide depression. This is an area almost completely deforested and used for agriculture. Lądek Zdrój is situated in a valley open only in the north-western direction, although there are also small wooded hills in this direction.

4.2. CLIMATE

The climate in the Contract area is transient, continental and maritime, conditioned by air masses coming from over the Atlantic Ocean or eastern Europe and Asia. According to the agricultural and climatic division of Poland according to Gumiński, this area belongs to the Sudeten climatic district. It belongs to the climates of mountain areas with very high variability of particular weather types (Woś 1999). As per the climate regionalization of the Sudetes by Schmuck, the area is located within the range of the Kłodzko region, within a moderately cool climatic floor, characterized by a 4-month winter period with no thermal summer and high annual total precipitation.

The average annual temperature in Stronie Śląskie is 6.7°C. The warmest month is July with an average temperature of 15.5°C. The coldest month is January with an average temperature of -3.4°C (https://pl.climate-data.org). There are up to 20 hot days with a maximum temperature of over 25ºC per year. The snow cover lasts for about 50-60 days and its maximum thickness rarely exceeds 50 cm. The vegetation period lasts approx. 200 days (POŚ for Stronie Śląskie

commune, 2005). The average annual sum of precipitation in Stronie Śląskie is 850 mm (POŚ for Stronie Śląskie commune, 2005).

The average annual air temperature in the Lądek-Zdrój commune ranges from 6-7°C in the lowest areas to 5-6°C in the higher parts of the mountains. The warmest month of the year in Lądek Zdrój is July (15.8°C) and August (14.8°C), and the coldest month is January (-2.7°C). A characteristic feature of Lądek Zdrój is that the minimum cloudiness is shifted to the autumn period, it falls in October (60%) (Błażejczyk et al., 2007). Average annual total atmospheric precipitation amounts to 857 mm (Kozłowska-Szczęsna et al., 2002; Program..., 2018).

Lądek-Zdrój is located in the bioclimatic "sub-mountain and mountainous" region VI, there is a moderately and periodically strong stimulus type of bioclimate here. It is a submontane valley-and-slope health resort. Due to the specific location of the town (the valley where Lądek-Zdrój lies is open only in the north-western direction), meteorological phenomena occur here in a gentle and slow manner.

4.3. AIR QUALITY

The air quality in the area of the Contract was evaluated on the basis of measurements made as part of the State Environmental Monitoring in 2018 at the measurement and control point located at Św. Królowej Jadwigi Street in Lądek-Zdrój [GIOŚ RWMŚ, 2019]. The analyses of the results show that there were no exceedances of the permissible levels for sulfur dioxide and nitrogen dioxide, both for 1-hour and 24-hour levels, in the analyzed measurement and control point. No exceedances of the limit values of 8-hour carbon monoxide concentration and annual benzene concentration were observed, either. The permissible number of days with the exceeded target level of ozone was however observed in the analyzed year. 36 days with ozone concentrations above 120 µg/m3 were observed in 2018 (no days with ozone concentrations above 120 µg/m3 are allowed at the long-term target level). High concentrations of PM10 and benzo(a)pyrene are a big problem, especially observed during the heating period. In 2018, however, no exceedances of the average daily rate of PM10 were recorded. The concentrations of benzo(a)pyrene in PM10 dust were not tested at the measurement and control station in Lądek-Zdrój. The next nearest measuring station is located in Nowa Ruda. The largest air pollution source in the region are dust and benzo(a)pyrene emissions into the air resulting from the combustion of fuels for heating purposes and traffic pollution. In addition, the efficiency of equipment burning conventional fuels and the accumulation of low emissions in poorly ventilated compact building development may also have an impact in a compact urban development area.

4.4. GEOLOGICAL STRUCTURE

In the geological structure of the Biała Lądecka catchment area, fragments of geological units belonging to the Sudetes Mountains can be distinguished: the Kłodzko - Złotostocki granite massif and the Lądek and Śnieżnik metamorphoses. These units are separated by the Złoty Stok - Skrzynka tectonic zone, running along the north-western border of the Lądek-Zdrój commune.

Stronie Śląskie is located in the reach of the geological-structural unit of the Lądek and Śnieżnik Massif (the Lądek-Śnieżnik metamorphic form), which is part of the Czech Massif. It is a region

with a complex geological structure and long-term tectonic development, which is reflected in the diverse land relief. There are old crystalline rocks and several outcrops of Carboniferous rocks across the surface of the whole area of the Stronie Śląskie commune. The younger Pleistocene and Holocene deposits are located only in the river valleys and cover a small area. The forms of underground and surface karst have developed on a few outcrops of crystalline limestones (POŚ for Stronie Śląskie commune, 2005).

The youngest deposits are Holocene river sands and gravels, building an overflowing terrace 2-2.5 m and the lowest flood terrace 0.5-1 m a.s.l., as well as fillings of the youngest stream valleys and inflow cones in case of smaller valleys. The covers of deluvial clays with rock rubble were also formed in the conditions of periglacial climate.

The area of the Lądek-Zdrój commune almost entirely belongs to the metamorphic unit of Lądek-Śnieżnica, which is a part of a larger geological unit, stretching from the Złote Mountains, through the Śnieżnik Massif, the Bialskie Mountains and Rychlebske Hory to the Morawa valley and Ramzovske Sedlo in the Czech Republic.

The main rocks that make up this formation are mica slates and Gierałtów and Śnieżnik gneisses. These rocks occupy most of the area and form numerous outcrops on the surface. Mica slates with dominant muscovite, lying on a wide strip from Lądek to Lutynia, occur in the Contract area. The Stroń formation also includes mica slates with pomegranates, which form striped outcrops in the Lądek area, graphite slates from the Lądek area, bi-mica slates, which are exposed to the north-east of Lądek Zdrój and in the Biała Lądecka valley between Lądek and Orłowiec (Environmental Protection Program for the Commune of Lądek-Zdrój, 2018).

4.5. SOILS AND LAND

There are soils typical for mountain areas in the Contract implementation area, included in the following sections: lithogenic - formed in rocky areas and mountain slopes where the parent rock is in direct contact with the surface (this includes initial rocky soils - lithosols and loose soils - regothols); autogenic - formed under the influence of soil-forming factors of the parent rock, vegetation and land relief (acidic and specific brown soils, podzolic soils and podsols); semi-hydrogenic - in which the influence of groundwater or strong precipitation gleying is marked on the lower and partly central parts of the ground profile, while the moistness of the upper levels is determined mainly by precipitation water (marshy and gleyed soils); hydrogenic - marshy and post-marshy soils (peat and mucky soils); alluvial - represented by alluvial soils and muds. Alluvial and semi-hydrogenic soils are the least represented.

The valleys of the Biała Lądecka and Morawa rivers, within which the Contract is located, are dominated by podzolic soils of mountainous areas. They occur together with the brown soils of the mountain subfamily, often as podzolic-brown soils. Along the riverbeds, there are narrow strips of sandy-gravel alluvial soils and, less frequently, alluvial soils with a high proportion of gravels and boulders, deposited by the waters of flowing streams.

4.6. SURFACE WATERS

The Contract is located within the limits of two unified surface water bodies: *USWB Biała Lądecka from Morawka to Nysa Kłodzk*a with the code RW60008121699 and *USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica* with the code RW60004121629 (Fig. 3).

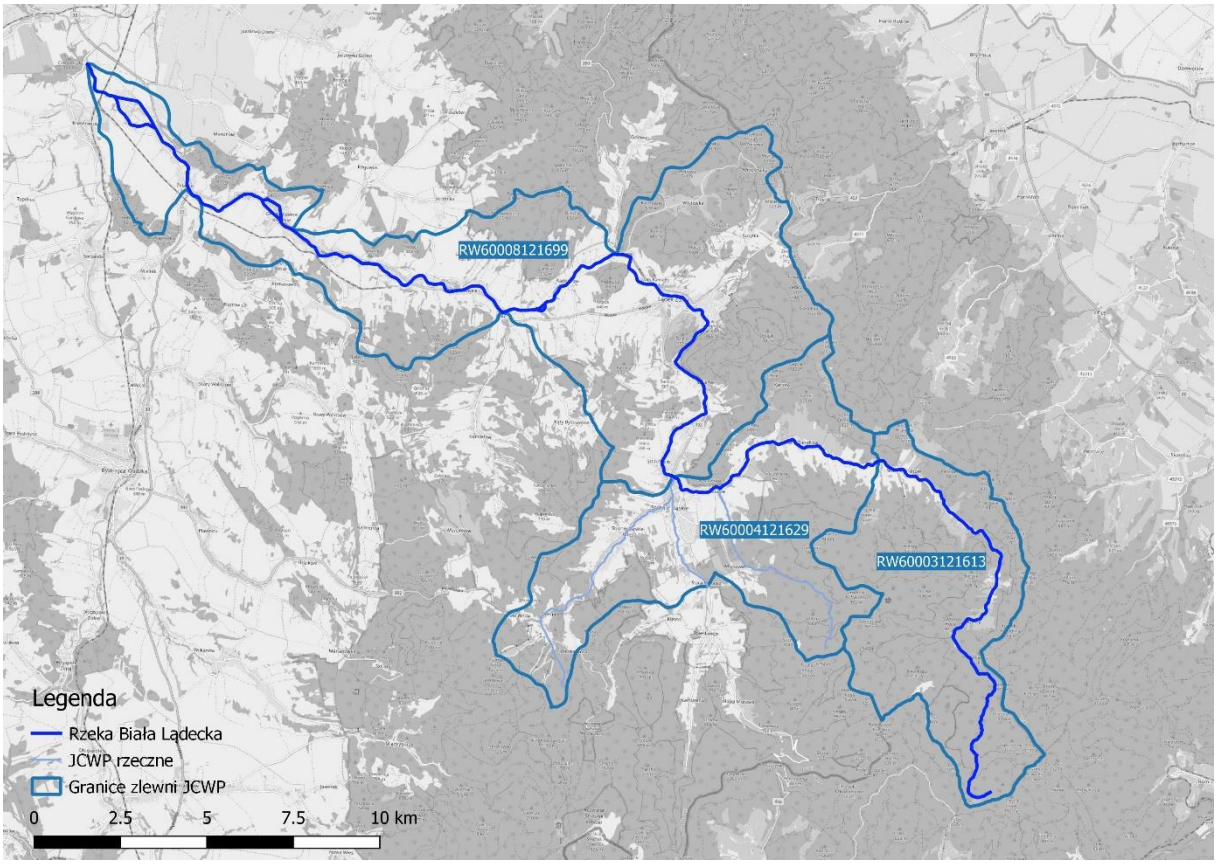

Fig. 3 Biała Lądecka in the background of the USWB catchment area borders

In accordance with the Regulation of the Minister of Maritime Economy and Inland Navigation of 11 October 2018 on the classification of ecological status, ecological potential and chemical status and the method of classification of the status of unified surface water bodies, as well as environmental quality standards for priority substances (Journal of Laws of 2019, item 2149), the USWB Biała Lądecka from Morawka to Nysa Kłodzka represents the abiotic type no. 8 - a *small silicate upland river*. These are rivers with a significant drop and high current velocity and cool and well-oxygenated water. The bottom substrate is mostly made of thick gravel and large stones, in calm places made of sand and clay. The habitat's diversity is determined by the presence of oversized boulders and wood rumbles. Part of the waters has the status of a natural USWB.

The USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica, represents the abiotic type no. 4 - *a silicate upland stream with a coarse substrate* (Journal of Laws of 2019, item 2149). These are streams with significant drop, high current velocity and large annual flow fluctuations. The bottom substrate is mostly made of boulders, stones, and thick gravel. The habitat's diversity is determined by the presence of oversized boulders and wood rumbles. Part of the waters has the status of a natural USWB.

Assessment of ecological status/potential

The status of the *USWB Biała Lądecka from Morawka to Nysa Kłodzka* with the code RW60008121699 was assessed as part of the SEM in 2017 and 2018, at the Biała Lądecka measurement and control point - the town of Żelazno (PL02S1401_1232) (Table 1). The status of the USWB waters in 2017 and 2018 was assessed as **poor**. The ecological status was determined in class III (moderate) due to the evaluation of macrophytes, the other biological elements were evaluated in good or very good status (macro-invertebrates). The bad water status was dictated by the moderate ecological condition and classification of the chemical status - below good.

The status of the *USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica* with the code RW60004121629 was assessed as part of the SEM in 2017 and 2018, at the Biała Lądecka measurement and control point - above Stronie Śląskie (PL02S1401_3217) (Table 1). The status of the USWB waters in 2017 and 2018 was assessed as **poor**. However, the ecological status was described as good - in class II. Most of the biological elements were assessed in a very good condition, only for ichthyofauna class II was determined. The bad water status was dictated by the classification of the chemical status below good.

Table 1. The status of USWB Biała Lądecka from Morawka to Nysa Kłodzka with the code RW60008121699 and USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica with the code RW60004121629 acc. to SEM from 2017 and 2018.

Name of the classified USWB	Biała Lądecka from Morawka to Nysa Kłodzka	Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica
Code of classified USWB	RW60008121699	RW60004121629
Measurement point code	PL02S1401_1232	PL02S1401_3217
Name of the measurement point	Biała Lądecka - town of Żelazno	Biała Lądecka - area of Stronie Śląskie
Abiotic type	8	4
USWB status	NAT	NAT
Class of biological elements: **Phytobenthos**	II	I
Class of biological elements: **Macrophytes**	III	I
Class of biological elements: **Benthic macro-invertebrates**	I	I
Class of biological elements: **Ichthyofauna**	II	II
Class of biological elements	III	II
Class of hydromorphological elements	II	II
Class of physiochemical elements (group 3.1-3.5)	>II	II
Class of physiochemical elements - specific synthetic and non-synthetic pollutants (group 3.6)	II	II
ECOLOGICAL STATUS	MODERATE (Class III)	GOOD (Class II)
CHEMICAL STATUS	BELOW GOOD	BELOW GOOD
USWB STATUS ASSESSMENT	POOR WATER STATUS	POOR WATER STATUS

Reference: Own study based on http://www.gios.gov.pl/pl/stan-srodowiska/monitoring-wod (Assessment of water bodies of rivers and artificial water-damming reservoirs in 2017 – 2018)

Findings resulting from the Water Management Plan within the Odra River Basin (WMORB)

Pursuant to the Regulation of the Council of Ministers of 18 October 2016 on the *Water Management within the Odra River Basin* (Journal of Laws of 2016, item 1967), the Contract was determined as the Flood Protection of the Biała Lądecka River valley and the Morawka River (id: A_580_0).

Table 2 presents the basic provisions concerning both USWBs contained in the current Water Management Plan within the Odra River Basin.

Table 2. Characteristics of USWB Biała Lądecka from Morawka to Nysa Kłodzka and USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica based on WMORB.

Name of USWB	Biała Lądecka from Morawka to Nysa Kłodzka	Biała Lądecka from Kobyla to Morawka, with Moraka from Kleśnica
Code	RW60008121699	RW60004121629
River basin	Odra River basin area	Odra River basin area
Length	32.07	25.80
Status	Natural	Natural
Abiotic type	8	4
Status	Poor	Good
Risk of failure to achieve WFD objectives	At risk	No risk
Environmental objective set in the WMORB	Good ecological status, the possibility of migration of aquatic organisms in the section of the significant stream - Biała Lądecka from Nysa Kłodzka to Orliczka Good chemical status	Good ecological status Good chemical status
Date of achieving good status	2027	2015
Deviations	4(7) Project name: Flood protection of the Biała Lądecka River valley and Morawa River 4(4): Extension of the date of reaching the environmental objective until 2027 Reason: lack of technical capacity.	4(7) Project name: Flood protection of the Biała Lądecka River valley and Morawa River

Reference: Own study based on the WMORB database

The environmental objectives set for *USWB Biała Lądecka from Morawka to Nysa Kłodzka* with the code RW60008121699 is to achieve the good ecological status, to ensure the possibility of migration of aquatic organisms in the section of the significant stream - Biała Lądecka from Nysa Kłodzka to Orliczka and to achieve the good chemical status. The environmental objectives set for *USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica* with the code RW60004121629 is to achieve the good ecological and chemical status.

Information on protected areas indicated in §16(32) of the Act of 20 July 2017 - Water Law

Pursuant to Article 16(32) of the Act of 20 July 2017 Water Law (Journal of Laws of 2018, item 2268), protected areas are designated for which water-related environmental objectives are defined:

a) unified water bodies intended for water intake for securing the drinking water supply for human consumption,

b) unified water bodies intended for recreational purposes, including swimming purposes,

c) areas sensitive to eutrophication caused by contaminations coming from municipal sources, understood as enrichment of waters with biogenes, in particular nitrogen or phosphorus

compounds, causing accelerated growth of algae and higher forms of plant life, resulting in undesirable disturbance of biological conditions in the aquatic environment and deterioration of the quality of those waters,

d) areas designated for the protection of habitats or species referred to in the provisions of the Nature Protection Act of 16 April 2004 where the maintenance or improvement of the status of water is an important factor in their protection,

e) areas intended for the conservation of aquatic animal species of economic importance.

Table 3, on the basis of the WMORB database, presents the above-mentioned protected areas designated within the USWB.

Table 3. Areas protected under the Water Law act designated within the USWB RW60008121699 and RW60004121629.

Protected areas designated pursuant to §16(32) of the Act of 20 July 2017 - Water Law:	USWB Biała Lądecka from Morawka to Nysa Kłodzka	USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica
Unified water bodies intended for water intake for securing the drinking water supply for human consumption	NO	NO
Areas intended for the conservation of aquatic animal species of economic importance	NO	NO
Unified water bodies intended for recreational purposes, including swimming purposes	NO	YES
Areas sensitive to eutrophication caused by contaminations coming from municipal sources, understood as enrichment of waters with biogenes, in particular nitrogen or phosphorus compounds, causing accelerated growth of algae and higher forms of plant life, resulting in undesirable disturbance of biological conditions in the aquatic environment and deterioration of the quality of those waters	YES	YES
Areas designated for the protection of habitats or species referred to in the provisions of the Nature Protection Act of 16 April 2004 where the maintenance or improvement of the status of water is an important factor in their protection	YES	YES

Reference: Own study based on the WMORB database

4.7. GROUNDWATER

There are two main aquifers in the Contract area: Quaternary and Paleozoic-Proterozoic aquifers. The quaternary body of groundwater is mainly supplied with water from precipitation infiltration. It is made up of Holocene sandy formations. In the Biała Lądecka valley, groundwater is encountered very shallow (0-3 m) and is characterized by an unconfined water table, low capacity and dependence on the state of water in the river. The groundwater of the paleozoic-proterozoic floor is found in the rubble and eluvial coverings and rock crevices. Two systems of water circulation exist in these rocks - one shallow (at a depth of several to 15,

locally 40 m) associated with the weathering zone, the other deeper, accompanying the main dislocations crossing the rock mass.

The Contract is located within the range of UGWB no. 126 with the code PLGW6000126 (Fig. 4). The area of the UGWB covers 453.1 km^2. The aquifers in the area of UGWB no. 126 are supplied mainly through infiltration of atmospheric precipitation and surface water to the higher layers and deeper into the zone of crevice formations. The main drainage base for the aquifers of the UGWB No. 126 area are the valleys of the Biała Lądecka, Morawa and Nysa Kłodzka rivers. The Quaternary floor, 3-40 m thick, has a limited spread to the valleys of the following rivers: Nysa Kłodzka and Biała Lądecka and some of their tributaries. The Paleozoic-Proterozoic floor is the most widespread and dominant one in the UGWB.

The current assessment of the quantitative and chemical status of the UGWB was presented on the basis of the Report on the status of unified groundwater bodies in river basins - status as of 2016 (PIG PIB[1]), prepared on the order of the Chief Inspectorate of Environmental Protection (GIOŚ) in Warsaw.

The qualitative and quantitative status of UGWB no. 126 was assessed as **good**. It is not at risk of failure to reach the environmental objectives.

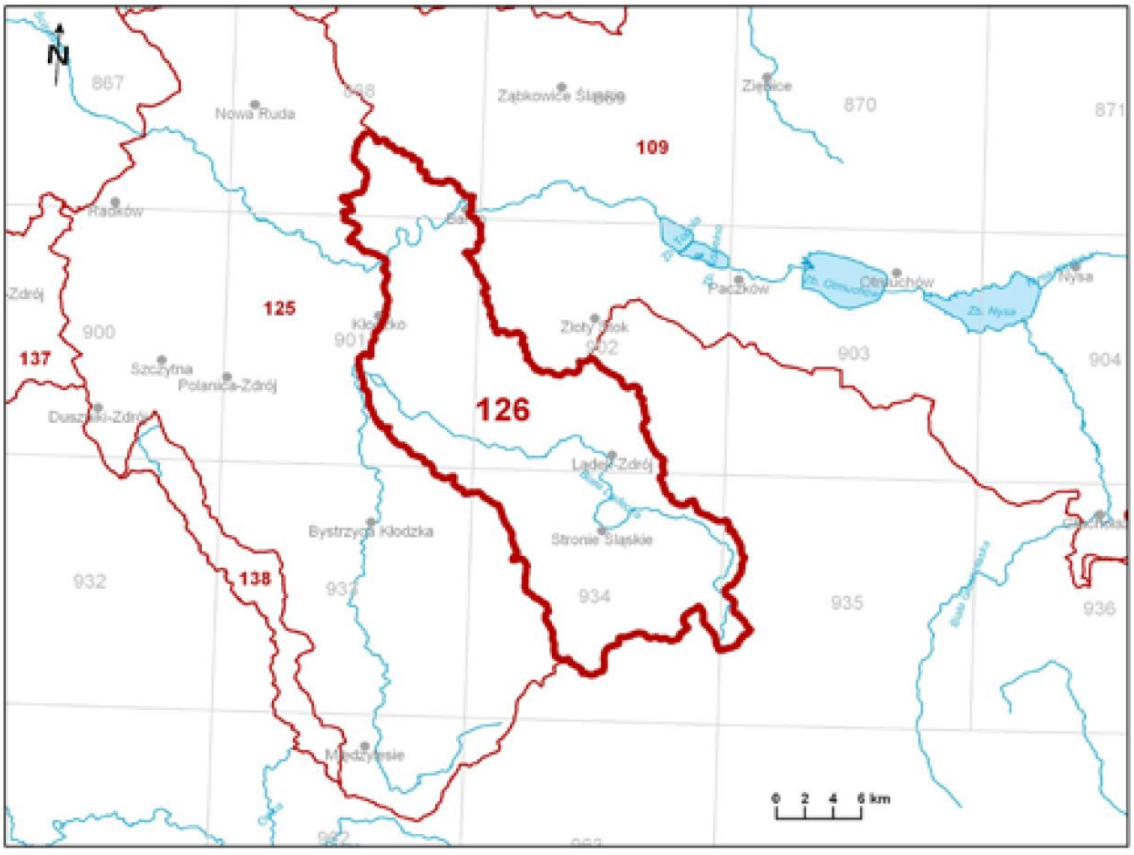

Fig. 4 Location of the Contract against the background of UGWB

[1] PGI PIB Report on the status of unified groundwater bodies in river basins - status for 2016, prepared for the Chief Inspectorate of Environmental Protection (GIOŚ) in Warsaw, as part of the implementation of the project entitled: "Monitoring of chemical status and assessment of the status of unified groundwater bodies (UGWBs) in river basins in 2015-2018".

Reference: UGWB Information Sheet (Polish Geological Institute PIB - https://www.pgi.gov.pl/dokumenty-pig-pib-all/psh/zadania-psh/UGWB/UGWB-120-139/4501-karta-informacyjna-UGWB-nr-126/file.html)

4.8. ACOUSTIC CLIMATE

Based on the provisions of local area management plans in force for the areas along Biała Lądecka in the area of planned investments:

- The local area management plan of Stronie Śląskie (Resolution no. XXXVII/249/17 of the Municipal Council of Stronie Śląskie of 31 May 2017),
- The local area management plan of Lądek-Zdrój "Nowy Zdrój area A - Old Town" (Resolution no. XXXVI/247/13 of the Municipal Council of Lądek-Zdrój of 30 April 2013),
- The local area management plan of Lądek-Zdrój Stary Zdrój area A - Forests part no. 2" (Resolution no. XLIV/299/13 of the Municipal Council of Lądek-Zdrój of 19 December 2013),

it should be noted that along the river there are largely acoustically protected areas: residential and service buildings, areas of residential buildings, both single and multi-family and boarding houses, as well as areas with a health resort function (in Lądek-Zdrój).

As per the Resolution no. XXX/240/09 of the Municipal Council in Lądek-Zdrój of 26 March 2009 on the establishment of the Statute of the Lądek-Zdrój Health Resort, in the "A" zone of the health resort, access is prohibited for vehicles with an actual total weight of more than 3.5 tons with the exception of municipal service vehicles of the town, delivery vans and coaches transporting patients and tourists. The "A" health resort zone generally includes areas in the area of Lądek-Zdrój, closed in the line of the following streets: Moniuszki, Kościuszki, Zwycięstwa, Wolności, Orla, Leśna Street (a detailed description of the borders of individual health resort zones is included in the above-mentioned LAMP for the town of Lądek-Zdrój).

Permitted values for sound levels are determined according to the type of source, type of terrain and reference period. The results of the local acoustic climate analysis expressed by short-term sound level indicators LAeqD dB(A) and LAeqN dB(A) were based on the Regulation of the Minister of Environment of 14 June 2007 *on permitted noise levels in the environment* (unified text) [Journal of Laws, 2014.112, unified text] (Table 4).

Table 1. Permitted noise levels

	Permitted noise level [dB]	
Type of land	**LAeq D reference time interval equal to 8 the least favorable consecutive hours during the day**	**LAeq D reference time interval equal to 8 the least favorable consecutive hours during the day**
a) Protection zone “A”, health resorts b) Hospital areas outside the town	45	40
a) Areas of single-family housing development b) Buildings associated with the permanent or long-term stay of children and young people c) Areas of nursing homes d) Hospital areas in towns	50	40

a) Multi-family housing and collective housing areas b) Farmstead development c) Sports and recreation grounds d) Residential and service areas	55	45

Reference: Regulation of the Minister of Environment of 14 June 2007 on permitted noise levels in the environment (unified text Journal of Laws 2014.112)

4.9. FLORA AND FAUNA

4.9.1. PROTECTED NATURAL HABITATS

Based on the conducted nature inventory, seven natural habitats from Annex I of Directive 92/43/EEC were found to occur in the area of the works to be carried out:

- 3260 Lowland and foothill rivers with white water-crowfoot communities (*Ranunculion fluitantis*),
- 6230 Floristically rich mountain and lowland twin turfs (*Nardetalia* – floristically rich patches),
- 6430 Mountain tall herb communities (*Adenostylion alliariae*) and riverside tall herb communities (*Convolvuletalia sepium*),
- 6510 Extensively used lowland and mountain fresh meadows (*Arrhenatherion*),
- 9110 Acidic beech forests (*Luzulo-Fagenion*),
- 9170 Central-European and subcontinental oak-hornbeam forests (*Galio-Carpinetum, Tilio-Carpinetum*),
- 91E0*[1] Willow-poplar-alder-ash forests (*Salicetum albae, Populetum albae, Alnenion glutinoso-incanae*, large bittercress).

A summary of inventoried natural habitats in the Contract area is presented in Table 5.

Table 5. Summary of inventoried natural habitats

No.	Habitat type (code)	Number of patches identified		Total area [ha]
		Stronie Śląskie	Lądek Zdrój	
1.	3260	Biała Lądecka bed on the analyzed length	Biała Lądecka bed on the analyzed length	11.44
2.	6230*	1 (Biała Lądecka)	-	0.44
3.	6430	1 (Biała Lądecka)	1	0.07
4.	6510	-	2	3.08
5.	9110	1 (Biała Lądecka)	-	0.61
6.	9170	1 (Biała Lądecka)	5	2.48
7.	91E0*	1 (Biała Lądecka)	5	3.88

**Priority habitat*

[1] - - the symbol * means so-called priority habitats, in accordance with the classification contained in Annex I to the Habitats Directive

4.9.2. PROTECTED FUNGI, PLANT AND ANIMAL SPECIES

VEGETATION COVER

13 protected and/or rare species of vascular plants, mosses, liverworts, macroscopic algae and lichens were encountered at the implementation site and in the surroundings of the planned works (Table 6).

The most valuable element of the vegetation are the patches of Water-crowfoot *Batrachium penicillatum*, forming a habitat 3260 in the Biała Lądecka riverbed. It is a nationally extinct species and is threatened with extinction on the scale of Lower Silesia. Despite the transformation of the Biała Lądecka riverbed, a coarse-grained bottom substrate has also been preserved in built-up areas, which, combined with the rapid current, is the most important factor enabling the development of the species.

Table 6. Protected and/or rare species of vascular plants, aphids, lichens, liverworts and macroscopic algae

No.	Species (Polish name)	Number of sites		Total estimated resources
		Stronie Śląskie	Lądek Zdrój	
Vascular plants				
1.	Oxlip	9	1	135-430 individuals
2.	Water-crowfoot	Biała Lądecka bed on the whole analyzed length	Biała Lądecka bed on the whole analyzed length	Difficult to determine
Mosses				
3.	Rough Goose Neck Moss	1	-	11-50 individuals
4.	Abietinella Moss	1	-	251-500 individuals
5.	Knotskroesmos	-	1	1-5 individuals
6.	Orthotrichum Moss	-	1	1-5 individuals
7.	Straw Bristle-moss	2	-	22-100 individuals
Liverworts				
8.	Dilated Scalewort	-	2	12-55 individuals
9.	Porella	1	1	11-50 individuals
Macroscopic algae				
10.	*Lemanea fluviatilis*	1	13	Very large
Lichens				
11.	Punctelia jeckeri	1	-	Difficult to determine
12.	Ramalina farinacea	-	1	15 individuals
13.	Pleurosticta acetabulum	1	-	Difficult to determine

FAUNA

INVERTEBRATES

There are no legally protected species identified among the aquatic macro-invertebrates in the Biała Lądecka inventory positions, located above and below the sections covered by the Contract, i.e. Bielice and Radochów. However, invertebrate communities revealed a significant taxonomic diversity, which translated into an assessment of the MMI EN in Class I for both positions[1]. The densities of macro-invertebrates were moderate. In terms of numbers and mass,

[1] an indicator used in the assessment of the biological status of unified surface water bodies, according to the methodology of the State Environmental Monitoring.

the Bielice position was dominated by sedgeflies *(Trichoptera*), there was a significant share in the number of flies *(Diptera*), mayflies *(Ephemeroptera*) and oligochaeta *(Oligochaeta*), and a significant share of stoneflies *Plecoptera* in the biomass. The only representatives of the malacofauna were single molluscs - *Pisidium spp*. Also, at the Radochów position, the dominant group in terms of abundance and biomass were sedgeflies. Oligochaeta and flies were represented numerously, whereas in terms of the biomass, *Megaloptera* were numerous. The representatives of the malacofauna were the rarely occurring molluscs - *Pisidium spp.* and the snail species - *Ancylus fluviatilis*, characteristic of mountain rivers and streams.

In the section of the Biała Lądecka within the *USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica*, with the code RW60004121629, which is planned within the Contract, a group of invertebrates may show some features similar to those recorded in the inventory at the Bielice site because both sections of the river belong to the same abiotic river type. However, the different characteristics of the river section in Stronie Śląskie, located within the urbanized areas, undoubtedly affect the lower diversity of invertebrates' taxons and the increased share of eurytopic groups, tolerating greater water trophy and habitat transformation.

On the other hand, in the section of the Biała Lądecka within the *USWB Biała Lądecka from Morawka to Nysa Kłodzka* with the code RW60008121699, which is covered by the planned works, the group of invertebrates will be more similar to the one observed at the Radochów site due to the similar character of the section of the river belonging to the abiotic type no. 8, located within urbanized areas. However, in the urban section of the Biała Lądecka (in Stronie Śląskie), a slightly poorer composition of macro-invertebrates can be expected due to a lower habitat diversity than in a moderately transformed, free-flowing river. Richer habitats are associated with current-orientated mid-bed vegetation (including water-crowfoot) and trees - providing shade and increasing the diversity of habitats in the bank zone, which is particularly important in the transformed and more water-heated urban section.

ICHTHYOFAUNA

In the inventory conducted in September 2017 at two research stations in Biała Lądecka: Bielice and Radochów, 3 species of fish and one species of lamprey were noted. The most numerous were Rainbow Trout and European Bullhead, which was recorded only at the Bielice position. Moreover, at the Radochów position, Stone Loach and Brook Lamprey, which formed a full population with larvae and adults (17 and 4 individuals respectively), were recorded.

Table 7. Presence of protected species of fish and lampreys in the Contract implementation area

No.	Species	Protection status
1.	Stone Loach *Barbatula barbatula*	partial protection
2.	European Bullhead *Cottus poecilopus*	partial protection
3.	European Brook Lamprey *Lamperta planeri*	partial protection II Ann. of Directive 92/43/EEC
4.	Rainbow Trout *Salmo trutta fario*	-

The ecological status was assessed on the basis of the inventory, in accordance with the class ranges adopted in the State Environmental Monitoring for relevant river types and fishing methods (Prus et al. 2016, Journal of Laws of from 2019, item 2149). For the Bielice position,

the ecological status was defined as good (II class). A similar result was obtained for the Radochów position, however, due to the fact that there is currently no two-environmental species - sea trout, which was historically recorded in this section of the river, the final assessment of the ecological status was lowered to moderate (Class III).

The species protected under the Natura 2000 network was European Brook Lamprey. A total of 21 individuals were caught. Both larvae (16 pieces) and adults (5 pieces) were recorded, which indicates the existence of a full population, spawning in the analyzed river section. The lack of a Brook Lamprey at position no. 1 most probably results from the existing partitions that prevent it from migrating from the lower position in Radochów, where it finds conditions for larvae to live (muddy bottom in stagnant water, detritus). The upper section of the Biała Lądecka is definitely dominated by gravel and stony bottom substrate, so this section would be a convenient spawning ground for the Brook Lamprey after the partitions have been cleared.

European Bullhead *(Cottus gobio*), a species under partial protection and listed in Annex II of Directive 92/43/EEC, has not been recorded in the catching, but it is listed as characteristic of the lower part of the Biała Lądecka from Morawka to Nysa Kłodzka and of the upper part of Morawka (Błachuta and Mazurek 2014), and its presence was also found in SEM monitoring. European Bullhead is also the object of protection of the Natura 2000 site: Biała Lądecka PLH020035 and the Brook Lamprey is listed in SDF as present with status D (population insignificant). Moreover, European Bullhead and Brook Lamprey are the object of protection in the area of the Bialskie Mountains and the Śnieżnik Group PLH020016, and the first of the mentioned species is also the object of protection in the area of the Złote Mountains PLH020096. For the aforementioned Natura 2000 sites, the Biała Lądecka River and its tributaries constitute a corridor enabling the migration of ichthyofauna.

In the section of the Biała Lądecka in Lądek-Zdrój covered by the planned works, the complex of ichthyofauna will be more similar to the one observed at the Radochów position due to the similar size of the river (below the estuary of major tributaries, including Morawka) and the nature of its section, located within urbanized areas. Moreover, in the urban section of the Biała Lądecka, slightly lower densities of fish and lampreys can be expected due to a lower habitat diversity than in a free-flowing, partially regulated river. Valuable habitats of ichthyofauna are associated with current-orientated mid-bed vegetation (including water-crowfoot) and with trees shading the bed and creating habitats and hiding places in washed root systems. This is particularly important in a transformed and water-heated urban section, where felling of the remaining trees can cause temporary thermal barriers.

HERPETOFAUNA

Five representatives of herpetofauna were found in the Contract area in Stronie Śląskie. The following was inventoried: two specimens of amphibians (*Amphibia*): European toad (*Bufo bufo*) and Common frog (*Rana temporaria*) and three species of reptiles (*Reptilia*): Sand lizard (*Lacerta agilis*), Grass snake (*Natrix natrix*) and Slowworm (*Anguis fragilis*). One amphibian species - European toad - was inventoried in Lądek-Zdrój. All the above-mentioned species are subject to partial protection, widespread throughout the country, and with the exception of lizards (Sand lizard and Slowworm) associated with the water environment, here: riverside environment.

AVIFAUNA

Six bird species were found to occur in the area covered by the scope of the Contract. None of the species are listed in Annex I of the Bird Directive, but all are under strict species protection in Poland. Two species among them: White-Throated Dipper and Grey Wagtail inhabit almost exclusively mountain and sub-mountainous areas in Poland and are closely related to the beds of mountain rivers, which are their breeding habitat (nests established on steep slopes, rocky or reinforced banks, as well as under bridges), as well as a feeding ground. European Green Woodpecker and Spotted Flycatcher are tree related birds - they nest in hollows (not only riverside hollows) and inhabit loose forest and park communities. They are present in a small number in the whole country. Grey Wagtail is the most widespread species of this group, found even in anthropogenic environments, although it prefers proximity to water.

Table 8. Presence of protected species of birds in the Contract implementation area

Protected species of birds	
Stronie Śląskie	**Lądek Zdrój**
European Green Woodpecker *Picus viridis*	Goosander *Mergus merganser*
White Wagtail *Motacilla alba*	White Wagtail *Motacilla alba*
Grey Wagtail *Motacilla cinerea*	Grey Wagtail *Motacilla cinerea*
White-Throated Dipper *Cinclus cinclus*	White-Throated Dipper *Cinclus cinclus*
Spotted Flycatcher *Muscicapa striata*	Spotted Flycatcher *Muscicapa striata*

TERIOFAUNA

Within the Contract implementation area and in its immediate vicinity, mammals are represented mainly by the otter – closely related to standing and flowing waters, feeding almost exclusively on fish and amphibians. Its position covers the entire analyzed section of the Biała Lądecka and the Morawa stream. The remaining species of protected mammals, inventoried in the Contract areas, are presented in Table 9.

Table 9. Presence of protected species of mammals in the Contract implementation area

Protected species of mammals	
Stronie Śląskie	**Lądek Zdrój**
European Mole *Talpa europaea*	Montane Water Vole *Arvicola scherman*
European Otter *Lutra lutra*	Ural Field Mouse *Apodemus uralensis*
	European Mole *Talpa europaea*
	European Otter *Lutra lutra*

CHIROPTEROFAUNA

The species of bats present in the Contract area are presented in Table 10. The species found both in Stronie Śląskie and in Lądek-Zdrój is Daubenton's Bat associated with the water habitat, specialized in hunting for small invertebrates collected from over the water surface.

Table 10. Presence of protected species of bats in the Contract implementation area

Protected species of bats	
Stronie Śląskie	**Lądek Zdrój**
Common pipistrelle *Pipistrellus pipistrellus*	Common Noctule *Nyctalus noctula*
Bat *Myotis sp.*	Greater mouse-eared bat *Myotis myotis*

Protected species of bats	
Stronie Śląskie	**Lądek Zdrój**
Daubenton's Bat *Myotis daubentonii*	Serotine Bat *Eptesicus serotinus/Nillsoni*
	Vesper Bat *Vespertilio sp.*
	Daubenton's Bat *Myotis daubentonii*

4.9.3. NATURA 2000 SITES

Below is a list of the objects of protection of Natura 2000 sites located in the place of implementation and surroundings of the Contract. Tables 11-14 present the objects of protection for particular areas (on the basis of the orders concerning the establishment of plans of protection tasks issued by RDOŚ in Wrocław).

- Biała Lądecka PLH020035 - fully coincides with sections of planned works in the Biała Lądecka riverbed,
- Bialskie Mountains and Śnieżnik Group PLH020016 - the minimum distance from the area of works is approx. 650 m for the Stronie Śląskie Facility and approx. 3 km for the Lądek-Zdrój Facility;
- Złote Mountains PLH020096 - the minimum distance from the area of works is approx. 30 m for the Stronie Śląskie Facility and approx. 1 km for the Lądek-Zdrój Facility;
- Krowiarki Range PLH020019 - the minimum distance of the Site from the area of works is approx. 600 m for the Stronie Śląskie Facility and approx. 4 km for the Lądek-Zdrój Facility;
- Czarne Urwisko koło Lutyni PLH 020033 - the minimum distance of the Site from the area of works is approx. 6 km for the Stronie Śląskie Facility and approx. 2 km for the Lądek-Zdrój Facility.

The location of the main elements of the Contract in relation to Natura 2000 sites is shown in Appendix no. 5 to the EMP.

4.9.4. OTHER PROTECTED AREAS

NATIONAL PARKS

There are no national parks within the distance of 5 km from the area of the planned works. The nearest National Park, Stołowe Mountains, is located about 30 km from the Project.

NATURE RESERVES

There are no nature reserves within the distance of 5 km from the area of the planned works.

LANDSCAPE PARKS

On the section of the Biała Lądecka between Goszów and Stronie Śląskie and in Lądek-Zdrój the works will be carried out at a distance of several dozen meters from the Śnieżnicki Landscape Park. The area of works is located in its buffer zone.

PROTECTED LANDSCAPE AREAS

There are no protected landscape areas within the distance of 5 km from the area of the planned works.

NATURE AND LANDSCAPE COMPLEXES

There are no nature and landscape complexes within the distance of 5 km from the area of the planned works.

ECOLOGIC SITES

There are two ecological sites within the distance of 5 km from the area of the planned works:

- Biała Marianna - the minimum distance from the work areas is about 800 m,
- Rogóżka - the minimum distance from the work areas is about 4 km.

MONUMENTS OF NATURE

In the vicinity of the area of works in Stronie Śląskie (i.e. up to about 20 m) there is one monument of nature. It is a small-leaved lime tree. Numerous monuments of nature are located in the Contract area in the town of Lądek-Zdrój. A list of monuments of nature is presented in Table 11.

Table 11. List of monuments of nature in the vicinity of the Contract implementation area

No.	Name	Distance from places of conducting the works
1.	Small-leaved Lime *Tilia cordata*	Stronie Śląskie, approx. 17 m
2.	"Radochowska Cave"	approx. 2.7 km
3.	Yew *Taxus baccata*	Lądek-Zdrój, approx. 150 m
4.	Small-leaved Lime *Tilia cordata*	Lądek-Zdrój, approx. 50 m
5.	Common Beech *Fagus sylvatica*	Lądek-Zdrój, approx. 100 m
6.	Common Beech *Fagus sylvatica*	Lądek-Zdrój, approx. 100 m
7.	Pedunculate Oak *Quercus robur*	Lądek-Zdrój, approx. 200 m
8.	Pedunculate Oak *Quercus robur*	Lądek-Zdrój, approx. 200 m
9.	Pedunculate Oak *Quercus robur*	Lądek-Zdrój, approx. 200 m
10.	Small-leaved Lime *Tilia cordata*	Lądek-Zdrój, approx. 200 m
11.	Sycamore *Acer pseudoplatanus*	Lądek-Zdrój, approx. 230 m
12.	European Larch *Larix decidua*	Lądek-Zdrój, approx. 200 m

Source: own study based on: http://geoserwis.gdos.gov.pl/mapy/

ECOLOGICAL CORRIDORS

There is an ecological corridor of international importance in the vicinity of the Contract, i.e. GKZ-8C - Main western corridor of the Bialskie Mountains and Śnieżnik Massif (Fig. 5). This corridor covers forest areas, hence the works planned in the Morawa and Biała Lądecka valleys do not interfere with its structure.

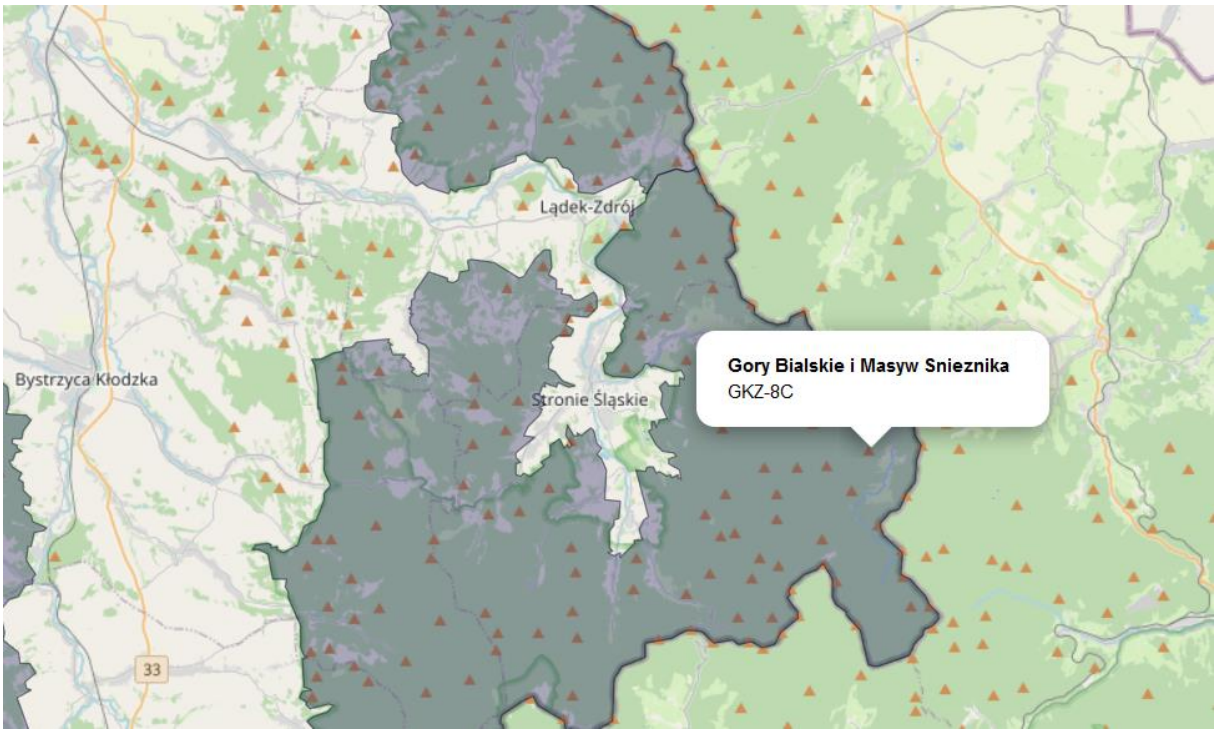

Fig. 5. Location of the Contract against the background of the boundaries of the ecological corridor GKZ-8C

Source: http://mapa.korytarze.pl/

The Biała Lądecka is an important fish migration route. In the section in Stronie Śląskie, the Biała Lądecka does not meet the conditions for the occurrence of bi-environmental salmonids, but it serves as a local migration corridor for ichthyofauna. The section of the Biała Lądecka in Lądek-Zdrój is located directly above the mouth of the Orliczka River, hence it can be expected to meet the conditions for the occurrence of bi-environmental salmonids. However, it has not been designated as significant due to the transverse development that prevents migration. Moreover, the upper course of the Biała Lądecka above Lądek-Zdrój acts as a local migration corridor of ichthyofauna connecting the Natura 2000 sites: The Bialskie Mountains and the Śnieżnik Group PLH020016, Biała Lądecka PLH020035, and Złote Mountains located over the tributaries (PLH020096). The object of protection in these areas is European Bullhead and European Brook Lamprey and European Bullhead are encountered.

4.10. CULTURAL MONUMENTS

Table 16 presents a list of monuments protected on the basis of the Act of 23 July 2003 on protection and care of monuments (Journal of Laws of 2003 No. 162 item 1568), located in the vicinity of the Contract implementation site (up to 0.5 km).

Table 12. List of monuments in the vicinity of the Contract implementation site.

No.	Monument	Distance from places of conducting the works
1.	Railway station building from 1897. A/1213 of 2009-05-27	Stronie Śląskie, 370 m
2.	St. Martin's Church from the 18th century.	Stronie Śląskie, 120 m

No.	Monument	Distance from places of conducting the works
	1979 of 1971-12-22	
3.	Chapel from the 18th century. 1980 of 1971-12-22	Stronie Śląskie, 20 m
4.	Roadside chapel from the 18th century. 870 of 1961-05-05; A/4716/870 of 2010-12-15	Goszów, 500 m
5.	The Evangelical Church, Roman Catholic oblast of the Resurrection of the Lord of 1915. 1339/WŁ of 1991-05-14	Stronie Śląskie, 70 m
6.	Parish Church of the Nativity of the Blessed Virgin Mary, 17th century.	Lądek-Zdrój, 20 m
7.	House from the 2nd half of the 18th century.	Lądek-Zdrój, 20 m
8.	House from the 2nd half of the 18th century.	Lądek-Zdrój, 20 m
9.	House from the 18th century.	Lądek-Zdrój, 20 m
10.	House from the 17th/18th century.	Lądek-Zdrój, 20 m
11.	House from the 17th/18th century.	Lądek-Zdrój, 20 m
12.	House from the 17th century.	Lądek-Zdrój, 20 m
13.	House from the 19th century.	Lądek-Zdrój, 20 m
14.	House from the 18th century.	Lądek-Zdrój, 20 m
15.	House from the 19th century.	Lądek-Zdrój, 20 m
16.	House of 1739.	Lądek-Zdrój, 20 m
17.	St. John's bridge over the Biała Lądecka River from the 16th century.	Lądek-Zdrój, over the Biała Lądecka bed
18.	Malt house of 1567.	Lądek Zdrój
19.	Catholic teachers' seminar	Lądek-Zdrój, 20 m
20.	Central Park from 1800.	Lądek-Zdrój, 0-5 m
21.	Villa of 1860.	Lądek-Zdrój, 30 m
22.	Health resort house Jerzy from 1498.	Lądek-Zdrój, 30 m
23.	Moniuszko Park from 1801.	Lądek-Zdrój, 20 m

4.11. POPULATION AND MATERIAL GOODS

The locations and lengths of the sections mentioned in this chapter refer to the scope of works planned. The section of the Biała Lądecka below km 21+700 flows through a natural floodplain - terraces of the river valley with meadows, pastures and trees. On the left bank, from km 21+700 to km 21+900, there is a municipal sewage treatment plant, discharging treated water into the riverbed at km 21+842. In the section 21+700 ÷ 22+850, i.e. to the mouth of the Wiosennik stream, the river flows along Wiejska Street, on a considerable length secured by a high wall on the left bank with loose single-family houses along this street and single houses on the unreinforced right bank, where extensive woodland is also present. Then, from km 22+850 to the bridge at km 24+350, the Biała Lądecka riverbed is enclosed on both banks by high retaining walls and flows through the built-up and urbanized area of the town of Lądek-Zdrój. Within this section, at km 23+685 ÷ 23+800, there is an island with a footbridge, a cascade of three permanent barrages and a left-sided bed of the former mill race, approx. 100 m long, enclosed on both banks in high stone walls.

Above the bridge, from km 24+400, the left-hand slope of the Biała Lądecka is not reinforced, and on its high bank there are health resort houses located in a loose development. However, the right bank of the river, from the bridge at km 24+400, is covered with compact multi-family residential buildings and up to km 25+100, was reinforced in 2011 with a high stone wall. There are no buildings above km 25+100.

At the section from km 30+745 to km 31+460, the Biała Lądecka riverbed is enclosed on both banks by retaining walls and flows through the built-up and urbanized area of Stronie Śląskie. Above km 31+500, the slopes of the Biała Lądecka are sectionally reinforced and the river flows through areas with loose single-family buildings on the right bank, while on the left bank there are meadows and woods.

The section of the Morawa stream from its mouth to the Biała Lądecka river (at km 31+723), i.e. from the bridge to the left-bank mouth of the Janówka stream at km 0+800, the Morawa stream bed is enclosed in retaining walls on both banks and flows through the built-up area of the town of Stronie Śląskie. Above km 0+800, the slopes of the Morawa stream are not reinforced to: km 1+260 on the left bank and km 1+575 on the right bank, and the river flows through areas with loose single-family buildings and along the road on the right bank, while on the left bank there are green areas - a park. The upper section of the Morawa stream up to km 1+800 has reinforced stone slopes on concrete, and the adjacent areas are meadows and woods - there is a town park in sections of the right bank.

5. POTENTIAL IMPACT OF THE CONTRACT ON ENVIRONMENT

5.1. EARTH SURFACE AND LANDSCAPE

Implementation stage

The implementation of the said Contract will have a minimum impact on the surface of the earth during the construction phase. These impacts will be related to the temporary occupation of the earth surface along the watercourse beds in connection with, among others, the construction site facilities and technological roads. The temporary transformation of the earth surface will also take place at the stage of construction of wooden buttresses and half-buttresses at the right bank, which will act as deflectors directing the current to the fish pass in Lądek-Zdrój, which will be connected with making narrow-space trenches across the banks in order to fix the buttresses. Once the works are completed, the facilities and technological roads will be demolished and the surface of the earth disturbed during construction will be reclaimed. It will therefore be a short-term impact and will cease with the completion of construction works. The scale and type of activities under the Contract will not cause mass movements of the earth at the stage of implementation.

The implementation of the Contract will also influence changes in the landscape locally. These changes will be caused by the presence of construction site facilities, technological roads, equipment and machinery needed to carry out the works, as well as heaps created during demolition works and removal of material deposited within the bed. These changes and transformations to the landscape will be temporary, related to the nature of the works and upon completion the landscape will be restored to its pre-implementation condition.

Operation stage

The works associated with the renovation and maintenance of the riverbed will not cause a permanent change of the earth surface, except for short sections of riverbeds, where it is planned to shape the bank line, build slope reinforcements and convert the sills to ramps. Along these sections, the way slopes and bottoms are reinforced may change, and the longitudinal and temporary profile of the riverbed may change slightly. Due to the small total length of these sections and the small scope of interference with the current shape of the land surface, and because these changes will include anthropogenically transformed urban areas, their impact is not significant in the scale of the analyzed area.

The execution of works will not cause mass movements of the earth. The activities in the riverbed, including renovation, reprofiling and reconstruction of bank revetments, will reduce the probability of any landslides caused by the cutting of the riverbed banks by the river.

The implementation of the Contract is connected with local felling of existing trees and shrubs, growing on slopes and the bank zone. Depending on their scope, they may have a negative or positive impact on the landscape values. Greenery, access to the watercourse and the associated range of view are the criteria for evaluating the landscape values, associated with trees and shrubs. Appropriate development of greenery can therefore have a positive impact on the evaluation of the landscape. The other activities within the Contract will be carried out within

strongly transformed riverbeds and will mainly have a renovation and reconstruction character. Impacts on landscape values in these sections will therefore not be significant.

On significant sections within Lądek-Zdrój and Stronie Śląskie, the existing bankline revetments remain in a poor technical condition, which also has a very negative impact on the landscape values of both towns, which are also important tourist centers in the region. In places where bank revetments and hydrotechnical structures are heavily damaged, the activities included in Contract 2B.2/1 will have a positive impact on the aesthetic values of the buildings in Stronie Śląskie and Lądek-Zdrój.

5.2. CLIMATE

Implementation stage

The planned Contract will not affect the climate and climate change. The main climate change issues focus on issues such as greenhouse gas emissions, direct and indirect emissions related to energy demand, the effectiveness of the solutions applied. During the construction phase, combustion of fuels in cars and machines will result in the emission of gases classified as greenhouse gases. During the investment implementation, carbon dioxide, nitrogen oxides, which are classified as greenhouse gases, and particulate matter (soot, fumes, ash) will be emitted. Electricity consumption will indirectly cause emission of carbon dioxide and water steam to the atmosphere (greenhouse gases) in the generation places of such energy. Due to the local nature of the impacts of the Contract, all emissions mentioned above do not affect the climate and its changes.

Operation stage

The Contract will not affect the climate and climate change at the stage of operation. The planned hydrotechnical facilities will not be a source of greenhouse gas emissions. No emissions to air are expected either, except for emissions from machinery and equipment during maintenance works; no significant demand for electricity exists.

The works carried out in the construction, operation and liquidation phases of the planned project will not cause any climate phenomena leading to changes in microclimate in the area of the reconstructed and built hydrotechnical areas.

5.3. AIR QUALITY

Implementation stage

At the stage of Contract implementation, two types of air emissions are expected to occur:

- exhaust gas emissions resulting from the operation of machinery and heavy construction equipment and the movement of vehicles transporting construction and demolition materials,
- unordered dust emissions resulting from the operation of construction machinery and vehicle traffic.

During the period of tree and shrub felling, during earthworks and construction, construction machines and vehicles transporting raw materials and materials needed for performance of particular works will be the source of air pollution of exhaust character. The emission will be local (moving with the change of front of works), unorganized, reversible (it will cease when the performance of works ceases) and its magnitude is difficult to estimate at this stage.

The main source of dust emissions into the air may be earthworks related to humus removal, demolition of existing infrastructure, hardening of surfaces, as well as felling of trees and shrubs and transport of building materials. Dust emissions during this type of work are of an unorganized nature, depending not only on the amount of material removed and transported, but mainly on the meteorological conditions and humidity of the ground. Therefore, the emissions are difficult to estimate. Atmospheric aerosol generated by mechanical processes belongs to the coarse dust fraction, which is quickly deposited and is not very important for the environment and human health.

It is expected that at the implementation stage the Contract, due to its linear character and dispersion of works generating pollution, will not have a significant negative impact on the environment and will be limited to the closest vicinity of the work sites.

Operation stage

Hydrotechnical structures covered by the scope of the Contract do not generate emission of pollutants into the air. The works performed under the operation of the Contract will require episodic maintenance activities (e.g. repair of damage to the regulatory walls) and will not be associated with significant emissions of pollutants. The emission of pollutants into the air will only result from the operation and movement of machines and vehicles necessary for maintenance works. Emissions will take place at average annual intervals and will not be the emissions that stand out from the background of pollutant emissions to the environment.

5.4. SOILS AND LAND

Implementation stage

Due to the area and scope of the planned works, the impact on soils and land will be related to direct interference with bed sediments, alluvial soils, temporary transformation of the soil surface (excavation) and changes in the soil structure on the land occupied temporarily (technological roads, construction sites). On the access roads to the bed at the place where the works are carried out and in the bank zone of the renovated sections, the fine structure of the soil will be disturbed as a result of being compacted by the working equipment. Earthworks carried out in the riverbeds in the vicinity of hydrotechnical facilities and bridges will lead to the disturbance of the soil and land structure also on the sections of access roads. In the area of the bank slopes, in places where the works are carried out, soils will be lined with fascine mattresses in order to limit direct impact on the river bottom.

During the execution of the works, the potential threat is soil contamination due to equipment failure and leakage of petroleum substances from working machines.

Operation stage

After completing the stage of construction works and after the properly executed ground reinstatement in places of temporary occupation, no significant changes to soil and water conditions and to soil productivity within temporary occupation sites are expected.

5.5. SURFACE WATERS

5.5.1. STATUS OF USWB AND ENVIRONMENTAL OBJECTIVES

It was found on the basis of the conducted analyses of the impacts on all the elements of water status assessment, taking into account the impacts at the stage of implementation and operation, that the Contract execution is associated with the following impacts on the elements of unified surface water bodies' status:

1.Biological elements

- Macrophytes and phytobenthos
  - Mechanical destruction of plants (implementation stage, direct impact);
  - Deterioration of light conditions as a result of increased suspended solids concentration in the water during the works (implementation stage, indirect impact);
  - Possible transformations in the composition of macrophytes and phytobenthos communities as a result of reversible changes in habitat conditions in the sections covered by the works (operation stage, indirect impact);
  - Elimination of habitat fragments in reinforced slopes (operation stage, direct impact), as well as a permanent change of habitat conditions in the fish pass area;
  - Also, possible positive impact on the development of macrophytes and phytobenthos as a result of increasing the access of light to the bed by felling trees on slopes (operation stage, indirect impact).
- Benthic macro-invertebrates
  - Scaring of fauna, mechanical damage/destruction of animals (implementation stage, direct impact);
  - Deterioration of living conditions of benthic invertebrates as a result of increased suspended matter concentration in water during the works (implementation stage, indirect impact);
  - Possible transformations in the composition of macro-invertebrates as a result of reversible or sectionally permanent (slope reinforcement sections, fish pass zone) changes in habitat conditions in the sections covered by the works (operation stage, indirect impact);
  - Positive effect of the fish pass and ramps on the migration of organisms, using appropriate technical solutions (operation stage, direct impact).
- Ichthyofauna
  - Scaring of fauna, mechanical damage/destruction of animals during works (implementation stage, direct impact);
  - Deterioration of living conditions of fish as a result of increased suspended matter concentration in water and changes in flow conditions during the works (implementation stage, indirect impact), which is particularly dangerous during spawning and egg incubation;

- Possible transformations in the composition of ichthyofauna as a result of reversible changes in habitat conditions in the sections covered by the works (operation stage, indirect impact);
- Positive impacts for fish migration (operation stage, direct impact).

2.Hydromorphological elements

- Possible temporary change of water flow conditions and the course of channel and fluvial processes during works conducted in the channel zone (implementation stage, direct impact);
- Elimination of natural morphological elements in the bed (implementation stage, direct imp.), resulting in the reduction of the degree of hydromorphological diversity - reversible, because natural hydromorphological elements, especially those related to the accumulation of water activity, will be restored as a result of naturally occurring bed processes (operation stage);
- Sectional modification of the bed in cross-section (operation stage, direct impact);
- In the initial phase of operation, the reduction of flow resistance, resulting in an increase in speed at a given flow rate (operation stage, direct impact); a sectional permanent change of flow conditions (operation stage, indirect impact);
- Increase of the USWB's flow capacity, decreasing also the value of the Hydromorphology Transformation Index (WPH) (operation stage, direct impact);
- Simplification of the vegetation structure on bank slopes and in the bank zone, as well as elimination from the bed of natural morphological elements related to the afforestation, such as: hanging boughs, thick and fine wood rubble (operation stage, direct impact).

3.Physiochemical elements

- Periodic and local increase of suspended solids concentration in water (implementation stage, direct impact);
- Exposure to uncontrolled spills of petroleum substances from working and garaged machines (implementation stage, direct impact);
- Activation of small fractions, growth of nutrients in water (implementation stage, indirect impact).

For the planned rehabilitation and reconstruction works, which do not interfere with the shape of the bed and the bank zone, most of the above-mentioned impacts do not cause permanent consequences. The majority concerns the implementation stage and ceases after its completion.

Permanent changes in the riverbed of the Biała Lądecka and the Morawa stream concern the sections where the regulation of the bank line and sectional reinforcement of banks is planned, the reconstruction of permanent barrages and sills into ramps and fish passes. The regulation for the Stronie Śląskie Facility is planned on the sections with a total length of approx. 1150 m, which constitutes less than 2% of the length of both USWBs within the reach of the Contract implementation. The regulation for the Lądek-Zdrój Facility is planned on the sections with a total length of approx. 950 m, which constitutes less than 3% of the length of the USWB. These

sections are located in built-up areas, characterized by already a high degree of bed transformation. Hence the works will not affect the Hydromorphology Transformation Index (WPH)[1] on the scale of the analyzed unified water bodies. The other above-mentioned activities will have a positive impact on the flow capacity of the riverbed and the continuity of the river, provided that appropriate technical solutions are applied. These activities are not expected to deteriorate the status of both USWBs, especially after implementation of minimizing measures to reduce the possibility of water pollution. The Contract does not threaten the achievement of the environmental objectives set for the unified water bodies concerned. It will also not affect the threat to the achievement of environmental objectives of the neighboring USWBs, due to the spatial scope and local character of the changes. Some of the activities planned for implementation within the framework of the Contract (such as construction of fish passes in the Lądek-Zdrój facility and construction of ramps for the migration of aquatic organisms in the Stronie Śląskie Facility) support the achievement of environmental objectives for individual USWBs because the ecological flow capacity within the Biała Lądecka riverbed is improved.

5.5.2. ENVIRONMENTAL OBJECTIVES FOR PROTECTED AREAS INDICATED IN §16(32) OF THE ACT OF 20 JULY 2017 - WATER LAW

Table 3, on the basis of the WMORB database, presents areas protected under the Water Law act, designated within the *USWB Biała Lądecka from Morawka to Nysa Kłodzka* with the code RW60008121699 and *USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica* with the code RW60004121629.

The conducted analyses of the impact of the Contract on the above-mentioned areas indicate that:

- None of the analyzed USWBs is a water body intended for water intake for the purpose of supplying the population with water for consumption. None of them is also located in an area dedicated to the protection of aquatic animal species of economic importance. Therefore, the possibility of impacts on the achievement of the environmental objectives of these areas is not considered.
- Within the area of both USWBs, areas sensitive to eutrophication caused by pollution from municipal sources have been identified. In Poland, for the purposes of implementation of Directive 91/271/EEC concerning urban wastewater treatment, it has been assumed that the whole area of the country is sensitive to eutrophication caused by pollution from municipal sources. As social and household sewage will be created only at the stage of implementation of the Contract and will be discharged into portable toilet tanks and collected by entities holding appropriate permits for sewage management, the Contract execution will not affect the achievement of the objectives of these areas.
- Both USWBs are located within areas designated for the protection of habitats or species referred to in the provisions of the Nature Conservation Act, for which maintenance or

[1] the index used in the assessment of the hydromorphological status of unified surface water bodies, in accordance with the methodology of the State Environmental Monitoring "Manual for the assessment of flowing waters based on the hydromorphological river index". GIOŚ 2017 or its update (www.gios.gov.pl)

improvement of water status is an important factor in their protection. For USWB RW60008121699 these are: Śnieżnicki Landscape Park, Krowiarki Range PLH020019, Czarne Urwisko near Lutynia PLH020033, Biała Lądecka PLH020035 and Złote Mountains PLH020096. The following is located within the USWB RW60004121629: Śnieżnicki Landscape Park, the Bialskie Mountains and the Śnieżnik Group PLH020016, the Krowiarki Range PLH020019, Biała Lądecka PLH020035 and the Złote Mountains PLH020096. The assessment of the Contract's impact on the achievement of environmental objectives of protected areas intended for the protection of habitats or species is presented in chapter 5.7.3.

- USWB RW60004121629 is a unified water body intended for recreational purposes, including swimming. A bathing site is used in a lagoon in the town of Stara Morawa on the Morawa stream (Pool: "Stara Morawa storage reservoir"). According to the data of the Chief Sanitary Inspector (https://sk.gis.gov.pl/index.php/kapieliska/lista), the bathing site meets the quality requirements for bathing water (water suitable for bathing: result of the study of 26/08/2019). According to the 2018 bathing water classification, the water quality is excellent. The indicated bathing site is located in the Morawa valley above the section covered by works under the Contract. Hence, the implementation of the works under the Contract will not affect the quality of water in the bathing site. The USWB RW60008121699 is not a unified water body intended for recreational purposes, including swimming. Thus, the implementation of the Contract within both USWBs under consideration does not pose a threat to the environmental objectives set for water bodies intended for recreational purposes, including bathing.

5.6. GROUNDWATER

Implementation stage

The works connected with the planned investment will not change the existing water conditions in the area of its implementation and in adjacent areas.

The main causes of groundwater pollution at the Contract implementation stage may be:

- rainwater and snowmelt water runoff from the construction site,
- inappropriate storage of building materials,
- inappropriate location of construction site facilities and lack or poor organization of sanitary facilities,
- water pollution by oil-derived substances leaking from construction machinery in poor condition or as a result of their failure.

The possibility of the movement of contaminants, together with rainwater, from the surface of the ground to the groundwater largely depends on the thickness of the layers of poorly permeable formations, isolating the aquifer. In general, after implementation of minimizing measures to reduce the possibility of water and soil pollution, the construction works will not cause negative impacts on the quantitative and qualitative status (changes in water chemistry and hydrodynamics) of groundwater.

Operation stage

After completion of the works, at the operation stage, no impact on the quantitative and chemical status of UGWBs is expected.

5.7. FLORA AND FAUNA

5.7.1. PROTECTED NATURAL HABITATS

No negative impacts on three types of natural habitats are expected to occur at the stage of Contract implementation in the area of Stronie Śląskie, including the habitat 3260 and 9170. For the latter, the works on the section of the river where one of the patches of habitat was located were abandoned. Negative impacts are also expected to occur in the Lądek-Zdrój area on three natural habitats, including habitat 3260 and 91E0.

5.7.2. PROTECTED FUNGI, PLANT AND ANIMAL SPECIES

Protected plant species

Negative impacts are expected to occur at the Contract implementation stage on eight species of rare and/or protected plants, aphids and lichens for the Stronie Śląskie Facility. These are the following species: Water-crowfoot, Oxlip, Abietinella Moss, Straw Bristle-moss, Dwarf Bristle-moss, Porella, Pleurosticta acetabulum and *Lemanea fluviatilis*. Due to periodic transformation and loss of habitats, negative impacts on Water-crowfoot and Linnaeus *Lemanea fluviatilis* are expected to occur also at the operation stage.

In the area of the Lądek-Zdrój site, impacts will occur on three protected species, including Water-crowfoot, for which appropriate mitigation measures are envisaged to be taken, as detailed in appendix no. 1 to the EMP. The other species are Knotskroesmos and Linnaeus *Lemanea fluviatilis*.

Protected animal species

Invertebrates

It is expected that weak to moderate negative impacts will occur on four species of invertebrates in the area of Stronie Śląskie (Red-tailed Bumblebee, Large Copper, Dusky Large Blue, Roman Snail) and on four species in the area of Lądek-Zdrój (Roman Snail, Red-tailed Bumblebee, Carabus coriaceus, Carabus auronitens) at the Contract implementation stage. No negative impacts on invertebrates are expected during the operation phase.

Fish and lampreys

At the implementation stage, the occurrence of weak to significant negative impacts on the following species of fish are expected to occur: Stone Loach, European Bullhead, Alpine Bullhead, Rainbow Trout and one species of lamprey: Brook Lamprey. The execution of works will affect the living conditions of ichthyofauna through changes in water physiochemistry and flow, including suspension inflow, particularly dangerous during spawning and egg incubation. The impacts will only relate to the phase of construction and will disappear after a few/a dozen or so hours after completion of works. They will thus be insignificant to the local populations

of these species (appropriate mitigation measures have been identified to minimize the significance of such impacts).

At the operation stage, the Contract will have a positive impact on the aforementioned fish species. There will be positive permanent impacts on the migration of fish and lampreys, related to the transformation of the mill race bed in Lądek-Zdrój into a fish pass, and to the flow capacity improvement of the barrage and sill in Stronie Śląskie and the barrage between Stronie Śląskie and Lądek-Zdrój.

Amphibians and reptiles

Negative weak to moderate impacts on European toad, Common frog, Sand lizard, Grass snake and Slowworm are expected at the implementation stage. These impacts will be associated with a potential increase in the incidental mortality of individuals as a result of increased vehicle traffic in the works area. However, this impact will have a negligible impact on the local population of species. No negative impacts are expected during the operation phase.

Birds

No negative impacts on Grey-headed Woodpecker, Grey Wagtail, White Wagtail and White-Throated Dipper and Spotted Flycatcher are expected to occur at the stage of Contract implementation in the area of Stronie Śląskie. In the area of Lądek-Zdrój, the following species are endangered at this stage: Goosander, White Wagtail, Grey Wagtail, White-Throated Dipper and Spotted Flycatcher. The impacts on avifauna during the implementation stage are primarily related to the startling and scaring of bird species directly related to the riverbed and habitats occurring on the bank slopes, but also to the felling of trees with hollows or nests. Moderate negative impacts may occur at both Facilities during the operation stage related to: White Wagtail, Grey Wagtail, White-Throated Dipper and Spotted Flycatcher.

Mammals (excluding bats)

Moderate negative impacts on the otter are expected to occur, as well as weak impacts on the Mole, Ural Field Mouse and Montane Water Vole at the Contract implementation stage. Mammals may accidentally die during the passage of vehicles (stage of construction works). The otter will be scared during the period of works performance. No negative impacts are expected during the operation phase.

Bats

No negative impacts on bat species inventoried in the Stronie Śląskie area are expected. There is a possibility of weak impact on Serotine Bat and Barbastella Bat in the area of Lądek-Zdrój. In the case of the first species, scaring of individuals may occur. However, there are no permanent negative impacts on the species' habitat. In the case of Barbastella Bat, there may be a slight deterioration of the feeding conditions of the species due to removing the parts of trees and shrubs. No negative impacts are expected during the operation phase.

5.7.3. NATURA 2000 SITES

As part of the environmental impact assessment of the Contract, the possibility of a negative impact on the following Natura 2000 sites was analyzed:

- Biała Lądecka PLH020035,
- Bialskie Mountains and the Śnieżnik Group PLH020016,
- Złote Mountains PLH020096,
- Krowiarki Range PLH020019.

The impacts resulting from the planned works within the Biała Lądecka riverbed concern mainly the sites of conducting the works (Biała Lądecka Natura 2000 site PLH020035) and may potentially scatter along the riverbed (downstream). The closest Natura 2000 sites (except Biała Lądecka PLH020035) to the work sites are: Złote Mountains PLH020096 - the minimum distance from the work area is about 30 m, Krowiarki Range PLH020019 - at an average distance of approx. 600 m and Bialskie Mountains and Śnieżnik Group PLH020016 - at an average distance of approx. 650 m. In the case of the aforementioned areas adjacent to the area of the investment, there will be no indirect impacts on the habitats being the objects of protection of these areas. This is mainly due to the location of the indicated areas in the catchment area of the Biała Lądecka tributaries and on its upper section above the site. A periodical indirect impact is possible (implementation stage) on fish and lamprey species being the object of protection or listed in the SDF of the indicated areas related to the limitation of migration in the Biała Lądecka riverbed, as well as on butterfly species (in connection with the movement of construction machinery in the vicinity of the area) and the otter (startling). However, there will be no permanent impairment of the function of the ecological corridor along the river - there will be a periodical deterioration of its functioning (implementation stage) and a permanent improvement as a result of the opening of partitions (operation stage).

Biała Lądecka PLH020035

Negative impacts on the objects of protection of the site are expected to occur during the implementation phase (habitats: 3260 and 9170; European Bullhead, Brook Lamprey, European otter). Both negative and positive impacts are expected at the stage of operation (habitat: 3260; European Bullhead – positive impact, Brook Lamprey – positive impact). No risk of severe negative impacts on the Natura 2000 site was identified

Bialskie Mountains and the Śnieżnik Group PLH020016

Negative impacts on the site's objects of protection are expected to occur at the implementation stage (Dusky Large Blue; European Bullhead, Brook Lamprey). Positive impacts are expected to occur at the operation stage (European Bullhead, Brook Lamprey). The impacts generated by the execution of works are limited to the riverbed and its immediate surroundings (or impacts below the work areas, but within the riverbed), there will be no impacts on natural habitats and bats being the objects of protection of the area. No risk of severe negative impacts on the Natura 2000 site was identified on the other hand, a lasting impact at the operation stage will be positive - the improvement of the ichthyological flow capacity of the Biała Lądecka section will improve the integrity and connection with neighboring Natura 2000 sites.

Złote Mountains PLH020096

Negative impacts on the site's objects of protection are expected to occur at the implementation stage (Dusky Large Blue, Large copper butterfly, European Bullhead, European otter) limited primarily to the execution phase of the works. It is therefore proposed that mitigation measures are put into place. Positive impacts are expected to occur at the operation stage (European Bullhead, Brook Lamprey). The impacts generated by the Contract are limited to the riverbed and its immediate surroundings (or impacts below the work areas, but within the riverbed), there will be no impacts on natural habitats and bats being the objects of protection of the area. No risk of severe negative impacts on the Natura 2000 site was identified. However, a lasting impact at the operation stage will be positive (European Bullhead) - the improvement of the ichthyological flow capacity of the Biała Lądecka section will improve the integrity and connection with neighboring Natura 2000 sites.

Krowiarki Range PLH020019

As the impacts generated by the Contract are limited to the riverbed and its immediate surroundings (or impacts below the work areas, but within the riverbed), there will be no impact of any kind on the Natura 2000 site Krowiarki Range PLH020019, the habitats and species protected there (no representatives of ichthyofauna among the area's objects of protection). No risk of severe negative impacts on the Natura 2000 site was identified. This concerns both the stage of implementation and operation.

5.7.4. OTHER PROTECTED AREAS

The implementation of the Contract does not generate negative impacts on other protected areas, such as National Parks, Nature Reserves, Protected Landscape Areas, nature and landscape complexes and ecological sites, which are located outside the direct and indirect impact zone.

Along the section of the Biała Lądecka between Goszów and Stronie Śląskie and in Lądek-Zdrój, works will be carried out at a distance of several dozen meters from the boundaries of the Śnieżnicki Landscape Park. The work area is located in its buffer zone. The impact, even at the implementation stage, will be insignificant. There may be a temporary, weak impact consisting in disturbing the landscape in the bank area of the Biała Lądecka caused by the presence of construction facilities, technological roads, equipment and machinery needed to carry out the works, as well as heaps created during demolition works and removal of material deposited within the bed. In the area of works, however, there are no elements which are the main objective of protection in the Śnieżnicki Landscape Park, such as open, undeveloped spaces in the forest-meadow landscape or caves (karst formations). The violation of the vegetation will concern only the immediate surroundings of the works area and the works area itself, which are located outside the landscape park (in the buffer zone). Local, weak, negative impacts on the buffer zone of the Śnieżnicki Landscape Park resulting from selective felling of trees and shrubs are predicted.

A negative impact at the implementation stage of the Contract on one natural monument located in Stronie Śląskie in the vicinity of the works is expected. For this reason, implementation of the minimization measures described in appendix no. 1 to the EMP is envisaged.

The planned works including the flow capacity improvement of the barrage and sill on the Biała Lądecka in Stronie Śląskie (reconstruction into a semi-natural ramps) in connection with the flow capacity improvement of a group of 3 sills in Biała Lądecka (through the construction of a fish pass on a mill race), and the improvement of the flow capacity of the sill at km 26+350 between Stronie Śląskie and Lądek-Zdrój (reconstruction into a semi-natural ramp) will contribute to a significant improvement in the river's flow capacity as an ecological corridor. These activities will contribute to reducing the fragmentation of the populations of both species of bullheads and Brook Lamprey, which are numerous in the entire river system of the stream trout. This measure will significantly improve the integrity of the Natura 2000 site PLH020035 Biała Lądecka, as well as the coherence with the neighboring Natura 2000 sites, in particular PLH020016 Bialskie Mountains and Śnieżnik Group.

At the implementation (suspended matter) in the area of works. However, at the operation stage, the flow capacity improvement of two damming sites on the Biała Lądecka, provided for under the planned works, will contribute to the improvement of the river's flow capacity as an ecological corridor.

5.8. ACOUSTIC CLIMATE

Implementation stage

Negative impacts in the form of noise emissions will occur at the Contract implementation stage. These will be short-term impacts varying over time, mainly related to the operation of machinery and heavy construction equipment and the movement of construction vehicles. The range of noise impact associated with the construction will depend on the type of machines used, the number of machines running simultaneously and their operating time. The sound power level of most construction machines and chain saws is within the L_{WA} = 105- 115 dB. Noise generated at the stage of investment execution will be dispersed, emitted only during the daytime. These impacts will have a local reach.

For the purpose of analyzing the designation of facilities potentially threatened by noise, a range of 100 m from investment works was assumed, regardless of their type and emissions. It was found that in the analyzed area, the number of objects exposed to temporary exceedances of permissible noise standards is: in Stronie Śląskie and Lądek-Zdrój, respectively: 235 and 285 residential buildings, 12 and 25 hotels and tourist accommodation buildings, 8 and 16 hospitals and medical care facilities and 6 and 5 schools and buildings of research institutions. Moreover, there are also two kindergarten/nursery buildings in the analyzed area in Lądek-Zdrój. The increased noise emission on such areas is only related to the stage of implementation, i.e. a short period of time, limited to the execution of necessary works. Periodic nuisance related to noise emission will disappear as the front of the works moves. An adequate advance notice is anticipated to owners and/or users of the facilities exposed to high noise emissions from the conducted works. In addition, it is envisaged that appropriate information boards will be installed at places and times when works posing a risk of high noise emissions will be carried out.

Operation stage

Hydrotechnical structures covered by the scope of the Contract do not generate noise. Hence, their operation does not permanently affect the acoustic status of the environment of the adjacent acoustically protected areas described above.

The emission of noise will only result from the operation and movement of machines and vehicles necessary for maintenance works. These will be short-term and local impacts (limited to locations where necessary maintenance work is carried out with heavy equipment), occurring as needed.

5.9. CULTURAL MONUMENTS

Implementation stage

When analyzing the scope of activities under the Contract and the technology of performing the works, it was not found that they pose a significant threat to the objects considered to be protected on the basis of the entry in the register or the register of monuments.

There are two buildings in Lądek-Zdrój, located in the immediate vicinity of the work areas (St. John's Bridge and the historic malting plant) and one monument in Stronie Śląskie (Chapel from 1980).

In the case of the St. John's Bridge, the reconstruction of the river retaining walls adjacent to the facility is planned, so that the facility itself will not be affected and no interference in its construction is planned. With regard to the historic malting plant located on the left-bank slope of the Biała Lądecka, a set-off of a retaining wall is planned to be built here, so the buildings' structure will not be affected.

Partially, the boundaries of the facility, the so-called Central Park in Lądek-Zdrój, over a distance of several dozen meters adjoin the riverbed, however, the works do not affect the disturbance of the landscape layout of the facility and will not significantly affect the vegetation occurring within the boundaries of the park (it is planned to leave the trees growing along the riverbank slope).

Over a distance of about 100 m, the works will also be carried out along the Central Park, which is located in the health resort protection zone "A". However, the trees located within its borders and growing in the vicinity of the riverbed will not be removed and therefore the works will be carried out in accordance with the provisions of the Act of 28 July 2005 *on health resort treatment, health resorts and areas of health resort protection and on health resort communes*.

Archaeological supervision will be in place at the stage of works implementation to ensure that the works are carried out in accordance with any detailed guidelines and arrangements with the Voivodship Monument Conservator.

Operation stage

At the operation stage, a positive impact on historic buildings is expected due to the reduction of the flood risk level.

5.10. MATERIAL GOODS

Implementation stage

Works related to the implementation of the Contract will be carried out within the area of the Biała Lądecka riverbed and the banks of Lądek-Zdrój and Stronie Śląskie, i.e. in the direct vicinity of urban development and infrastructure. Impacts on material goods at the stage of construction works will mainly result from the execution of works and movement of vehicles and machines in built-up and inhabited areas. Residents and their properties may be exposed to vibrations, noise, dust. For this reason, the minimization measures were specified, presented in appendix no. 1 to the EMP (item 10), where it was indicated that all damages to structures and buildings and other infrastructure elements resulting from the execution of works by the Contractor or its Subcontractors will be repaired. Item 88 of App. 1 to the EMP also stipulates the necessity of developing a *Detailed Quality Assurance Plan* specifying the principles for documenting the condition of the infrastructure prior to commencing the works and for controlling the potential impact of the works on its condition as a result of vibration and vibration emissions. The condition of the road infrastructure may also deteriorate, but it will be restored to its pre-investment condition upon completion of the works.

In order to protect material goods at the construction stage, the Contractor will be obliged to implement a number of measures to minimize the impact both in the vicinity of the construction site and access roads. Their implementation should reduce the risk of negative impact on material goods in the area of the Contract, thus no significant impacts are expected in this respect.

Operation stage

The Contract aims, in particular, to increase the flood protection of bank areas with particular emphasis on built-up areas and traffic routes, as well as to protect the towns of Lądek-Zdrój and Stronie Śląskie against damages to regulatory structures and bridges during the flood wave. The result of the Contract implementation will be, inter alia, restoration of the functionality and/or increased reliability of the functioning of hydrotechnical structures and ensuring safe passage of the flood wave in the section of the Biała Lądecka within the aforementioned towns. Therefore, material goods (including, above all, urban development and infrastructure) located in flood plains will be more effectively protected in the event of flooding.

5.11. HUMAN HEALTH AND SAFETY

Implementation stage

The impacts of the Contract at the implementation stage will be the impacts typical for medium-sized construction sites.

The main categories of these impacts are:

- noise emissions (operation of construction equipment and machinery, transport of materials),

- emissions of pollutants to air (exhaust emissions from internal combustion engines of machinery and means of transport, dust emissions during earthworks and transport processes),
- traffic nuisance (related to increased vehicle traffic).

All the above-mentioned impacts will be temporary in nature (limited to the construction period) and will not cause permanent changes in air quality and acoustic climate parameters. Such types of emissions are not standardized.

In particular, the residents of the properties in the vicinity of the riverbed of the Biała Lądecka and the Morawa stream will be exposed to these impacts.

At the construction stage, the nuisance and severity of the above-mentioned impacts will be minimized by the application of technical and organizational measures, comprising:

- time limits for carrying out works connected with significant noise emission and in the immediate vicinity of buildings, mainly residential buildings,
- reduction of dust emissions from the construction site and means of transport,
- reduction of noise and exhaust emissions by using efficient equipment and only engines during breaks,
- development and agreement of the traffic organization project with the road manager and proper marking and securing of roads according to the above-mentioned project.

The implementation of the Contract is planned in accordance with the applicable regulations of a high standard of modernity, it will meet the requirements of occupational health and safety and fire and environmental protection regulations.

Operation stage

The main benefits of the investment are the restoration of the functionality and/or increasing the reliability of hydrotechnical structures and protection of nearby road infrastructure against washing out, which will improve human health and safety. The executed investment will not involve the emission of pollutants harmful to people.

The implementation of the Contract is planned in accordance with the binding legal regulations and high standards of investment execution in accordance with operational policies of the co-financing institution, i.e. the World Bank. The works will be carried out in accordance with the requirements of occupational health and safety regulations and fire and environmental protection regulations. The operation stage will indirectly influence the improvement of living conditions of people by reducing the flood hazard.

5.12. WASTE

Implementation stage

It is estimated that approx. 16700 m^3 of waste will be generated at the implementation stage. Typical construction, renovation and demolition waste (including soil and earth) is expected to be generated. It is also possible to produce waste related to the operation of mechanical equipment and construction machinery powered by combustion engines, including hazardous

waste. Municipal waste will be generated within the construction site facilities during the period of conducting the works.

If the generated waste is properly handled and managed, the construction process will not have a negative impact on the environment during the implementation stage. An area will be designated at the construction site facilities site to accommodate holders and containers for temporary storage of waste, depending on their type, including special sealed containers for hazardous waste storage. Waste will be transferred on a regular basis to the means of transport of entities authorized to transport waste and managed further on the basis of the classification of waste carried out at the stage of works implementation.

The soils located on the construction site (including the earth mass outside the watercourse riverbeds and sediments from watercourse riverbeds) will be used at the construction site if the excavated soils from the work sites meet the technical and environmental parameters (classified as uncontaminated soils). The Contractor is also required to prepare documents such as: *Waste Management Plan* and *Soil Management Plan* presenting in detail how to treat soils and will subject to the Contract Engineer's approval prior to the commencement of works generating waste and soils.

Operation stage

Potential generation of waste at the operation stage will be related to the maintenance and maintenance works. No significant amount of waste is expected to be produced.

5.13. EMERGENCY HAZARDS (CRISIS AND EMERGENCY SITUATIONS)

The following emergency situations likely to cause extraordinary hazards to the environment may occur due to the implementation and operation of the planned Contract.

Leak of petrol derivatives

An emergency situation may occur at the stage of construction, as a result of which a leakage of oil derivative substances from vehicles, construction machinery, reservoirs etc. will occur, causing contamination of surface water and/or land surface. Such leakages may potentially occur during the traffic of vehicles and machinery, as well as in storage and fueling sites. During the course of the works, the risk of an emergency situation will be minimized by ensuring that appropriate procedures and measures are in place to limit losses in the event of environmental damage.

Fire or explosion of flammable substances

An emergency situation may occur at the stage of construction connected with the occurrence of fire (e.g. due to equipment failure, personnel's negligence, explosion of flammable substances, lightning stroke, etc.). The occurrence of such a situation poses a threat to both the Contractor's personnel and the environment. Nevertheless, in order to minimize such situations, among other things, only equipment in proper technical condition will be used and properly operated and maintained.

Finding unexploded shells

At the stage of the earthworks and other construction works, hazardous materials of military origin may be found, such as unexploded ordnance and unexploded shells (e.g. fuses, missiles, aerial bombs, artillery and rifle cartridges, armor plating, grenades, all types

of mines, explosives charges, scrap metal containing residual explosives, etc.). The Contract will be carried out in such a way as to eliminate the risk of any danger to the Contractor's staff and local residents. Procedures will be developed in case of such a situation and appropriate personnel will be involved (sapper's supervision).

Sudden flood swelling, flood

A potential situation posing a threat to the environment and human health and safety at the stage of works is also the occurrence of a sudden increase in the water level in the river. The Contractor should monitor on an ongoing basis the hydrological situation in the catchment areas of the Biała Lądecka in zones that may result in increased water levels in the area of works. During the period of high water levels or jamming floods, the Contractor's equipment and elements of construction site facilities may be located within the river bed and in the bank zone. Therefore, procedures will be developed in case of such a situation.

Strong winds and hurricanes

The occurrence of extreme weather phenomena such as strong winds and hurricanes are potentially dangerous phenomena for the conditions of conducting works, hence for the safety and health of people and environment. Some of the works will be carried out within or in close proximity to high greenery.

Possibility of failure during operation

Emergency situations in the operation of overhauled hydrotechnical facilities may result from machine failures during maintenance works, being a source of uncontrolled leakage of petroleum substances and oils.

Epidemiological risk

In the event of an epidemic, there may be threats to the health and life of the Contractor's employees and the Employer's and Engineer's staff as well as to the construction process. Regulation of the Minister of Health of 20 March 2020 on *declaring the state of the epidemic on the territory of the Republic of Poland* (Journal of Laws item 491 as amended) in the period from 20 March 2020 until further notice, in the territory of the Republic of Poland a state of epidemics in connection with SARS-CoV-2 virus infections, was announced.

5.14. CUMULATIVE AND TRANSBOUNDARY IMPACTS

CUMULATIVE IMPACTS

Cumulative impacts in the context of flood control activities in the problem area (the so-called hot spot) of the Kłodzko Valley.

In accordance with the provisions of the FRMP and WMORB, as part of the Odra-Vistula Flood Management Project (OVFMP), the following projects exist:

1. Subcomponent 2A - active protection;
   - 2A.1/1 Construction of the “Boboszów” dry flood control reservoir on Nysa Kłodzka River,

- 2A.1/2 Construction of the “Roztoki Bystrzyckie” dry flood control reservoir on the Goworówka stream,
- 2A.2/1 Construction of a dry flood protection reservoir Krosnowice on the Duna stream near Krosnowice,
- 2A.2/1 Construction of “Szalejów Górny” dry flood control reservoir on Bystrzyca Dusznicka River;

2. Subcomponent 2B - passive protection:
   - 2B.1/1 Flood Protection of the Nysa Kłodzka Valley,
   - **2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River**,
   - 2B.2/2 Flood protection of the Bystrzyca Dusznicka River and the Kamienny Potok River.

No cumulative impacts are expected to occur for the Contract with the currently implemented dry flood protection reservoirs "Boboszów", "Roztoki Bystrzyckie" and "Krosnowice". These reservoirs are located in other catchment areas, they are far from the project in question, and the impact of works, especially those related to passive protection in Stronie Śląskie and Lądek-Zdrój, is limited to the immediate vicinity of the work areas. Moreover, decisions on environmental conditions have been issued for these investments, specifying the actions which minimize their negative impact on the environment.

Due to the location of the remaining tasks of Subcomponent 2B of the OVFM Project and the planned scope of works, no risk is identified for most of them of accumulation of negative impacts related with the Contract 2B.2/1 at the implementation stage (apart from the possibility of cumulative impact in the scope of increase of suspension concentration and deterioration of oxygen conditions within USWB *Nysa Kłodzka from Biała Lądecka to Ścinawka*, which is the lowest located USWB). These impacts will cease after the completion of works.

The impact accumulated in the scale of the Nysa Kłodzka catchment area at the operation stage pertains mainly to hydromorphological transformations in the beds covered by the investments. As the works have been limited to built-up areas and will be carried out on short sections and are reversible in nature, they will not cause a permanent decrease in the assessment of the ecological status/potential of the analyzed USWBs. These activities, being passive protection activities, will not cause the risk of not reaching the environmental objectives set for the USWB, provided that appropriate technical solutions are applied and that hydrotechnical facilities are properly operated.

The positive cumulative effect on the movement of ichthyofauna and invertebrate aquatic animals within the Kłodzko Nysa and its tributaries will be achieved by the renovation and modernization of sills and weirs, especially their conversion into ramps, as well as the construction of fish passes. These actions will in the long term ensure that the biological parameters of the USWBs under analysis are either maintained at the current level or improved.

Cumulative impacts on the status of the USWBs within which the Contract is located and on the natural resources of the Biała Lądecka valley

The total length of the analyzed USWBs is 57.87 km. Within the framework of passive protection, it is planned to carry out renovation and reconstruction works in watercourse beds on sections with a total length of about 7.8 km, which constitutes about 13.5% of the length of the analyzed USWBs.

In the course of implementing the measures at the areas where the works are carried out, the direct destruction of aquatic plant communities (habitat 3260) and the startling of communities of benthic invertebrates, ichthyofauna and other aquatic organisms will take place. A temporary change in water flow conditions, as well as a temporary turbidity of the water, an increase in suspension concentration and a deterioration in oxygen conditions will also occur. There will be an accumulation of these impacts if both investments are carried out simultaneously (Stronie Śląskie facility and Lądek Zdrój facility). The most probable is the accumulation of impacts in the scope of increase of suspended matter concentration in the waters of the Biała Lądecka, mainly within the limits of *USWB Biała Lądecka from Morawka to Nysa Kłodzka* (especially in the section Stronie Śląskie - Lądek Zdrój and below Lądek). Indirectly, this will reduce water transparency and worsen light conditions for aquatic flora and fauna. These impacts will end with the completion of all investments. The time and spatial shift of the works from the top to the bottom of the river for each of the facilities was indicated as one of the measures to counteract the accumulation of impacts.

The impact accumulated at the operation stage concerns mainly hydromorphological transformations in the beds covered by the investments. However, as the planned works will be carried out in the beds strongly transformed in the past and will be mainly of the renovation character, they will not significantly affect the hydromorphology of the Biała Lądecka and its tributaries. The natural hydromorphological elements eliminated during the works will be reinstated as a result of natural fluvial processes taking place in the river. For this reason and given also the small spatial scope of works on the scale of both analyzed USWBs, the changes in the river basin are not so significant as to lower the assessment of the ecological status of the analyzed USWBs and, considering the minimizing measures, the coherence of Natura 2000 sites.

Cumulative impacts with activities resulting from the Water Maintenance Plan for the analyzed USWBs as well as for USWB *Morawka*

All the activities listed in the WMP are maintenance works, performed periodically every 3 or 5 years. Some of them will be implemented on the sections covered by the activities under Contract 2B.2/1, the others - in close proximity to them. If works are carried out simultaneously on the sections within the impact range of the Contract, cumulative impacts may occur within the following range:

- increasing the concentration of suspended matter in USWB waters,
- pollution of surface water and groundwater by oil-derived substances leaking from construction machinery when it is in poor condition or as a result of its failure,
- changes in habitat conditions as a result of the elimination of breaks and depressions in slopes and bottom (reduction of morphological diversity) and removal of alluvium, roots, fallen trunks, stones, etc. deposited in the bottom of watercourses,
- the startling of aquatic animals and the removal of plants from the bottom and slopes.

These will be impacts occurring locally and periodically. There will be no cumulative direct impacts on the elements of the status of USWBs and UGWBs when works are performed at the Contract operation stage. Thus, no impact on the achievement of the environmental objectives set for them, as referred to in Articles 57 and 59 of the Water Law, is expected. The indirect

impact of the works provided for in the WMP may relate to the restoration of habitats after the completion of the investment and the acclimatization of re-planted water-crowfoot patches (2-5 years). Maintenance works will also be planned and carried out considering the principles of good practice, which will reduce their negative impact.

Cumulative assessment of cumulative impacts

The environmental objectives for *USWB Biała Lądecka from Morawka to Nysa Kłodzka* are to achieve a good ecological status, to ensure the possibility of migration of aquatic organisms in the section of the significant stream - Biała Lądecka from Nysa Kłodzka to Orliczka and to achieve a good chemical status. The environmental objectives for *USWB Biała Lądecka from Kobyla to Morawka, with Morawka from Kleśnica* is to achieve a good ecological and chemical status. Apart from the presented cumulative impacts, no other activities in the analyzed area are expected to have cumulative impacts with the works during the execution of the Contract. The implementation of all tasks included in the assessment of cumulative impacts does not pose a threat to the achievement of the WFD environmental objectives for the concerned USWBs as well as for UGWB no. 126, referred to in Art. 57 and 59 of the Water Law. The prerequisite is to apply correct technical solutions and the planned minimization measures, presented in appendix no. 1.

TRANSBOUNDARY IMPACTS

Due to the nature of the generated impacts and its location, the Contract does not pose a risk of the occurrence of transboundary impacts. The result of the works carried out may go beyond the immediate locations of their implementation, but it will only include impacts scattered downstream of the watercourses. There is no possibility that the possible impacts would extend to areas within the borders of the Czech Republic that are several to a dozen or so kilometers away.

6. DESCRIPTION OF MITIGATION MEASURES

In order to limit the negative impacts of the planned Contract on the environment, monuments, material goods, and first of all on the health and life of people exposed to the impact of the planned works, appendix no. 1 to the EIA contains a list of mitigation measures that will be binding for all the participants of the investment process, including in particular the Works Contractor. These activities were developed on the basis of the conditions contained in the environmental decision in force issued for the Contract, with the supplement of additional conditions established at the stage of preparation of the EMP. A summary of the main categories of mitigation measures is presented below, broken down into individual environmental components discussed in chapters 4 and 5 of the EMP.

6.1. EARTH SURFACE AND LANDSCAPE

The basic forms of the Contract's negative impact on the earth surface and landscape are presented in chapter 5.1.

In order to reduce such impacts, the following mitigation measures were introduced in Appendix no. 1 of the EMP:

- 1, 2, 3, 4 (01 - Location and limitation requirements for the area of places of temporary occupation),
- 9, 10 (04 - Requirements concerning the transport service of the Contract implementation area),
- 14, 15, 16 (06 - Principles of top soil handling and reclamation of land subject to temporary occupation),
- 17, 18, 19, 20, 21, 22, 23, 24 (07 - Requirements for felling, protecting trees and bushes),
- 40, 41, 42 (09 - Requirements concerning handling waste).

6.2. CLIMATE

In the case of the Contract, no mitigation measures were found to be necessary for the protection of local climatic conditions (measures related to air quality protection have been introduced - chapter 6.3).

6.3. AIR QUALITY

The basic forms of negative impact of the Contract on air quality are presented in chapter 5.3. To limit these impacts, Appendix no. 1 to the EMP introduces mitigation measures under the following items: 31, 35, 37 (08 - Environmental pollution and emission prevention requirements).

6.4. SOIL AND LAND

The basic forms of the Contract's negative impact on soils and land are presented in chapter 5.4.

To diminish such impacts, the following mitigation measures were introduced in appendix no. 1 of the EMP:

- 11, 12, 13 (05 - Requirements for the management of soil masses),
- 25, 26, 27, 28, 29, 30, 35, 36, 37, 38, 39 (08 - Environmental pollution and emission prevention requirements),
- 44, 45 (09 - Requirements concerning handling waste).

6.5. SURFACE WATERS

The basic forms of the planned Contract's negative impact on surface waters are presented in chapter 5.5.

In order to diminish such impacts, the following mitigation measures were introduced in appendix no. 1 of the EMP:

- 11, 12, 13 (05 - Requirements for the management of soil masses),
- 25, 26, 27, 28, 29, 30, 35, 36, 37, 38, 39 (08 - Environmental pollution and emission prevention requirements),
- 44, 45 (09 - Requirements concerning handling waste),
- 48, 49, 50, 51, 52, 53, 54, 55, 56, 57 (11 - General principles of carrying out works within beds of watercourses),
- 98 (18 - Detailed requirements of the World Bank’s ES policies).

6.6. GROUNDWATER

The analysis of the Contract's negative impact on surface waters is presented in chapter 5.6. The works do not generate negative impacts on the status of groundwater. Preventive measures relating to the protection of groundwater against pollution are listed in appendix no. 1 to the EMP. Mitigation measures for the reduction of impacts on groundwater are those specified for the protection of soils and land and surface water (in accordance with chapter 6.4. and 6.5).

6.7. FLORA AND FAUNA

6.7.1. NATURAL HABITATS, FLORA AND FAUNA

The basic forms of the Contract's negative impact on natural habitats, flora and fauna are presented in chapter 5.7.

In order to diminish such impacts, the following mitigation measures were introduced in appendix no. 1 of the EMP:

- 1, 2, 3 (01 - Location and limitation requirements for the area of places of temporary occupation),
- 15, 16 (06 - Principles of top soil handling and reclamation of land subject to temporary occupation,
- 17, 18, 19, 20, 21, 22, 23, 24 (06 - Requirements for felling, protecting trees and bushes),
- 46, 47 (10 - Requirements relating to the prevention and eradication of invasive plant species),
- 48, 49, 50, 51, 52, 53, 54, 55, 56, 57 (11 - General principles of carrying out works within beds of watercourses),
- 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72 (12 - Animated nature protection requirements),
- 91 (16 - Requirements for the contractor's personnel involved in the implementation of the EMP),
- 98 (18 - Detailed requirements of the World Bank’s ES policies),
- 109, 110, 111, 112, 113, 114, 115 (20 - Detailed requirements - Lądek-Zdrój Facility),
- 117, 118, 119, 120, 121, 122, 123 (21 - Detailed requirements - Stronie Śląskie Facility).

A number of mitigation measures have been developed, in particular in sec. 12 - Animated nature protection requirements of Appendix 1 to EMP, relating to the organization of works, protection of valuable natural sites adjacent to the work areas and appropriate control of work sites by experts of the Contractor's environmental team. Thus, the natural resources in the place and surroundings of the works after the completion of the works do not suffer any permanent deterioration in terms of natural value as they currently represent. It should be borne in mind

that the river valley is an environment subject to natural variability and therefore the distribution of natural habitats and species may differ from year to year.

6.7.2. PROTECTED AREAS

The mitigation measures adopted for natural habitats and protected plant and animal species also apply to the protection of natural values of protected areas. A set of mitigation measures for the protection of protected areas is presented in appendix no. 1 to the EMP (the items indicated in chapter 6.7.1).

6.8. ACOUSTIC CLIMATE

The basic forms of the Contract's negative impact on the acoustic climate are presented in chapter 5.8.

In order to diminish such impacts, the following mitigation measures were introduced in appendix no. 1 of the EMP: 32, 33, 34, 35, 37 (08 - Environmental pollution and emission prevention requirements).

6.9. CULTURAL LANDSCAPE AND MONUMENTS

The basic forms of the Contract's negative impact on cultural landscape and monuments are presented in chapter 5.9.

In order to diminish such impacts, the following mitigation measures were introduced in appendix no. 1 of the EMP: 73, 74, 75 (13 – Requirements concerning the protection of cultural monuments), 116 (20 - Detailed requirements - Lądek-Zdrój Facility).

6.10. MATERIAL GOODS

The basic forms of the planned Contract's negative impact on cultural landscape and monuments are presented in chapter 5.10. To limit these impacts, the following mitigation measure is introduced in appendix 1 of the EMP:

- 9, 10 (02 - Requirements concerning the transport service of the Contract implementation area),
- 88 (15 - Requirements for protection of buildings against noise and vibration).

The matters related to land acquisition or change of its use, as well as land acquisition for temporary occupation, are discussed in detail in the document *Land Acquisition and Resettlement Action Plan* (LARAP) for the Contract.

6.11. HUMAN HEALTH AND SAFETY

The basic forms of negative impact of the planned Contract on human health and safety are presented in chapter 5.11.

In order to diminish such impacts, the following mitigation measures were introduced in appendix no. 1 of the EMP:

- 9, 10 (02 - Requirements concerning the transport service of the Contract implementation area),
- 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87 (14 - Requirements for the protection of human health and safety),
- 88 (15 – Requirements for protection of buildings against noise and vibration),
- 98, 99, 100, 101, 102, 103, 104, 105, 106, 107 (18 - Detailed requirements of the World Bank's ES policies),
- 108 (19 - Guidelines for dealing with the situation in the event of an epidemic or state of epidemic risk during the execution of works).

6.12. EMERGENCY HAZARDS (CRISIS, EMERGENCY SITUATIONS)

Crisis situation

In the case of emergency, in the first place, the competent services should be notified:

Service	**Telephone number**
Mobile emergency number	112
Police	997
Fire Service,	998
Emergency ambulance service,	999

The procedure of cooperation and informing the parties to the Contract was described in the Instruction to the Contractor, provided by the Engineer to the Contractor before the commencement of works. The said instruction will include contact details (including email address) according to the staff structure of the Engineer, Contractor and PIU assigned to Contract execution.

It is the Contractor's responsibility to prevent hazards in the first place and, if they occur, to mitigate their effects. The basic hazards are characterized below; however, the list of hazards given is open and does not exhaust the risk of other hazards not mentioned in the EMP.

In the event of any emergency, the Contractor shall immediately notify the appropriate departments and the Employer, Engineer and OVFM Project Coordination Unit.

Flood

The equivalent of an industrial accident in relation to this Contract can be considered to be the occurrence of high water levels or the occurrence of flooding within the riverbed. Before the commencement of the works, the Contractor will prepare an appropriate plan of proceedings in case of such events *(Flood Protection Plan for the construction site*) and obtain the Engineer's approval for its contents. This document will describe, among other things, the procedures to be followed in the event of such phenomena (see chapter 6.14). The conditions related to the necessity to draw up such a document are included in item 79 and 87 in appendix no. 1 to the EMP.

Strong winds and hurricanes

Ensuring safety in the area of the Contract implementation rests with the Contractor. A detailed procedure in case of extreme weather phenomena is contained in the HASP Plan prepared by the Contractor (see chapter 6.14.). The requirement of HASP plan preparation by the Contractor and obtaining approval from the Engineer for its content is defined in item 78 of the table in appendix no. 1 to the EMP.

Leakage of petroleum substances

Another type of extraordinary hazard is the leakage of petrol derivatives to water or to the soil. In order to reduce the risk of environmental pollution, appropriate preventive measures will be implemented relating, inter alia, to the appropriate organization and equipping of construction sites and facilities, equipping the sites of possible spills with appropriate sorbents and ongoing monitoring of the condition of used construction equipment. In the event of possible spillage of petroleum products, containment measures must be taken and removed immediately. If contaminated soil layers are present, they must be managed in accordance with the applicable regulations. Mitigation measures to protect the soil and water environment are set out in Appendix no. 1 to the EMP (see chapter 6.4–6.5).

Findings of unexploded ordnance

The Employer did not inspect the work site for the presence of unexploded ordnance. In connection with the above, the Contractor is obliged to ensure, during the earthworks, the supervision of sappers (the supervision of sappers of the Contractor) consisting in current checking (and above all before the works begin) and clearing the area of dangerous objects of military origin together with their disposal.

In case of finding unexploded ordnance during the works, the Contractor should immediately stop the work and evacuate the employees and notify the supervisor, the police, the Engineer, PIU (Employer) and PCU OVFMP.

Under no circumstances (except for sapper's supervision of the Contractor and the specialist sapper's unit) may unexploded ordnance be lifted, dug up, buried, transferred or thrown into fire or into places such as rivers, channels, old river beds, ditches, etc.

The mitigation measures relating to the risks of unexploded ordnance and unexploded shells found are set out under the following headings in the table in appendix no. 1 to the EMP: 85, 86.

Fire

The Contractor is responsible for fire protection in the area of Contract implementation. The detailed procedure in case of fire will be included in the HASP prepared by the Contractor (see chapter 6.14.). The requirement of HASP plan preparation by the Contractor and obtaining approval from the Engineer for its content is defined in item 78 of the table in appendix no. 1 to the EMP.

Epidemiological risk

If an epidemiological threat or epidemic emergency state is in force during the execution of works, the Contractor shall be obliged to act in accordance with legal requirements, in particular the Act of 5 December 2008 *on preventing and combating infections and infectious diseases in humans* (unified text: Journal of Laws of 2019, item 1239, as amended), all obligations resulting from the announcement of an epidemic or a state of emergency and relevant World Bank guidelines. The Contractor's actions should reduce the risk of spreading the infection both to the Contractor's staff as well as to the Employer and the Engineer and the local community. The guidelines for dealing with an epidemiological emergency or epidemic state are contained in item 108 in the App. 1 to EMP

Notwithstanding the above, in accordance with item 84, the Contractor will implement an awareness-raising program on the spread of communicable diseases (e.g. COVID 19).

6.13. WASTE AND WASTEWATER

Mitigation measures for waste management are the following items in appendix no. 1 to the EMP: 40, 41, 42, 43, 44, 45 (09 – Requirements concerning handling waste).

The mitigation measures for waste water treatment are described in item 45 in appendix no. 1 to the EMP (09 - Requirements for waste treatment).

The Contractor will develop a *Soil Management Plan*, which will specify the rules for handling the soil and sediments extracted from the riverbed during the works (the scope of the document is specified in detail in App. 1 of the EMP, item 11, 12).

6.14. REQUIREMENTS FOR THE IMPLEMENTATION OF ACTION PLANS DURING THE CONSTRUCTION PHASE

In order to ensure the proper organization of the conduct of works, as well as the proper implementation of the conditions set out in the App. 1 and 2 in the Environmental Management Plan, the Contractor is obliged to develop and obtain the Engineer's approval and then implement the following documents as elements of the Contractor's Environmental and Social Management Plan (C-ESMP):

- *Site organization plan*, which should include, inter alia, elements such as:
    - Location of the construction site facilities,
    - Management of the construction site facilities,
    - Safety of the construction site facilities,
    - Technological roads, including mandatory planned temporary site occupations,
    - Environment protection within the site facilities.
- *The traffic organization plan for the duration of the works, which should be compliant with:*
    - technical specifications,
    - road managers' requirements for transport and conditions of use.
- *The waste management plan* should contain, inter alia, the following main elements and the detailed guidelines contained in Appendix no. 1 to the EMP:
    - Encountered and estimated types and volumes of waste,
    - Manners of preventing negative impact of the waste on environment,
    - Manners of waste management taking into account collection, transport, recovery and treatment of waste,
    - Type of waste generated (inter alia, waste from construction, renovation and dismantling of buildings and road infrastructure - including soil from polluted areas, hazardous waste, municipal waste, waste containing asbestos) and the method of their storage and disposal.
- *Quality assurance plans* for particular categories of works and other activities of the Contractor (depending on the needs, including the Engineer's requirements), which should include, among others:
    - Information on the planned organization of the execution of a given category of works or activities;
    - Information on the conditions of implementation of a given category of works or activities included in the EMP;
    - Information on possible other ways of preventing the negative environmental impact of a given category of works.
- *Flood protection plan* for the construction site for the duration of the works, which should include such elements as:
    - Monitoring the hydrological and weather situation,
    - Conditions for allowing surge flows in the period of works performance,
    - The rules of work for the Contractor’s team in the period of flood risk,
    - Basic duties of the members of the Company Flood Protection Team,

- List of people having certain positions in the period of flood risk,
- List of equipment and transportation means needed to conduct rescue actions,
- Instructions for the proceedings during surges.

- *The plan for dealing with uncontrolled emissions (leakage) of petroleum products*, which should contain, inter alia, elements on how to deal with spillage of chemical and petroleum products, i.e.:

  - The mode of equippingt with appropriate materials in relation to the anticipated hazards and substances,
  - Alarm and notification mode of individual services,
  - The procedure to limit spillage,
  - The procedure for dealing with sorbent materials.

- *Environmental, Social, Health and Safety (ESHS)* (Code of Conduct ensuring the implementation of measures to address environmental and social risks associated with the Task implementation, including the risk of sexual abuse, sexual exploitation and sexual harassment).
  The Contractor shall submit the ES Code of Conduct, containing provisions defining the obligations of the Contractor selected as a result of the contract award procedure, in particular with respect to environmental protection, social, health and safety issues, in accordance with the specimen, after it has been signed (on each page) together with the bid. It therefore acknowledges the need to apply its requirements during each phase of the contract.
  The Code of Conduct forms part of the measures to handle the environmental and social risks associated with the Task implementation, including the risks of sexual harassment and mobbing, as well as discrimination on the basis of gender. It applies to all the Contractor's personnel, workers and other employees in the area of Task implementation. It also applies to the personnel of each Subcontractor and any other personnel assisting the Contractor in performing the Task.

- *ES Management Strategies and Implementation Plans* (management strategies and implementation plans for environmental, social, health and safety risks), which include elements such as:
  - description of actions taken for risk management;
  - description of the used materials, equipment, description of management processes, etc., to be implemented by the Contractor and its Subcontractors to minimize the risks.

The Contractor is obliged to submit for approval of the Engineer and then to implement **the Contractor's Environmental and Social Management Plan (C-ESMP),** in accordance with the Conditions of the Contract, Sub-Clause 4.1 SC, containing, among others, the agreed Management Strategies and ES Implementation Plans, the Contractor's Code of Conduct for Contractor's Personnel (ES) and the Environmental Management Plan (EMP) will constitute a binding part of C-ESMP. The Contractor shall not be entitled to modify the provisions and conditions set out in the EMP. The Contractor shall review the C-ESMP plan

periodically and update it in accordance with the requirements of the Contract to ensure that it includes actions suitable for the Works. The updated C-ESMP is submitted to the Engineer for control. The procedures for reviewing the C-ESMP and updating it are as described in Sub-Clause 4.4.1 SCC.

- *The Health and Safety Plan* (HASP), which should include, inter alia, the following elements:
    - Indication of the elements of plot or area management that may create risk for people's safety and health;
    - Information on anticipated threats occurring during the execution of construction works, specifying the scale and types of threats and the place and time of their occurrence, including the to the environment;
    - Information on the separation and marking of the construction site according to the type of hazard;
    - Information on how to instruct employees before carrying out particularly dangerous works;
    - Determining how to store and move dangerous materials, articles, substances and preparations on the site;
    - Indication of technical and organizational measures to prevent dangers resulting from the performance of construction works in areas of special health hazards or in their vicinity, including those ensuring safe and efficient communication, enabling rapid evacuation in the event of fire, breakdown and other hazards;
    - Indication of the storage location of construction documentation and documents necessary for proper operation of machines and other technical devices;
    - Information on solving problems related to COVID-19 (attention should also be paid to the other information on carrying out work in pandemic conditions specified in the App. 1 and 2 to EMP).

The Contractor, when preparing the aforementioned documents, shall take into account relevant operational policies of the World Bank concerning health, environment and safety rules, including EHS Guidelines[1]. These documents must be approved by the Engineer before implementation, who then also monitors their correct implementation.

The Contractor will also conduct training on the principles and conditions of EMP implementation for the Contractor's managerial and engineering staff, as well as regular training of Employees in the field of occupational health and safety, raising awareness in the field of combating sexual harassment and mobbing.

When preparing the aforementioned documents, the Contractor shall take into account relevant operational policies of the World Bank concerning health, environment and safety rules. These documents must be approved by the Engineer before implementation, who then also monitors their correct implementation. The requirement to develop and obtain acceptance of the contents of the above-mentioned documents was indicated in item 79 in Appendix no. 1 to the EMP.

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

6.15. DETAILED REQUIREMENTS FOR ES WORLD BANK POLICIES (ENVIRONMENTAL AND SOCIAL ASPECTS, INCLUDING RISKS OF SEXUAL EXPLOITATION, SEXUAL ABUSE AND SEXUAL HARASSMENT)

The implementation of the Task is related to the need to meet a number of ES requirements (environmental, social, health and safety aspects), which are regulated by national regulations governing environmental protection, health and safety at work and labor law. The institutions and bodies of the state supervise their observance. In particular, as regards compliance with occupational health and safety regulations and labor law, the state health and labor inspection authorities are authorized to control the activities of entrepreneurs, including on construction sites. However, given the high priority given by the World Bank to ES requirements, the conditions of the contracts co-financed by the World Bank loan impose obligations to ensure the implementation of existing legislation. Special attention is given to issues such as:

- Protection of juveniles employed for the execution of the Contract.
- Eliminate inappropriate forms of behavior of persons employed under the Contract (including sexual harassment and mobbing).
- Ensure the safety and health protection of the persons employed in the performance of the Contract, including the provision of health and safety services required by law.
- Ensuring proper social and employment conditions for employees employed in the performance of the Contract (including fair pay conditions).

A list of issues in the form of requirements for the Contractor related to the WB's ES policies is presented below. It should be emphasized that the ES requirements and conditions specified for the Contractor and its employees also apply to the Contractor's Subcontractors and their employees or Subcontractors.

- The Contractor will conduct training and implement an awareness-raising program to prevent sexual harassment and mobbing. The activities will be carried out throughout the contract validity including the Defects Notification in Period, at least every other month. These will take the form of information, education and awareness-raising campaigns.
- The Contractor will immediately inform the Consultant of all reported cases and suspicions of sexual harassment and mobbing.
- The Contractor will inform all persons employed on the construction site about the possibility of lodging complaints about working and pay conditions and will deliver an information leaflet with the necessary information about lodging complaints and requests, in which it will ensure that there are no repercussions for the person lodging the problem. The content of the leaflet will be agreed with the Consultant.
- The Contractor shall inform the Consultant about all accidents involving employees and bystanders in accordance with the procedure provided by the Consultant. In the event of an accident, the Contractor shall take all actions that it is obliged to take under applicable laws, such as the Construction Law and the Labor Code.
- The Contractor shall ensure equal pay for employees performing the same work without taking into account gender, sexual orientation or age, and the Contractor shall not

persecute or discriminate against persons employed under the Contract on the basis of gender, sexual orientation and age.

- The Contractor, in accordance with the possibilities and conditions and the Polish provisions of the Labor Code, shall satisfy the living and social needs of employees in the workplace.
- The Contractor is obliged to facilitate the improvement of professional qualifications of employees.
- The Contractor may employ only such a juvenile employee who is at least 15 years old, has completed at least eight years of primary school and has presented a medical certificate stating that the work of a given type does not threaten his/her health.
- The Contractor will employ a health and safety specialist with qualifications and professional experience in accordance with Polish labor law.

In view of the above, the table of mitigation measures in App. 1 to the EMP (item 98 - 107, 18 - Detailed requirements of World Bank's ES policies) contains detailed conditions binding on the Contractor, covered by the monitoring and reporting obligation during the Task implementation period. It should be stressed, however, that the Contractor is obliged to apply and observe all provisions of the Labor Code and will act in accordance with the ES Code of Conduct

6.16. REQUIREMENTS RELATED TO THE IMPLEMENTATION OF NATURE COMPENSATION

In accordance with the conditions included in the environmental decisions issued for the Contract, the implementation of the investment requires the execution of compensation measures:

Obligation to carry out stocking with stream trout

If it is necessary to carry out works in the period from October to the end of February, which will result in losses of stream trout eggs in the spawning grounds below the site of the works performance, stocking with stream trout should be carried out annually during the works performance period in cooperation with an expert ichthyologist. For stocking, stocking material from the Biała Lądecka or Nysa Kłodzka catchment area must be used and the size of the stocking density must be based on an assessment of the real losses in the species population and the amount of stocking material introduced by the fishing user. In addition, the expert ichthyologist, in consultation with the fishing user of the waters, may indicate the need for additional stocking in the year following the completion of the works, in order to maintain the species abundance until the spawning conditions in the section covered by the works are restored.

Obligation to carry out compensation measures for White-Throated Dipper Cinclus cinclus and Grey Wagtail Motacila cinerea

In the area of the town of Lądek-Zdrój - under the supervision of an expert ornithologist - hang 5 nesting boxes for White-Throated Dipper *Cinclus cinclus* and 5 nesting boxes for Grey Wagtail *Motacila cinerea* under bridges. If there are no suitable places for hanging the boxes under bridges, boxes should be installed on retaining walls, at a height of not less than 0.3 m

from the upper edge of the wall. Individual boxes should be hung from each other at a distance of not less than 100 m. The type of nesting boxes should be agreed with an expert ornithologist.

Obligation of execution of replacement plantings

In cooperation with a dendrologist expert, plant medium and high vegetation in a ratio of not less than 1:1 (one tree planted per one felled tree; the area of planted bushes is equal to the area of felled bushes). Only native species adapted to local habitat conditions should be used. Planting should be done first of all in the city of Lądek Zdrój and Stronie Śląskie, along the river channels.

7. DESCRIPTION OF MONITORING MEASURES

7.1. ENVIRONMENTAL MONITORING DURING THE PERIOD OF CONDUCTING THE WORKS

Appendix no. 2 to the EMP provides a set of monitoring measures applicable to the Contract Contractor. These activities were formulated on the basis of the conditions contained in the environmental decisions issued for the Contract, with the addition of additional conditions established at the stage of EMP preparation. The monitoring measures conducted during the implementation are included in items 1-135 of appendix no. 2 to the EMP.

7.2. ENVIRONMENTAL MONITORING DURING OPERATION

Monitoring conducted after the completion of works implementation (items 116 – 121 and 130 - 135 of appendix no. 2 to the EMP).

8. PUBLIC CONSULTATIONS

8.1. PUBLIC CONSULTATION OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK PLAN FOR OVFMP (2015)

The draft document entitled Environmental and Social Management Framework Plan (ESMF) for the OVFM Project (including Component 1, which includes, inter alia, this Task) was subject to a procedure of public consultations, conducted in accordance with the operational policy of the World Bank OP 4.01. Their purpose was to allow the community to familiarize itself with the contents of the document and to assure the possibility of filing potential remarks, enquiries, and applications to its contents. Documentation of the public consultation process of the above-mentioned document is available at the website of the Project Coordination Unit of the Odra-Vistula Flood Management Project [1].

Public consultations were also conducted in the area of Lądek-Zdrój and Stronie Śląskie in November-December 2019 (as well as in the remaining 7 localities where works in Sub-Component 2B are planned to be carried out), which primarily concerned the scope of the planned works. The consultations took the form of direct meetings with inhabitants, representatives of the local government and all other persons and entities interested in OVFM Project in the Kłodzko Land. The meetings were of open nature, materials presenting the scope of works (technical concept development stage) were provided in advance to the interested parties.
Participants of consultation meetings in the vast majority positively evaluated the scope and form of organization of the meetings. They expressed the positive opinion for the opportunity to review the technical concept prior to the meeting and to make comments and discuss specific solutions at the meeting. Questions were asked, comments made, and feedback provided on an ongoing basis. Some applications were submitted by letter or electronically. Residents and representatives of local governments field a number of applications to the planned activities. The majority of postulates, falling within the territorial and material scope of the project, and not conflicting with the technical, environmental, architectural or ownership requirements, was analyzed by the designers and taken into account in further works. In many cases, the works planned for implementation meet the expectations of the local authorities in terms of opening up the towns towards the rivers, while at the same time applying environmentally friendly technical solutions and architectural monuments. The majority of meeting participants expressed their satisfaction with the fact that the Polish Waters began concrete investment activities in the field of flood safety improvement in the Kłodzko Land. It was also highlighted that the planned works are insufficient and mainly include water and water facility maintenance works. The inhabitants of the Kłodzko Land expect that the promises and further actions on non-urbanized areas and other tributaries of the Nysa Kłodzka River are fulfilled, at the same time expressing their will to participate in further talks and consultations.

[1] http://www.odrapcu.pl/popdow_dokumenty_RPZSiSS.html.

8.2. PUBLIC CONSULTATION AT THE STAGE OF ENVIRONMENTAL PROCEDURES OF THE TASK (2020)

The Regional Director for Environmental Protection in Wrocław, by the notice of 23 September 2020, ref.: WOOŚ.420.8.2020.AP.16 (*Lądek-Zdrój Facility*) and WOOŚ.420.9.2020.AP.17 (*Stronie Śląskie* facility) made information about the planned projects publicly available, i.e. information about:

- commencement of the proceedings;
- commencement of the environmental impact assessment for the project;
- the subject of the decision to be issued in the case;
- an authority competent to issue the decision and the authorities competent to issue the opinion;
- the possibility of familiarizing oneself with the necessary case documentation and about the place in which it is made available for reading,
- possibility of submitting comments and applications;
- the method and place of submitting comments, indicating at the same time the period of 30 days for their submission;
- an authority competent for consideration of comments and applications.

The notices were made public from 24 September 2020 to 26 October 2020 (inclusive).

Comments and applications regarding the planned project could be submitted in writing at the given address, verbally for the record or in the electronic version without having to provide a safe electronic signature from 24 September 2020 until 26 October 2020 (inclusive). An authority competent for consideration of comments and applications was the Regional Director for Environmental Protection in Wrocław. The authority informed the society in the announcement that comments and applications filed after the established time limit will not be considered. No one has filed any obligations in the established time limit. No comments were received after the deadline for submitting comments and applications, either.
Pursuant to Article 3(1)(11) of the EIA Act, information about the planned Contract was made publicly available by:

- announcing on the notice board in the office of the authority competent in the case, i.e. on the notice board of the Regional Directorate for Environmental Protection in Wrocław;
- publishing the information on the website of the Public Information Bulletin of Regional Director for Environmental Protection in Wrocław (rdos.wroclaw.gov.pl),
- announcing the information in the place of investment execution, i.e.: on the notice board of the Lądek-Zdrój Town and Commune Office and on the notice board located at Ogrodowa Street near the bed of the Biała Lądecka, on the notice board located at Rynek Street near the bed of the Biała Lądecka, near the bridge located on the Biała Lądecka river in the precinct of Młyńska Wyspa and near the bridge located within the Stojków registration area,
- announcing the information in the place of investment execution, i.e.: on the notice boards of the Town Office in Stronie Śląskie, Kościuszki Street near the Morawa stream bed, on the notice board located at Nadbrzeżna Street near the bed of the Biała Lądecka

and on the notice board located in the registry area of Goszów near the bed of the Biała Lądecka.

- announcing the information about the planned project by means of a notice in the manner customary in the town competent for the subject matter of the proceedings by displaying the notice on a notice board and making it public in the Lądek-Zdrój Town and Commune Office and the Stronie Śląskie Town Office.

No comments or applications from the society were received by the local authority within the deadline set for the conducted public participation. No comments were received after the deadline for submitting comments and requests, either.

8.3. PUBLIC CONSULTATIONS FOR THE ENVIRONMENTAL MANAGEMENT PLAN (2020)

The draft of this document is subject to a public consultation procedure conducted in accordance with the operational policies of the World Bank (OP 4.01).

After the draft of an EMP document has been prepared, its electronic version is posted on publicly available websites and the paper version is provided for viewing by interested parties. Detailed information on the possibility of familiarizing oneself with this document and the possibility of submitting applications and comments (including contact details: e-mail address, addresses of places where the draft document may be consulted, office hours, telephone numbers) is made available publicly in the announcement published in local press and on the website of the Task implementation entity being the subject of the EMP.

In view of the current situation of the COVID-19 epidemic, the action plan for the publication of the Environmental Management Plan takes into account the World Bank's Technical Note "Public Consultation and Stakeholder Engagement in World Bank Supported Activities, in the event of restrictions on public meetings".

The meeting organized so far in the framework of making the document public in the form of an open debate will be replaced a webinar organized, i.e. a type of an online seminar conducted and implemented using webcast technology, which enables two-way communication between the meeting leader and participants, using virtual tools. The meeting will be organized through Microsoft Teams application. This program allows to organize and conduct a webinar, with the possibility of sharing, among other things, a presentation or a screen view, as well as switching between several speakers and asking questions by participants in a chat (only in writing) and answering them by the speakers. The participants are only required to have access to the Internet and a web browser - no other program is required to install on their computer to join the webinar.

In connection with the above, the announcement about the publication of the EMP document will contain information about the date and time of the start of the webinar together with an indication that a link will be made available on the Investor's website to join the webinar.

In order to allow questions to be asked during the period of EMP publication, a helpline will be launched. The information about the helpline will also be included in the announcement about the publication of the EMP.

Comments from the public that need to be taken into account are entered into the EMP document and prepared in the final version. The EMP in this form is also sent to the World Bank for award of an acceptance clause, the so-called "no objection".

9. ORGANIZATIONAL STRUCTURE OF THE IMPLEMENTATION OF THE EMP

The Task which is the subject of this EMP is pursued within the framework of the Odra-Vistula Flood Management Project (see chapter 1), co-financed by the World Bank, the Council of Europe Development Bank (CEB), the Cohesion Fund and the state budget. Accordingly, the structure of supervision over EMP implementation must be compliant with the provisions of the Polish law and the requirements of the World Bank.

9.1. PROJECT COORDINATION UNIT OF THE ODRA-VISTULA FLOOD MANAGEMENT PROJECT (PCU OVFMP)

The overall coordination of the implementation of the individual EMPs within the OVFM Project is the responsibility of the Project Coordination Unit (PCU), which functions as an organizational unit within the structures of the National Water Management Authority (KZGW), which is an organizational unit of the State Water Holding Polish Waters. The scope of tasks of PCU OVFMP include, among others:

- Management of tasks of Project Implementation Offices (PIOs) and Project Implementation Units (PIUs) in the scope of execution of tasks included in the Projects,
- Technical assistance and support to the PIOs and PIUs in the implementation of the tasks of the Projects, including the application of World Bank procedures on procurement, environmental protection and social issues,
- Preparation of annual work programs for the Projects and evaluation of their progress,
- Supervision of works under the Projects and evaluation of their progress,
- Ongoing control and monitoring of funds allocated for the implementation of the Projects and participation in the management of funds of the Projects,
- Reporting, including preparation and submission of quarterly reports on the implementation of the Projects to the World Bank, the CEB and the Steering Committee.

9.2. PROJECT IMPLEMENTATION UNIT (PIU) AND PROJECT IMPLEMENTATION OFFICE (PIO)

The entity directly responsible for the implementation of the Contract and monitoring the progress of its implementation will be the Project Implementation Unit (PIU), i.e. State Water Holding Polish Waters Regional Water Management Authority in Wrocław.

In connection with the implementation of the OVFM Project in the PIU structure, the Project Implementation Office (PIO) was separated, which is a separate organizational unit and it is supervised by the President of the State Water Holding Polish Waters. Such a structure is transparent and has a very high decision-making level, which increases the effectiveness of Project implementation. As part of the supervision over the implementation of the EMP, the PIO performs the following tasks:

1) monitoring the progress of the implementation of the EMP;
2) financial management and accounting;
3) drawing up the necessary reports for monitoring and coordinating the implementation of the EMP by all services involved in the implementation of the EMP;

The scope of duties of PIO employees related to supervising the implementation of the EMP is as follows:

- managing, coordinating, supervising over the EMP implementing by the Consultant and Contractor;
- direct supervision over the correct implementation of the Contract;
- cooperation with the PCU;
- exercising administrative and legal supervision over the implementation of the PAP;
- verification of the Reports and reporting on the implementation of the EMP prepared by the Consultant and the Contractor;
- exercising financial supervision over the implementation of the EMP;
- supervision over the correctness of the application of formal procedures in the implementation of the EMP, resulting from, among others, the requirements of the Contract, *Construction Law Act*, *Environmental Protection Act* and other relevant administrative decisions and legal acts.

The PIO employs appropriate specialists responsible for the implementation of the EMP and other ES issues. The structure of this team may be as follows:

- Head of the Environmental and Property Team,
- Chief Specialist,
- Senior specialists.

In the organizational structure of the PIO, there were also positions of specialists for technical public procurement, legal, financial, property and resettlement and international cooperation.

9.3. CONSULTANT/ENGINEER

The role of the Consultant/Engineer is to support the PIU (SWH PW RZGW in Wrocław) in the effective execution of the entire investment process - from preparation of the investment to its settlement.

The Consultant/Engineer was selected using the QCBS method (Selection based on quality and price), in accordance with the *"Guidelines for the Selection and Employment of Consultants by World Bank Borrowers"*.

In accordance with the planned structure of the Engineer - Technical Assistance Consultant team, at the stage of works implementation, the Engineer's Team (supervision inspectors in cooperation with the environmental team, coordinated by the Key Environmental Expert, real estate team) will supervise the proper performance of construction works and the observance and implementation of the EMP and ES provisions. In the Engineer's Team, implementation activities are coordinated by the Key Environmental Expert and additional environmental management expert staff (1- 2 people). In accordance with the scope of activities specified in the Technical Assistance Consultant Contract, the Engineer-Consultant will be obliged to ensure that the team composition is such that it can properly supervise the implementation of the EMP through, among other things:

- monitoring the implementation of the EMP;
- monitoring the activities of the Contractor;

- checking the quality of construction works performed by the Contractor and built-in construction products, and in particular preventing the use of defective construction products and those not approved for use in construction;
- representing the Investor on the construction site by controlling the compliance of its execution with the design and the implementation permit, environmental protection regulations and technical knowledge rules;
- supervising all environmental issues through environmental specialists and other Engineer personnel;
- continuous monitoring of the implementation of the mitigation measures the negative impact on the environment;
- carrying out additional tests when it is necessary to verify the Contractor's reports;
- identifying problems resulting from the harmful environmental impact of construction works and presenting proposals to solve these problems;
- checking and acceptance of construction works that are covered or disappearing, as well as preparation and participation in the acceptance activities of finished construction works and their handing over for use;
- confirmation of actually performed works and removal of defects, and, at the request of the Investor, control of construction settlements.

Social issues will be monitored during the implementation stage by the Consultant's property team, coordinated by the Key Property Expert, which will work closely with the team of construction supervision inspectors.

In accordance with item 97 of App. to the EMP, the implementation of the EMP will be discussed at periodic (monthly) working meetings and at Site Councils. Meetings will be held monthly with the participation of representatives of the teams of the PIU, PCU OVFMP, Engineer and Contractor in order to discuss and control the implementation of mitigation and monitoring measures.

Minutes from the meetings on the implementation of the EMP will be prepared by an environmental expert in the Engineer's Team. The minutes will be submitted to the PIO and the Contractor and will constitute an appendix to the Engineer's monthly report on the implementation of the activities specified in the EMP. Regardless of the above, the current requirements and problems related to the implementation of the EMP will be discussed during Construction Site Meetings.

9.4. CONTRACTOR

In order to carry out the construction works, a Contractor will be selected who will be responsible for the implementation of EMP and other ES issues. The Contractor's obligations in this respect include:

- conducting construction works in accordance with the rules set out in the EMP, contract terms and project documentation, in accordance with applicable laws and requirements of administrative decisions issued for the Task;

- implementation of the Engineer's recommendations (including specialists in environmental supervision and the investor's supervision inspector) concerning the implementation of the EMP;
- ensuring that a HASP, a Waste Management Plan, a Quality Assurance Plan, a Flood Protection Plan for the construction site for the duration of the works and a Site Organization Plan are prepared before the construction starts (as elements of the Construction Environmental and Social Management Plan - C-ESMP);
- to submit for the Contract Engineer's approval the ES Code of Conduct and ES Management Strategy and Implementation Plans described in the bidding documentation, developed at the bidding stage, and to verify these documents as a result of the Engineer's periodic recommendations;
- maintaining construction documentation;
- preparing monthly reports and review reports;
- preparing reports concerning environmental protection;
- applying to the Investor for changes in the design solutions, if it is justified by the need to increase the safety of the construction works or to improve the construction process as far as the implementation of the EMP is concerned.

The Contractor's team will appoint an EMP Coordinator, a person to coordinate and supervise the activities related to the implementation of the EMP. Throughout the whole Contract implementation period, the Contractor shall ensure the participation of environmental experts, as required. The work of the team of experts will be coordinated by the Contractor's EMP Coordinator.

The Contractor also has a Health and Safety Specialist in their Team, available throughout the Contract period, who is also responsible for the implementation of other ES issues not included in the EMP. The Contractor will assign a person for addressing mobbing, discrimination and bad treatment complaints.

10. SCHEDULE FOR THE IMPLEMENTATION OF EMP AND REPORTING PROCEDURES

The implementation of the EMP allows the parties involved in the preparation, implementation and supervision of the Task for:

- identification of the various environmental aspects that have a significant impact on the state of the environment, so that they can be controlled, corrected, reduced, but thus have an economic impact;
- correction of unfavorable consequences of works in progress for the benefit of the environment and financial results;
- defining the objectives and tasks to be implemented within the framework of the adopted environmental policy, covered by the EMP, which require investment and bring measurable effects;
- identification and elimination of potential hazards and breakdowns, prevention and removal of environmental effects that may be associated with them and entail disproportionate in relation to costs preventive losses;
- rational use of nature's goods, with minimal environmental losses and optimal cost generation.

Moreover, the implementation of recommendations and actions resulting from the EMP may reduce or even eliminate the risk in the Contract, in particular:

- the risk of omitting environmental protection issues in the process of Task implementation by the Contractor;
- risk of escalation of protests of the local society as a result of the Contractor's failure to comply with the Engineer-approved works technologies and environmental procedures;
- the risk of additional environmental penalties;
- the risk of incurring additional environmental damage.

Bearing in mind the importance of the issues determining environmental and social conditions, the following procedures for the implementation of the EMP are envisaged:

- before selecting the Contractor, the Employer shall submit a draft EMP to the World Bank for opinion and acceptance for public consultation;
- the EMP will then be subject to public consultation;
- the public consultation will be followed by the completion of the EMP and the final version will be submitted to the World Bank for approval;
- after the approval of the EMP by the World Bank, the final document will be included in the bidding documentation for the selection of the Contractor;
- All activities of the Contractor shall be reported at regular intervals (monthly), in paper and electronic form, with regard to the obligations arising from the EMP and other contract documents. These reports will be subject to approval by the Engineer.

Environmental monitoring in terms of impact of the Contract on the environment consists, among others, of:

1. Control of the performance of construction works related to the Contract execution under the supervision of a team of environmental experts appointed by the Contractor for the Contract execution period.

2. The team of the Contractor's environmental experts carries out activities including, in particular:

- review and ongoing inspection of the area covered by the construction and hydrotechnical works prior to their commencement, as well as inspections during construction and during the Defects Notification Period, together with the preparation of appropriate reports, which are the documentation for the proper performance of environmental supervision and, at the same time, information on the proper implementation of mitigation measures,
- formulating and submitting to the Engineer conclusions on the need to undertake mitigation measures (including their implementation) necessary to mitigate the adverse effects of the Task on natural habitats and species and species subject to legal (species) protection, unforeseeable and/or not revealing at the stage of establishing the conditions for the implementation of the Task in question within the framework of the procedure aimed at issuing a decision on environmental conditions. The measures may be implemented only after the approval by the Engineer,
- obtaining, if necessary, the needed permits to derogate from the prohibitions on the protection of species of plants, fungi or animals in accordance with the principles and procedures laid down in the Nature Conservation Act,
- conducting reporting in the form of periodic reports (not less frequently than every month).

3. The Contractor will appoint specialists in the following fields: phytosociologist, dendrologist, entomologist, ichthyologist, herpetologist, ornithologist, mammologist, chiropterologist.

The above-mentioned specialists must have proven experience in this field, at least 3 projects corresponding to the scope of the activities planned under the Contract, i.e. performing natural supervision of the investment (practical experience in carrying out environmental inventories performed as part of preparing environmental impact assessment reports for linear infrastructure projects in the road, network or hydrotechnical sectors, or experience in preparing such reports directly, will also be considered as alternative and acceptable for the case) and have an environmental or related education. One member of the Contractor's environmental team may represent a maximum of two of the above-mentioned natural specializations.

At the stage of works execution, it is planned that the Contractor will prepare collective reports on environmental monitoring, confirmed by specialists from the Contractor's team of environmental experts, approved by the Engineer's environmental supervision. The detailed scope of the report will be determined by the Engineer (start report, periodical - monthly, quarterly, special, final), they will also determine the dates of their execution. During the period

of execution of the works and possibly in the Defects Notification Period, monitoring will be carried out by the Contractor. The Contractor will prepare a monitoring report and will submit it to the Employer. After the Defects Notification Period, if necessary, the monitoring will be taken over by the Employer and will be carried out by the end of the monitoring period set out in the EMP.

The Project reporting system will be based on monthly reports submitted by the Contractor to PIO via the Engineer and monthly reports by the Engineer. As part of monthly reports or as a separate document, monthly reports on EMP implementation (Contractor and Engineer) will also be prepared. On this basis, collective quarterly reports will also be prepared.

The PIU will submit quarterly reports to PCU in the part concerning the tasks to be performed. They will contain the required set of information and descriptions to enable the preparation of the Project quarterly report by PCU. Moreover, especially in case of problems with the implementation of the Task, the PCU will expect the PIO to provide statements and data on a monthly basis.

The following reporting procedures have been established:

1) Reporting:
    a) reports (start, monthly, quarterly, final) prepared by the Contractor,
    b) submission of reports required by administrative decisions (implementation of the derogation decision concerning protected plant and animal species) to the Engineer,
    c) review and verification of reports by the Engineer,
    d) submitting the approved report from points a), b) and c) to the Employer (for information),
    e) submitting the quarterly report of the PIU to the PCU;
2) Archiving:
    a) Contractor: 1 copy of each report in electronic form for 5 years from the date of completion of the Contract,
    b) Engineer: 1 copy of each report in electronic form for 5 years from the date of completion of the Contract,
    c) Employer: 1 copy of each report in an electronic version form for 5 years from the date of the Contract completion,
3) Evaluation - ongoing assessment of the results of the implementation of the planned actions resulting from the EMP. Ongoing analysis of documentation (the Reports of the Contractor) by the Engineer. Providing the Employer with reliable information on the course of the construction process with particular emphasis on the implementation of measures to reduce the negative impact on the environment and recommendations resulting from environmental decisions.

The PCU also prepares reports to the World Bank on a quarterly basis.

The following is planned:

- *Ex-ante* evaluation: Report prior to the commencement of the Contract execution for the works (Engineer's Report),
- ongoing evaluation: Engineer's quarterly reports,
- *Ex-post* evaluation:
  - ✓ Report after the completion of the Contract execution (Final Report on EMP drawn up by the Contractor and the Engineer),
  - ✓ Report on EMP after the defects notification period, prepared by the Engineer.

11. LIST OF SOURCE MATERIALS

1) Project Data Sheet for *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Stronie Śląskie Facility (passive protection)* prepared in 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski.

2) Project Data Sheet for *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Lądek Zdrój Facility (passive protection),* prepared in 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski.

3) Project's environmental impact report for *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Stronie Śląskie Facility (passive protection),* prepared in 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski.

4) Project's environmental impact report for *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Lądek Zdrój Facility (passive protection),* prepared in 2020 by Sweco Consulting Sp. z o.o. 22 Franklina Roosevelta Street, 60-829 Poznań, under the supervision of Wojciech Lewandowski.

5) Decision on environmental conditions of 6 November 2020, issued by the Regional Director for Environmental Protection in Wrocław, for the project titled: *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Stronie Śląskie Facility (passive protection)* (ref.: WOOŚ.420.9.2020.AP.20).

6) Decision on environmental conditions of 12 November 2020, issued by the Regional Director for Environmental Protection in Wrocław, for the project titled: *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Lądek Zdrój Facility (passive protection)* (ref.: WOOŚ.420.8.2020.AP.19).

12. LIST OF APPENDICES

Appendix 1. Plan of mitigation measures.

Appendix 2. Plan of monitoring measures.

Appendix 3. Summary of national environmental legislation.

Appendix 4. Copies of administrative decisions

4a. Decision on environmental conditions of 6 November 2020, issued by the Regional Director for Environmental Protection in Wrocław, for the project titled: *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Stronie Śląskie Facility (passive protection)* (ref.: WOOŚ.420.9.2020.AP.20).

4b. Decision on environmental conditions of 12 November 2020, issued by the Regional Director for Environmental Protection in Wrocław, for the project titled: *Task 2B.2/1 Flood protection of the Biała Lądecka River valley and Morawa River – Lądek Zdrój Facility* (passive protection) (ref.: WOOŚ.420.8.2020.AP.19).

Appendix 5. Map of the location of the Contract against the background of protected areas.

Appendix 6. Map of location of main elements of the Contract.

6a. Stronie Śląskie facility

6b. Lądek-Zdrój facility