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State Water Holding Polish Water,
Regional Water Management Board (RZGW) in Szczecin

DRAFT DOCUMENT

ENVIRONMENTAL MANAGEMENT PLAN

ODRA-VISTULA FLOOD MANAGEMENT PROJECT - 8524 PL

SUB-COMPONENT 1.A:
Flood protection of areas in Zachodniopomorskie Voivodeship

Contract 1A.2.:
Flood protection of Gryfino, Ognica, and Piasek village on Odra River.
Modernization of Marwicki Polder Stage III - pump station Krajnik

ENVIRONMENTAL CATEGORY B - PURSUANT TO WB OP 4.01

Revision	*Date*	*Authors*	*Reviewed by*	*Client's Approval*	*Description*
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Państwowe Gospodarstwo Wodne Wody Polskie

SWECO

ODRA – VISTULA FLOOD MANAGEMENT PROJECT

co-financed by:

a) World Bank – International Bank for Reconstruction and Development (WB) – Loan Agreement No. 8524 PL,
b) The Council of Europe Development Bank (CEB); – Framework Loan Agreement No. LD 1866,
c) European Union Cohesion Fund (OPI&E 2014-2020),
d) State budget.

ENVIRONMENTAL MANAGEMENT PLAN

Component:	1 –	Flood protection of the Lower and Middle Odra River
Sub-Component:	1A –	Flood protection of areas in Zachodniopomorskie Voivodeship
Contract:	1A.2 –	Contract 1A.2 Flood protection of Gryfino, Ognica, and Piasek village on Odra River. Modernization of Marwicki Polder Stage III - pump station Krajnik.

Project Implementation Unit:
State Water Holding Polish Water
Regional Water Management Board (RZGW) Szczecin

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Szczecin – November 2020

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List of main definitions and abbreviations[1]

Name	Description
World Bank / WB	International Bank for Reconstruction and Development
CEB	The Council of Europe Development Bank;
OHS / HSAW	Occupational Health and Safety at Work
PCU	Project Coordination Unit
BP	World Bank Procedure[2]
Environmental Permit / EP	Environmental constraints decision
Epidemic	The incidence of a significantly higher number of infections or cases of an infectious disease in a given area than in a previous period or incidence of previously non-existent infections or infectious diseases.
ESMF/ RPZŚ	Environmental and Social Management Framework *(Ramowy Plan Zarządzania Środowiskiem i Sprawami Społecznymi)* – for Odra-Vistula Flood Management Project[3]
ES/ES Policy	The World Bank's Environmental and Social Policy on environmental and social matters (i.e. on environment protection, health and safety at work, health and safety of the community, gender equality, protection of minors and vulnerable people (including the disabled), sexual harassment, sexual abuse, HIV / AIDS awareness and prevention).
GDEP	General Directorate for Environmental Protection
GRM	Grievance Redressal Mechanism
MUWR	Main Ground water Reservoir
BSW	Body of Surface Water
BGW	Body of Ground Water
PIU	Project Implementation Unit – an organizational unit established in the Project Implementation Office
Project Implementation Office/Investor/Customer Employer	State Water Holding Polish Water in Warsaw represented by the Regional Director of the Regional Water Management Board (RZGW) in Szczecin
Consultant/Engineer	Consultant/Engineer providing services for State Water Holding Polish Water Regional Water Management Board (RZGW) in Szczecin
Contract / Contract 1A.2.	Contract 1A.2. Flood protection of Gryfino, Ognica, and Piasek village on Odra River. Modernization of Marwicki Polder Stage III - pump station Krajnik

[1] The glossary contains definitions and abbreviations used in the Environmental Management Plan and in other documents used under the Contract whose clear definitions are important to ensure consistency throughout the documents.

[2] World Bank Operational Policies and Procedures are set out in The World Bank Operational Manual, available at: https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx

[3] Document available on OVFMP PCU website at: http://odrapcu2019.odrapcu.pl/popdow-dokumenty/ on the World Bank's website at: http://documents.worldbank.org/curated/en/2015/04/24502899/poland-odra-vistula-flood-management-project-environmental-social-management-framework

Name	Description
Sub-Task	Part of the Contract that is separate in terms of location and scope of work: · Upgrade of the wharf of RZGW icebreaker base in Gryfino. · Flood protection of Ognica · Flood protection of Piasek · Modernization of pump station Krajnik
LAMP	Local Area Management Plan
Temporary Acquisition (Areas) / TA(A)	Temporarily used area to enable the performance of the Contract, including back-up facilities, parking lots, laydown yards, areas used for engineering purposes, and other facilities established from time to time as needed during the performance of the Contract.
Construction site/area	The area of a construction site for a Sub-Task including adjacent areas used for construction purposes, including without limitation access roads and temporary acquisition areas.
EIA	Environmental Impact Assessment
SPA	Natura 2000 bird special protection area
SAC	Natura 2000 special area of conservation
SCI	Site of Community Importance
PAD	Project Appraisal Document for the Odra-Vistula Flood Management Project[4]
HASP (plan)	Health and safety plan drawn in accordance with the Act of 7 July 1994 *Construction Law*
OPI&E	Operational Program Infrastructure and Environment
POM	Project Operations Manual[5] for OVFMP
LA&RAP	Land Acquisition and Resettlement Action Plan
Project / OVFMP / OVFMP Project	Odra – Vistula Flood Management Project
EMP	Environmental Management Plan for Contract 1A.2
RDEP	Regional Directorate for Environmental Protection in Szczecin
Natural habitats	The concept of *natural habitats* relates to the definition of natural habitats and lists of their times stipulated in the 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). (The Polish naming of natural habitats is stipulated in the Regulation of the Minister of Environment of 13 April 2010 on natural habitats and species of Community interest, as well as the criteria for selection of areas eligible for recognition or designation as Natura 2000 areas (i.e. Polish Journal of Laws of 2014, item 1713); among other things, this Regulation defines types of natural habitats being matters of interest for the Community which need protection in the form of delimitation of Natura 2000 areas, with a specification of types of natural habitations having a priority)
Epidemic status	Legal situation introduced in a given area due to the outbreak of an epidemic in order to implement counter-epidemic and preventive measures set out in the Act of 5 December 2008 on *Preventing and Combating Infections and Infectious Diseases among Humans* (consolidated text: Polish Journal of Laws of 2019, item 1239, as amended) to minimize the effects of an epidemic.

[4] http://documents.worldbank.org/curated/en/2015/07/24763021/poland-odra-vistula-flood-management-project
[5] http://odrapcu2019.odrapcu.pl/doc/POM_PL.pdf

Name	Description
State of epidemic threat	Legal situation introduced in a given area due to the risk of an outbreak of an epidemic in order to implement preventive measures set out in the Act of 5 December 2008 on Preventing and Combating Infections and Infectious Diseases among Humans (Polish Journal of Laws of 2019, item 1239, as amended).
VET&CC	Voivodeship Environmental Testing and Control Center
Contractor / Contract Contractor	Company or legal person delivering the Contract 1A.2
EHS Guidelines	The World Bank guidelines related to the environment, health, and safety (The Environmental, Health, and Safety (EHS) Guidelines, General EHS Guidelines[6])
Road operator	Organizational unit obliged to manage public roads in the understanding of the Act on *Public Roads* or obliged to manage a non-public road

List of main legal acts used in EMP

Names of legal acts referred to in EMP are given in their short form. The full names of legal acts are specified in the following table.

Name	Description
Birds Directive	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (EU OJ L 20/7, of 26.01.2010, as amended)
Habitats Directive	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (EU OJ L 206, of 22.07.1992, as amended)
Water Framework Directive / WFD	Water Framework Directive – 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 (EU OJ L 327 of 22.12.2000, as amended)
EIA Act	Act of 3 October 2008 on access to information on the environment and its protection, public participation in environment protection and environmental impact assessments (consolidated text: Polish Journal of Laws of 2020, item 283, as amended)
Nature Conservation Act	Act of 16 April 2004 on the conservation of nature (consolidated text: Polish Journal of Laws 2020, item 55, as amended)
Waste Act	Act of 14 December 2012 on waste (consolidated text: Polish Journal of Laws 2020, item 797, as amended)
Environmental Protection Act	Act of 27 April 2001 Environmental Protection Law (consolidated text: Polish Journal of Laws 2020, item 1219, as amended)
Water Law Act	Act of 20 July 2017 on Water Law (consolidated text: Polish Journal of Laws of 2020, item 310, as amended)
EIA Regulation	Regulation of the Council of Ministers of 9 November 2010 on projects that could significantly affect the environment (consolidated text: Polish Journal of Laws of 2016, item 71) or Regulation of the Council of Ministers of 10 September 2019 on projects that could significantly affect the environment (Polish Journal of Laws of 2019, item 1839).

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

SUMMARY

This Environmental Management Plan (EMP) applies to Contract 1A.2 Flood Protection of Gryfino, Ognica and Piasek upon the Odra River. Modernization of Marwicki Polder Stage III - pump station Krajnik. The Contract is performed as part of the Odra-Vistula Flood Management Project (OVFMP), co-financed by the International Bank for Reconstruction and Development (World Bank), the Council of Europe Development Bank, European Union Cohesion Fund and the State Budget. This EMP presents, inter alia, the following information:

- Place of Contract within the structure of OVFMP Project structure (chapter 1.1),
- Characteristics of Sub-Tasks comprised within the Contract (chapter 2),
- Characteristics of institutional, legal, and administrative constraints applicable to the Contract, including the current state of EIA procedures (chapter 3),
- Characteristics of individual elements of the environment around the Sub-Tasks planned for implementation (chapter 4),
- Characteristics of environmental pressures related to the implementation of the Contract by Sub-Task (chapter 5),
- Description of mitigating measures used to eliminate or limit potential adverse impact of the Contract on the environment (chapter 6), including a table listing said measures (Annex 1),
- Description of environment monitoring measures applying to the Contract (chapter 7), including a table listing said measures (Annex 2),
- Description of public consultations carried out during individual stages of developing environmental documentation for the Contract (chapter 8),
- Description of the organizational structure of implementing EMP (chapter 9),
- Time schedule of implementing EMP and description of reporting procedures (chapter 10),
- List of source materials referenced in EMP (chapter 11),
- List of annexes to EMP (chapter 12).

EMP annexes contain, among others, administrative decisions on environment protection issued for individual Sub-Tasks (annex 4) and graphical annexes in the form of maps presenting the location of Sub-Tasks implemented under the Contract (annex 5), map presenting the location of protected areas compared to the location of Contract elements (annex 6), map presenting the areas of potential flood risk (annex 7), and terrain excluded from potential flood risk as a result of implementing the project (annex 8). Annex 9 shows the location of Sub-Tasks compared to the location of natural habitats and places where fauna occurs.

Contract scope overview

Execution of the Contract will consist of works grouped into four Sub-Tasks. The structure of the Contract requires setting up four separate sites along the Odra River, 7 - 13 km from each other. The scope of works is diversified to match the flood protection needs of specific Sub-Tasks. The Contract applies to the construction of:

- Sub-Task: improvement of the wharf of RWMA icebreaker base in Gryfino – scope of Project consists in elevating part of a lot of land up to ordinate 2.00 mamsl, to protect the existing icebreaker base in Gryfino against flood.
- Sub-Task: flood protection of Ognica – designed works cover the conversion of an existing concrete pipe culvert located in Kanał Rynica-Ognica bed where it crosses the existing municipal public road number 415003Z, into a steel metal sheet pipe-arch culvert with vertical clearance. The works also include river engineering of the estuary section of Kanał Rynica-Ognica, to ensure appropriate hydraulic conditions for high water flow through Kanał Rynica-Ognica. The works will spread along an approximately 342 m long section, upstream the canal from its mouth to the Odra River.
- Sub-Task: flood protection of Piasek – works involve the construction of a flood protection structure protecting the village of Piasek against water overflow from Kanał Piasek which depends on the level of water in the Odra River. The scope of works includes construction of two sections of an earth flood embankment. Sections of earth flood embankments will be connected with a flood protection wall made of a steel sheet pile wall. The total length of the flood protection structures is up to 2100 m.
- Sub-Task: modernization of pump station Krajnik – works involve renovation of the pump station building and replacement of technical infrastructure, including power line supplying the facility.

The location of Sub-Tasks is given in Annex 5 to EMP.

The purpose of the Contract is to improve flood protection of Ognica and Piasek located on the Odra River, maintain flood-protection functionality of Marwicki polder, and improve operations of icebreakers on the Odra River.

Institutional, legal, and administrative constraints

The Contract, in terms of its characteristic features, likely potential impact on the environment, and location compared to protected areas, is carried out in compliance with relevant national environment protection regulations and in compliance with appropriate World Bank policies.

Status of EIA administrative procedures

Two environmental permits were issued related to the Contract:

- Decision No. 43/2019 on environmental constraints for the project consisting in the modernization of the area between Osinów-Łubnica embankments – flood protection of Piasek WONS-OŚ.420.44.2019.MB.12.
- Environmental constraints decision for the project consisting in “Flood protection of Gryfino, Ognica, and Piasek village on Odra River under Contract 1A.2 Flood

protection of Gryfino, Ognica, and Piasek village on Odra River. Modernization of Marwicki Polder Stage III – pump station Krajnik" ISOR.6220.4.2020.PP

Characteristics of elements of the environment around the planned Sub-Tasks

As a result of works on identifying cultural and natural environment assets carried out by a team of specialists it was determined that the implementation area of individual Sub-Tasks and its direct vicinity is characterized by the following spot, local and supra-local constraints:

- Sub-Task: Upgrade of the wharf of RZGW (Regional Water Management Board) icebreaker base in Gryfino.
    - According to information in the CO-oRdination of INformation on Environment database, land cover class of the Sub-Task area is discontinuous urban fabric.
    - The Sub-Task is located in the catchment area and direct vicinity of river BGW - the Odra River from the Odra Zachodnia (Western) to the Parnica (RW6000211971).
    - No occurrence of protected species of plants, animals or natural habitats were identified in the place where the Sub-Task will be implemented, nor in its direct vicinity.
    - The Sub-Task is not located in any area-based forms of nature conservation.
- Sub-Task: Flood protection of Ognica
    - According to information in the CO-oRdination of INformation on Environment database, the Sub-Task site is located within the following land cover classes: discontinuous urban fabric, non-irrigated arable land, and water courses.
    - The works will be carried out within the limits of the natural surface water body – Inflow from Rynica (RW60001819192), and also partially within the limits of Odra BSW from Warta to Western Odra (RW60002119199).
    - In the place of implementation of the Sub-Task there are no natural habitats, with the closest habitat at a distance of about 200 m north from the site of the planned Project – riparian tall herbs (6430).
    - No protected plants were reported in the planned work area; the nearest sites are located about 90-150 m to the south.
    - In the place where the Sub-Task is being implemented or within its direct vicinity it was determined that a number protected species occur: 5 species of insects, 2 species of reptiles and/or amphibians, 2 species of birds, and 2 species of mammals.
    - The Sub-Task is fully carried out within the limits of special protection area Natura 2000 Lower Odra River Valley (PLB320003) and special protection area Natura 2000 Lower Odra (PLH320037).
- Sub-Task: Flood protection of Piasek

- According to information in the CO-oRdination of INformation on Environment database, the Sub-Task is located within the following land cover classes: discontinuous urban fabric, non-irrigated arable land, meadows, pastures, land principally occupied by agriculture, with significant areas of natural vegetation, and coniferous forests.
- The sub-task is located in the catchment area and direct vicinity of river BSW - the Odra River from the Warta River to the Odra Zachodnia (Western) (RW60002119199).
- There are no natural habitats in the area covered by the Sub-Task. There are patches of willow gallery forests about 390 m and 220 m away from the site (91E0).
- In the place of planned works no protected species plants were determined, with the closest habitats approximately 550 m and 350 m away. However, in Kanał Piasek there is floating fern (*Salvinia natans)* under strict protection.
- In the place where the Sub-Task is being implemented or within its direct vicinity it was determined that a number protected species occur: 7 species of insects, 3 species of reptiles and/or amphibians, 5 species of birds, and 9 species of mammals.
- The Sub-Task is fully carried out within the limits of special protection area Natura 2000 Lower Odra River Valley (PLB320003), special protection area Natura 2000 Lower Odra (PLH320037), and within the limits of Cedynia Landscape Park.

· Sub-Task: Modernization of pump station Krajnik

- According to information in the CO-oRdination of INformation on Environment database, the Sub-Task is located within the land cover class: meadows, and pastures.
- The Sub-Task is located in the catchment area and direct vicinity of river BGW - the Odra River from the Odra Zachodnia (Western) to the Parnica (RW6000211971).
- No occurrence of protected species of plants or natural habitats were identified in the place where the Sub-Task is being implemented nor in its direct vicinity.
- In the direct vicinity of the designed connection to the electricity grid there is habitat 3150 – Old river beds and natural eutrophic lakes, while approximately 20 m from the distribution line there is habitat 6120 thermophilic inland grasslands (xeric sand calcareous grasslands).
- In the location of the Sub-Task or in its direct vicinity it was determined that 4 protected species of insects occur, while due to the location of the Sub-Task in a place with higher than average natural amenities (Marwicki Polder), lack of reported habitats of protected species of animals at the time of creating the inventory does not exclude their presence at the time when works will start.

- The Sub-Task is fully carried out within the limits of special protection area Natura 2000 Lower Odra River Valley (PLB320003), and special protection area Natura 2000 Lower Odra (PLH320037).

Characteristics of environmental pressures related to the implementation of the Contract

Sub-Task: Upgrade of the wharf of RZGW (Regional Water Management Board) icebreaker base in Gryfino.

- Land use and landscape.

  As the Sub-Task is located within urban areas there are no rich soils there, and the whole land will be converted throughout the area of works. After completion of works the topsoil, except paved areas, will be restored with fertile substrate. The nature of the landscape will not change.

- Surface water

  The envisaged scope of works will not influence the morphology of the identified BSWs. Also, in the course of works there will be no emission of any substances or energy into the aquatic environment.

- Ground water

  Execution of the Sub-Task will not impact ground water quality indicators.

- Natural considerations

  Bearing in mind the natural considerations, the scope of the Sub-Task, and the mitigating measures, no environmentally relevant pressure on flora and natural habitats is expected. Impact on animals is limited to their disturbance by the noise generated by machinery used at the site.

Sub-Task: Flood protection of Ognica

- Land use and landscape.

  Execution of the Sub-Task will involve soil damage in result of the earthworks. After completion of the works the topsoil will be restored with fertile substrate. It will result in few years of reduced fertility of the soil.

- Surface water

  The implementation of the Sub-Task will not require consumption of surface waters. Also, it is not connected with any emission of pollutants or energy into the aquatic environment, thus there is no risk of impact on the values of chemical, physio-chemical, or biological indicators describing the ecological status of surface waters. The implementation of the Sub-Task will have small impact on the change of the morphology of the Kanał Rynica-Ognica bed, mainly by shortening its length along the section covered by the Undertaking. The shortening of the bed section is caused by elimination of its meanders that used to considerably contribute to diversion of energy of high water flow in result of heavy rains. The run of the bed will not change. The bed

morphology change will not impact water flow conditions in the estuarial section of Kanał Rynica-Ognica bed and will not alter natural flow volumes.

- Ground water

  Execution of the Sub-Task will not impact ground water quality indicators.

- Natural considerations

  There was no direct danger identified related to damaging habitats, breeding or nesting sites, or other sites which are key during the ontogeny of any animal species. However, presence of the machinery, lit back-up facilities and construction works will disturb the animal species that occupy the area adjacent to the site. This type of impact applies mainly to birds.

  No protected plant sites nor natural habitats have been reported in the work area and its direct vicinity, so no negative impact on the environment elements is expected. Clearing the trees that clash with the investment project will naturally speed up the process of dieback of older specimen damaged by beavers.

- Protected areas

  In the place of implementation of the Sub-Task the presence of the beaver (*Castor fiber*) was reported – fresh tree girdling, droppings, and dams. The beaver is under protection within the Natura 2000 Lower Odra (PLH320037) Special Area of Conservation. The implementation of the Sub-Task will change some parts of the beavers' habitat. However, due to the local scale of the interference, the size of the population, and large numbers of alternative habitats it is unlikely that the planned works will have a significant impact on the population of that species.

  The planned Sub-Task, either alone or in combination with other measures will have no significant adverse impact on the purpose of protecting Natura 2000 sites.

Sub-Task: Flood protection of Piasek

- Land use and landscape.

  The Sub-Task will alter the current landscape by becoming its prominent feature. The new facility in the vicinity of Piasek will impact the way the land is used. Access to the waters of Kanał Piasek will be restricted - with the exception of dedicated access areas. Local layout of dirt roads will also change.

- Surface water

  Execution of the Sub-Task will involve water abstraction from Kanał Piasek, will not impact the canal’s water regime and water flow conditions, including reaction of water, its temperature, and physical and chemical composition. The constructed flood protection will not limit in any way biological continuity of the canal’s bed, hence it will not impact the value of biological indicators. Migration of water organisms in the canal will not be restricted.

- Ground water

  Execution of the Sub-Task will not impact ground water quality indicators.

- Natural considerations

  The implementation of the Sub-Task will have no significant impact on identified protected species of animals, with their disturbance during works being the most significant pressure.

  In the western part of the Sub-Task area trees will be cleared along the existing road, across the young stand, to the border of the forest compartment dominated by Scots pine. Due to the location of the trees to be cleared and its scale, the forest will not be fragmented. Neither will the biological diversity of the biotope be significantly reduced, since the clearance will apply only to a small number of trees within a larger forestry area, and cleared trees are of “middle” age and commonly prevail around the Undertaking. In terms of individual trees, from the point of view of reducing biodiversity, the most significant impact will be the removal from the landscape of older trees which may have biocenotic functions, while mere removal of such trees will not impoverish the species composition of trees growing in the vicinity of the Undertaking.

  In the direct vicinity of the Sub-Task a 14.3 ha large stretch of *Salvinia natans* – floating moss was identified. Since consideration is given to carry out part of works from the water (assembly of flood protection wall) there is a risk of damaging or moving of some of the plant specimens. The impact will be similar to that of navigation traffic. The estimated maximum surface of the damage is 2.0 ha.

- Protected areas

  The implementation of the Sub-Task due to its local scale, no fragmentation of valuable habitats or structures ensuring ecological continuity, will not influence the integrity of Natura 2000 sites.

Sub-Task: Modernization of pump station Krajnik

- Land use and landscape.

  The way the land is used will not change. Execution of the Sub-Tax will contribute to improving the aesthetics of the existing pump station building which will favorably impact local landscape quality.

- Surface water

  The implementation of the Sub-Task is not connected with on-site consumption of ground waters, and there is no necessity to create long-term (more than a year long) drainage of construction facilities. No industrial sewage is expected to be generated during the works. Consequently, the Sub-Task will have no effect on the ability to maintain BGW environmental goals during its implementation.

- Ground water

  Execution of the Sub-Task will not impact ground water quality indicators.

- Natural considerations

  Bearing in mind the natural considerations, the scope of the Sub-Task, and the mitigating measures, no environmentally relevant pressure on flora and natural habitats is expected. Impact on animals is limited to their disturbance by the noise

generated by machinery used at the site. Burial of overhead power lines, which at present cross areas valuable for birds should be regarded a positive aspect of the Undertaking, minimizing potential risk of birds flying into power lines.

- Protected areas

  Due to the nature of works (modernization of existing flood protection infrastructure) the implementation of the Sub-Task shall not lead to any damage to natural habitats, nor habitats of protected species in Natura 2000 sites: Lower Odra Valley PLB320003, Lower Odra PLH320037. The impact of the construction and assembly works will be limited to disturbance.

Impact on cultural heritage and tangible property

The implementation of the planned Contract has no adverse impact on cultural heritage or tangible property. The stage of operations will have positive impact on tangible property, by improving flood safety.

Impact on human health and safety

The implementation of the planned Contract poses no significant risk to human health and safety. These might occur only in the event of a defect, disaster or other unforeseeable events (e.g. leakage of pollutants, fire, finding unexploded ordnance or duds, flood). The EMP specifies appropriate conditions preventing the occurrence of such events and minimizing their possible results. The operation of the project will have positive impact on the health and safety of people and their assets, in terms of protecting people and their tangible property against flood during high water levels in the river.

Other ES risks

Irrespective of the aforementioned problems, in the course of carrying out the Contract other types of ES related problems or risks may occur, like accidents or near misses, acts of sexual harassment or bullying, cases of breaking the labor law, infections with sexually transmitted diseases (including HIV/AIDS), and other contagious diseases (including diseases caused by coronaviruses, e.g. COVID-19), etc. The EMP sets out appropriate conditions to prevent the aforementioned threats and to efficiently respond if they occur.

Mitigating and monitoring measures

Chapter 6 and 7 and annex 1 and 2 of EMP describe and present in a tabular form a list of mitigating and monitoring measures aimed at eliminating and curbing adverse effects of the Contract's influence on the environment and ensuring effective implementation of EMP's terms and conditions.

Public consultations

Chapter 8 of EMP presents an account of public consultations held during the implementation of procedures related to the evaluation of environmental impact of the planned Sub-Task, including:

- public consultations related to the document entitled Environmental and Social Management Framework (ESMF) to OVFMP (2015);
- public consultations held at the stage of passing environmental permits;

- public consultations on this Environmental Management Plan (in its final version EMP).

1 INTRODUCTION

This document presents the Environmental Management Plan (EMP) for Contract 1A.2 Flood Protection of Gryfino, Ognica and Piasek village on Odra River. Modernization of Marwicki Polder Stage III - pump station Krajnik.

Contract 1A.2 constitutes part of Sub-Component 1A implemented under the *Odra-Vistula Flood Management Project* (OVFMP), co-financed by the International Bank for Reconstruction and Development (World Bank), the Council of Europe Development Bank, European Union Cohesion Fund and the State Budget.

The Sub-Tasks comprised in the Contract are listed in the Regulation of the Council of Ministers of 18 October 2016 on the adoption of a Flood Risk Management Plan for the basin of the Odra River (Polish Journal of Laws 2016, item 1938) – FRMP, as:

§ Flood protection of Ognica (no. 6 on the list of strategic investments – technical FRMP) – Sub-Task: Flood protection of Ognica.

§ Osinów - Łubnica. Modernization of the area between embankments (no. 7 on the list of strategic investments – technical FRMP) – Sub-Tasks: Flood protection of Ognica and Flood protection of Piasek.

§ Modernization of pump station Krajnik (no. 16 on the list of strategic investments – technical FRMP) – Sub-Task: Modernization of pump station Krajnik.

1.1 FLOOD MANAGEMENT PROJECT FOR ODRA AND VISTULA RIVER BASINS

The main objective of OVFMP is protection of people on floodplains within selected parts of the basins of the Vistula and Odra Rivers, against risks caused by extreme flooding. The OVFMP envisages implementation of the most urgent flood protection tasks.

The OVFMP consists of the following 5 components:

· Component 1: Flood Protection of the Middle and Lower Odra;
· Component 2: Flood Protection of the Nysa Kłodzka Valley;
· Component 3: Flood Protection of the Upper Vistula;
· Component 4: Institutional Strengthening and Enhanced Forecasting;
· Component 5: Project Management and Studies

Component 1, under which the Contract being the subject of this EMP is performed, is divided into the following 3 Sub-Components:

· 1A – Flood protection of areas in Zachodniopomorskie Voivodeship,
· 1B – Flood protection of the Middle and Lower Odra River, and
· 1C – Flood protection of Słubice.

Detailed information about the Project can be found in the Environmental and Social Management Framework published e.g. on the websites of the World Bank[7] and Odra-Vistula Flood Management Project Coordination Unit[8]. A detailed description of the Project is also included in the PAD[9] and in the Project Operations Manual[10].

Sub-Component 1 consists of the following Contracts/Tasks:

- 1A.2 Flood protection of Gryfino, Ognica, and Piasek upon the Odra River. Modernizatino of Marwicki Polder Stage III - pump station Krajnik
- 1A.4 Implementation of works involving the completion of flood embankment Chlewice, Marwice-Krajnik, Mniszki-Gryfino.

The Contract covers works carried out in the course of four Sub-Tasks. The overriding goal of the Contract is flood protection. All the Sub-Tasks are to be performed in Gryfino county, population of 82530. Detailed goals and outcomes following the completion of each of the undertakings are different, namely:

- Sub-Task: improvement of the wharf of RWMA icebreaker base in Gryfino – the implementation of the project is to protect part of the embankment used as a harbor for icebreakers against backwater flood from the sea. For water with a 1% probability of occurrence the flooding area is about 0.02 km^2. After the completion of the Sub-Task the above area will be protected against flooding, and the handling of icebreakers will be possible.
- Sub-Task: flood protection of Ognica – the project is to enable efficient discharge of water in the event of high water levels in Kanał Rynica-Ognica. After the completion of the Sub-Task areas adjacent to the water course – mainly agricultural land will not be flooded during high water levels.
- Sub-Task: flood protection of Piasek – the project is to protect build-up areas in Piasek against water overflow from Kanał Piasek. For water with a 1% probability of occurrence the flooding area is about 0.45 km^2. In a special flood risk area there are 14 residential buildings and one building having social importance which could get flooded up to 2.0 m. The value of damages in the immediate vicinity of these buildings on an area of ca. 4000 m^2 is estimated in the range PLN 50.01 – 150 per m^2 and on an area of ca. 17,500 m^2 in the range PLN 150.01 – 300 per m^2. After the completion of the Sub-Task the above area and buildings will be protected against flooding.
- Sub-Task: modernization of pump station Krajnik; the purpose of the project is to maintain flood protection of the areas behind the embankments and to ensure the capacity to continuously discharge water from the areas behind the embankments during periods of higher water in the Eastern Odra River. The protected usable land is mostly arable land and green areas.

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

[8] http://odrapcu2019.odrapcu.pl/popdow_o_projekcie/

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

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

2 CONTRACT DESCRIPTION

Execution of the Contract will consist of works grouped into four Sub-Tasks. The structure of the Contract requires setting up four separate sites along the Odra River, 7 - 13 km from each other. The scope of works is diversified to match the flood protection needs of specific Sub-Tasks.

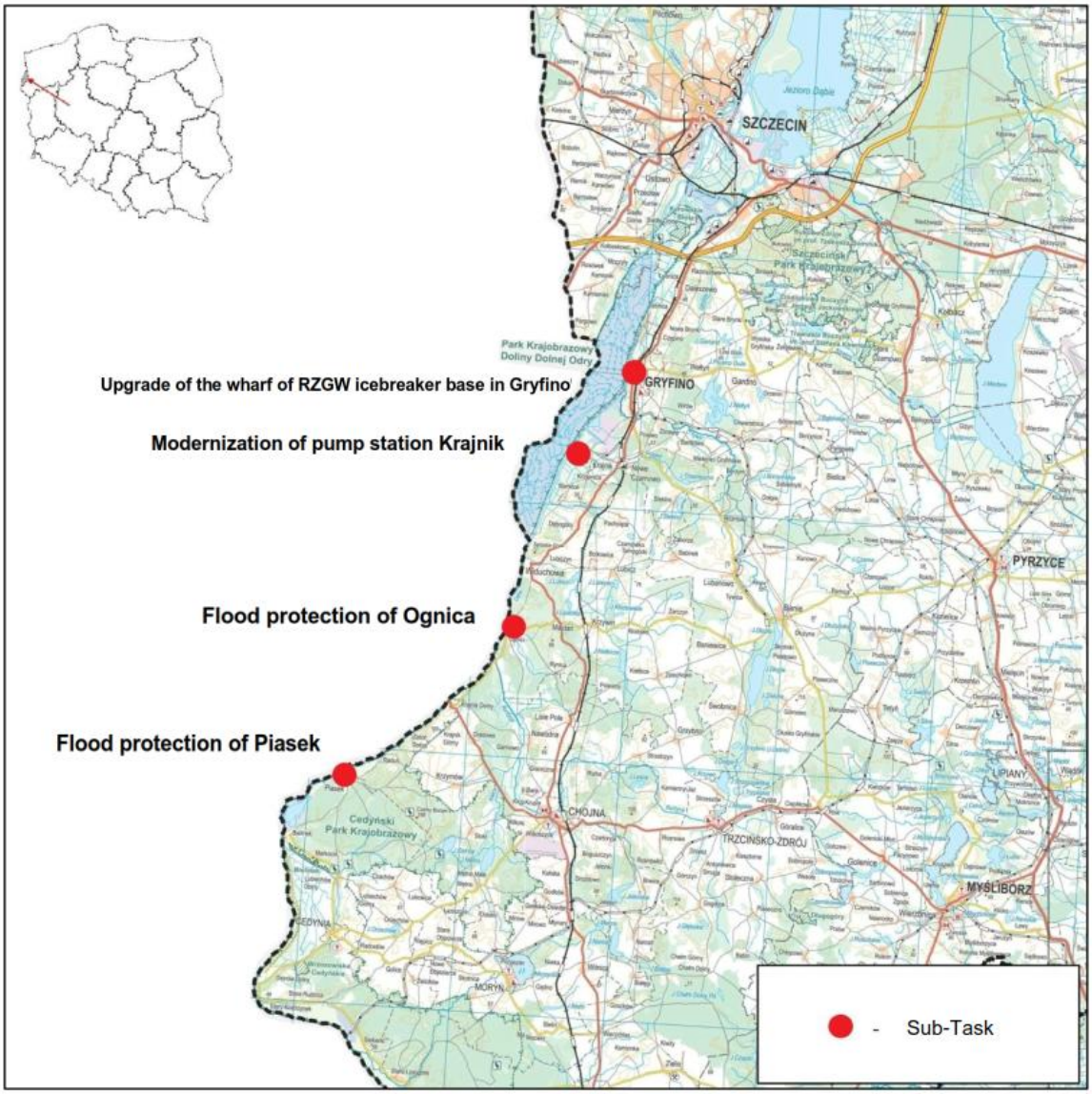

Fig. 1. Location of Sub-Tasks carried out as part of the Contract

The expected Contract performance time is 22 months following its signing. The time schedule assumes that individual Sub-Tasks will be carried out in parallel, and takes into account time restrictions for carrying out works as specified in environmental permits. The following diagram presents time restrictions for works.

Type of work (restriction reason	January	February	March	April	May	June	July	August	September	October	November	December
Topsoil stripping (birds)			☒	☒	☒	☒	☒	☒				
Clearance (birds)			☒	☒	☒	☒	☒	☒				
Work – general (amphibians)			☒	☒	☒							
Earth works (reptiles and/or amphibians)										☒	☒	

☒ – period excluded from works

2.1 LOCATION OF SUB-TASKS

2.1.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The Sub-Task is located within the boundaries of Gryfino, on land registry lots nos. 33 and 35, cadastral district Gryfino 3. The lots are located between the Eastern Odra River and Targowa street.

Fig. 2. Location of the Sub-Task: Upgrade of the wharf of RZGW icebreaker base in Gryfino.

2.1.2 Flood protection of Ognica

The Sub-Task is located north of Ognica (Widuchowa municipality, Gryfino county), along BSW "Tributary from Rynica" (RW60001819192). Annex 5 includes projection of the Sub-Task on an ortophotomap.

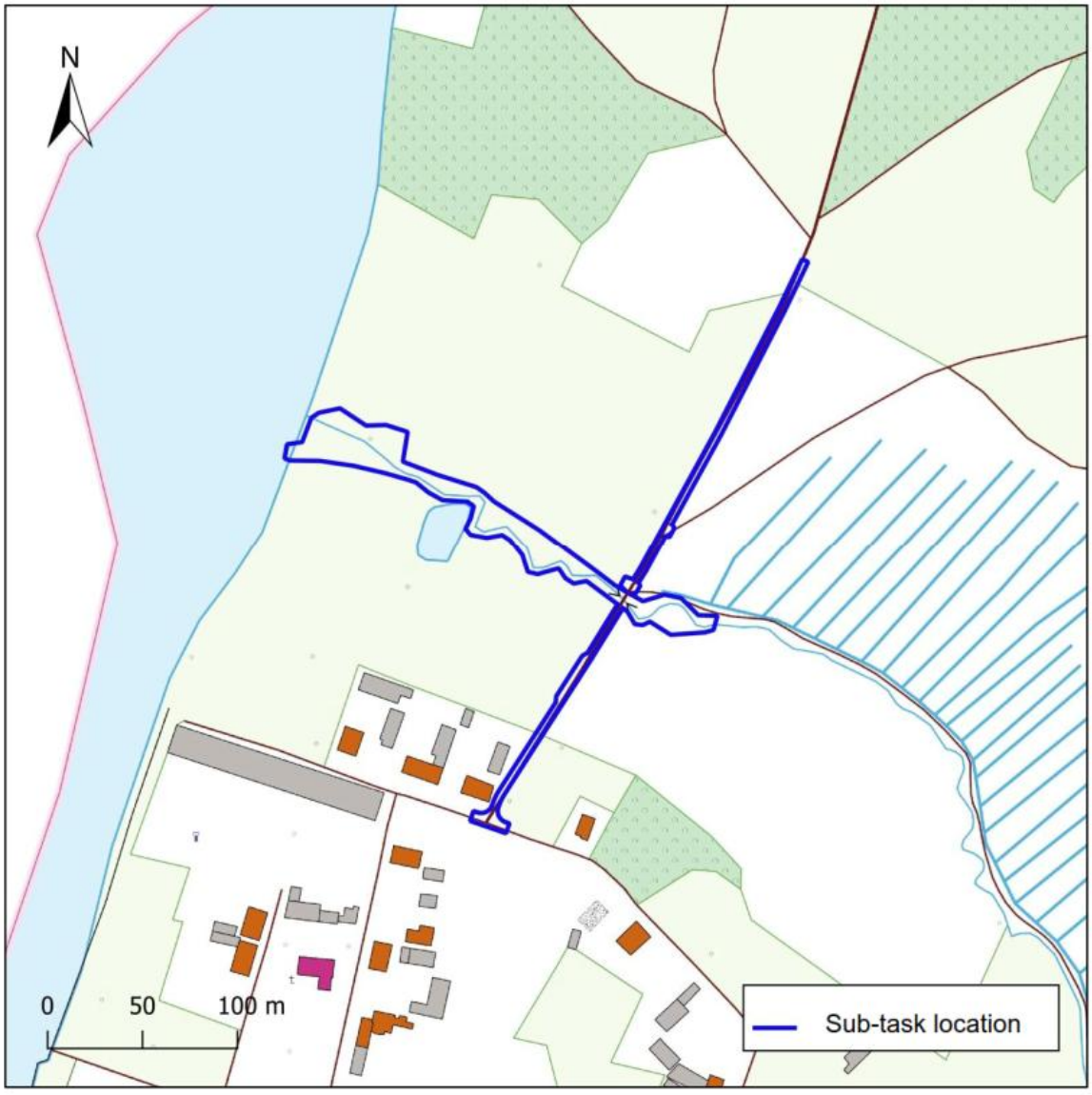

Fig. 3. Location of the Sub-Task: Flood protection of Ognica

2.1.3 Flood protection of Piasek

The majority of the land on which the Sub-Task is to be implemented is located in Cedynia municipality (Gryfino county), with part of the land located also in Chojna municipality. The flood protection planned for construction is located between Kanał Piasek and the town of Piasek. The majority of its length (ca. 1.5 km) runs along Kanał Piasek embankment, while in the northern part, for ca. 0.2 km it is perpendicular to this canal. An approximately 0.4 km long section of the project borders with built-up areas of Piasek. Annex 5 includes projection of the Sub-Task on an ortophotomap.

Fig. 4. Location of the Sub-Task: Flood protection of Piasek

2.1.4 Modernization of pump station Krajnik

The pump station undergoing renovation is located in the right flood embankment of Eastern Odra at the mouth of a canal removing water from Marwicki Polder. The building is about 2.2 km away from the nearest town (Krajnik). The flow of power supply line is latitudinal and leads from the pump station towards Krajnik. Annex 5 includes projection of the Sub-Task on an ortophotomap. In administrative terms, the Sub-Task is located in Widuchowa municipality, Gryfino county, near Krajnik.

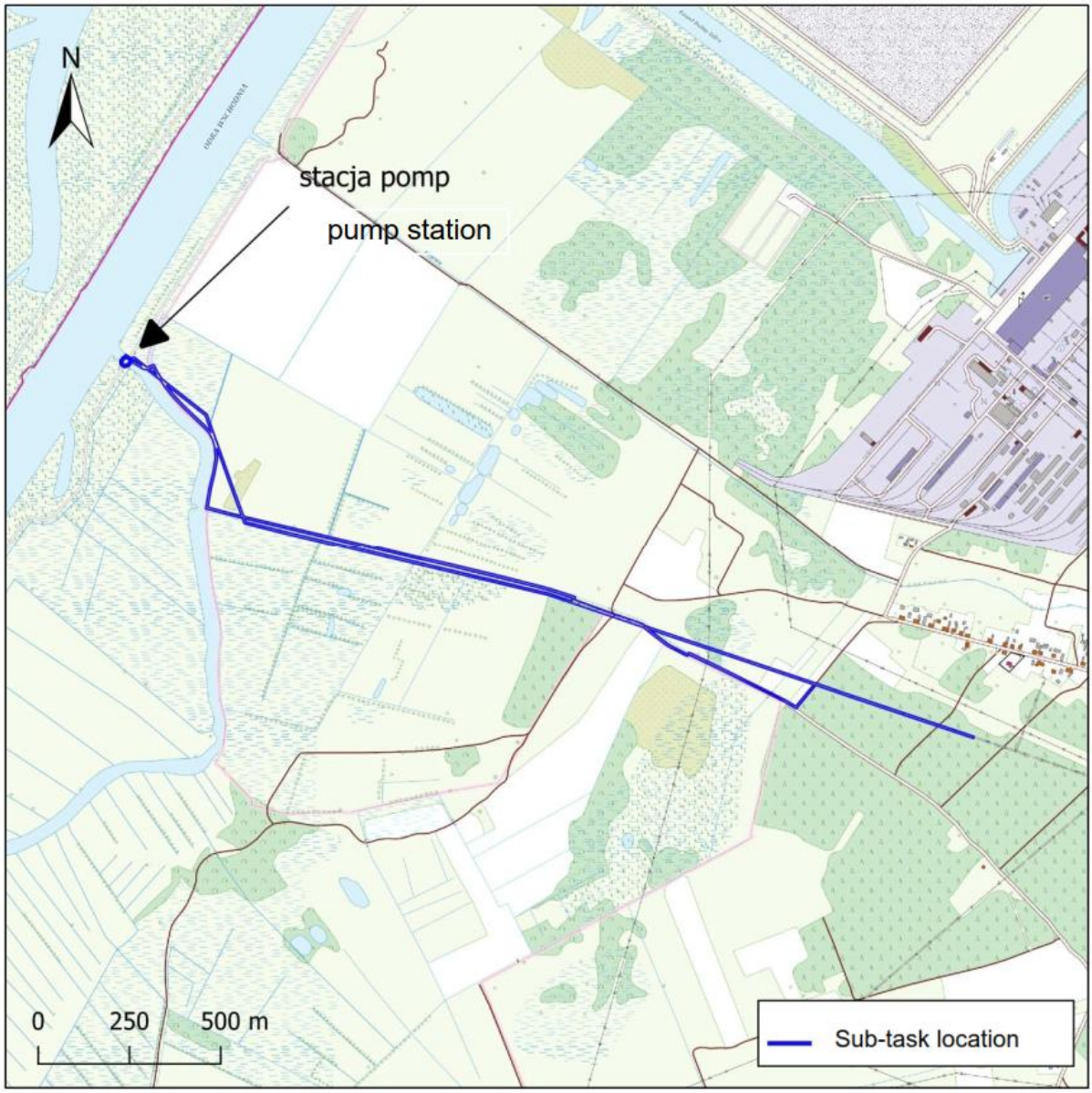

Fig. 5. Location of the Sub-Task: Modernization of pump station Krajnik

2.2 CHARACTERISTICS OF SUB-TASKS

Contract 1A.2 assumes the implementation of projects ensuring flood protection: of an icebreaker harbor in Gryfino, of the towns of Ognica and Piasek, and the renovation of pump station Krajnik. The scope of works is based on forecast level of surface waters determined by modeling.

2.2.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The scope of works for the Sub-Task is:

1. Elevating part of lot of land up to ordinate 2.00 mamsl. The land elevation will require macro-leveling of the lot's southern part with earth and topsoiling of the embankment followed by grass sowing.
2. Clearing four trees in the northern part of the lot.

3. Hardening of lot's surface in its northern part by using precast concrete slabs placed on reinforcement geotextile fabric.
4. Elevation and reinforcement of access road leading to the icebreaker base. Elevation of the road is planned up to ordinate 1.90 – 2.00 mamsl, with the inclusion of the adjacent street to the height system. The road will be reinforced using precast concrete slabs on reinforcement geotextile fabric.
5. To maintain soil level differences after the elevation of the lot surface, reinforced concrete L-shaped curbs will be put in place.
6. Conversion of existing lighting system adapting it to the designed road system.
7. Creation of a water connection to ensure access to running water at the existing wharf.

2.2.2 Flood protection of Ognica

The scope of works for the Sub-Task is:

1. Clearance of trees and removal of dead branches clashing with the project; the tree clearance and removal of dead branches will be limited to a minimum needed to carry out the works and ensure stability of embankment slopes; no more than 17 trees will be cleared.
2. Conversion of an existing concrete pipe culvert located in Kanał Rynica-Ognica bed where it crosses the existing municipal public road number 415003Z, into a steel metal sheet pipe-arch culvert with vertical clearance up to 1.45 m and horizontal clearance up to 2.10 m. Designing of a culvert 8.30 m long and longitudinal slope of 7‰. The culvert inlet will be located at the ordinate 0.55 mamsl, while the outlet at 0.49 mamsl. The foundation of the culvert will be made of two 25 cm thick layers of concrete rubble stabilized with triaxial geogrid.
3. Construction of headwalls from reinforced concrete with stone reinforcement.
4. Reinforcement of an approximately 2.0 m long section of Kanał Rynica-Ognica with paving made of cobblestones filled with cement mortar directly before the inlet to the culvert.
5. Strengthening of the inlet with paving and a restriction made of a piled wall from pressure impregnated, turned wooden stakes, 12 cm in diameter and 2.0 m high.
6. Above the paving protection, the bed strengthened with riprap made from broken stone and restriction made of a piled wall from wooden stakes.
7. Downstream of the culvert, identical reinforcement as on the culvert's inlet. Downstream of the culvert, the length of broken rubble reinforcement to be 5.0 m.
8. The surface above the culvert, forming part of the municipal road, to be made of crushed-stone aggregate.
9. The road grade line to be aligned with the ordinate of the culvert's foundation.

Construction work connected with the culvert will be made in a mechanical way and manually. Before the start of work, (if required) vegetation will be removed from the water course. The work will be carried out using cofferdams made with excavated earth obtained during the redesigning of the bed of Kanał Rynica-Ognica, or using sacks filled with excavated earth. The water from the water course will flow through a temporary pipeline or, alternatively, a bypass channel. During the works, surface drainage will be provided using an engine pump set.

Drained water will be diverted to the water course downstream from the place where works are taking place. After completion of works the cofferdams will be disassembled while excavated earth will be leveled throughout the work site.

10. River engineering works of the estuary section of Kanał Rynica-Ognica, ensuring achievement of appropriate hydraulic conditions of high water flow through Kanał Rynica-Ognica:

- The works will spread along an approximately 342 m long section, upstream the canal from its mouth to the Odra River.
- After the completion of works, the bed section will be 247 m long. The engineered section of the bed will form part of the existing bed.
- The footings of slopes of the canal's bed along the whole engineered section, apart from the places where culvert stone reinforcement is made, will be reinforced with skirts of dual 2x20 cm fascine bundles.
- The engineering will cover earth work, following an excavation-backfill routine, allowing the use of in-situ material for engineering purposes, taking into account transportation to the site of earth should there be a deficit of it, to include in the embankment.

Earth works will be carried out mechanically and manually. Water from the bed of Kanał Rynica-Ognica located upstream from the works covered by the undertaking will be removed using a temporary gravity pipeline to the existing canal bed downstream of the canal's engineered part, on the assumption that the contractor will carry out works gradually from the mouth to the Odra River upstream the canal, or directly to the receiving body of waters, i.e. the Odra River.

2.2.3 Flood protection of Piasek

The Sub-Task involves the construction of a flood protection structure protecting the area of the village of Piasek (municipality of Cedynia) against water overflow from Kanał Piasek which depends on the level of water in Odra River. The scope envisages construction of two sections of an earth flood embankment having a maximum total length of 1200 m (southern and northern parts). Sections of the embankments will be connected with a flood protection wall with length up to 900 m made of steel sheet pile wall with a reinforced concrete cap and an extension made of mobile flood protection barriers. The total length of the flood protection structures is up to 2100 m.

Detailed scope of works in the southern section:

1. Construction of an embankment (up to 900 m long) made of mineral soil delivered from aggregate mines. The routing of the south section of the embankment will utilize the natural relief of the land which is significantly higher than the required embankment height. As a result, the necessary scope of works will be reduced. Embankment parameters: average relative height of the south section of the embankment will be 3.50 m (locally up to 5.0 m). The south embankment crown is designed to be 4.0 m wide, with a slope inclination of 1:3.
2. The water side slope of the embankment will be secured with stone riprap, some of which will come from the demolition of the existing reinforcements of the banks of Kanał Piasek. Additional amounts will be delivered from aggregate mines. The stones will come mostly from the crown of the existing stone barrier. The canal's bank

reinforcements will remain unaffected and will continue to protect the bank against erosion.

3. As far as possible, biological reinforcement of the embankment surface will be made using turf and topsoil stripped during site preparation. The remaining biological reinforcements will be made of a topsoil layer sown-over with a mixture of grass seeds. Reinforcing geogrid filled with mineral aggregate or topsoil sown-over with grass is acceptable for the embankment crown.
4. The embankment body and substrate will be secured with a filtration screen. In case of mineral soil, the deep soil mixing method will be used. On organic soils, diaphragms will be preferred. The deep soil mixing method uses native soil (no mining necessary) and soil from the embankment raising. Mineral soil in the substrate will be replaced with a mixture forming the screen. If the physico-chemical properties of excavated soil are satisfactory, it will be used on-site as part of the biological cover of the embankment. If the properties are not satisfactory, the excavated spoil will be taken off-site and disposed of in accordance with applicable waste regulations.
5. Construction of a service road along the air side of the embankment. The service road will have a width up to 5 m. Its surface will be made of mineral aggregate. The road's structure will incorporate a variety of reinforcements and elements separating the road from native soil (woven / nonwoven geotextiles, geofabrics, geogrids, geocells, etc.).
6. The service road will be accessible from a public road via an exit located in land lot No. 680 in Piasek cadastral district.
7. Water removal from the space between the service road and the embankment will take the form of underground drainage or an open ditch. The drainage system will channel water to an existing ditch, the location of which clashes with the planned route of the southern section of the embankment. If the necessary gradient of the drainage system is not achieved due to the natural lay of the land, the system will be split into sections and drainage water will be discharged to Kanał Piasek through culverts or similar structures installed in the embankment body.
8. Redevelopment of the existing culvert into an embankment culvert closed with a backwater valve on the canal side. On the air side, near the ditch running along the embankment, an intake well will be constructed to allow water to be pumped by a portable pumping unit if the water level in the canal is too high to enable gravitational flow of water through the culvert.
9. Maintenance work on the existing ditch clashing with the embankment, consisting in desludging and slope / bottom profiling. Reinforcement of selected sections of the ditch's slopes and bottom is planned as well.
10. Construction of ferroconcrete slope stairs to enable access to water.

Detailed scope of works related to the erection of the flood protection wall:

1. Sheet pile wall on the water side will be installed from a vessel (the available space is too limited for a crane). Alternatively, if enough space is available on the land side, the sheet pile wall may be installed from the bank. The average height of the wall (relative to the surrounding terrain) is approximately 3 m.
2. The wall will be crowned with a ferroconcrete cap. The crown of the ferroconcrete cap will be installed at a level ensuring protection against a high flood risk, i.e. above the water level with a probability of 10%. If the flood water level exceeds the cap level, a

system of mobile flood protection screens will be installed on top of the cap. The solution involves a system of bars installed up to a safe level above the expected water level. Outside the flooding season the bars will be disassembled and stored in a storage site.

3. A service road (up to 5 m wide) will be constructed along the flood protection wall. Its mineral aggregate surface will be reinforced with geosynthetics or concrete slabs. If any limitations are encountered during the service road construction, retaining walls to support surface loads will be installed.

Detailed scope of works in the northern section:

1. Construction of an embankment (up to 300 m long) made of mineral soil delivered from aggregate mines. Embankment parameters: average height in relation to the surrounding terrain will be approximately 3.50 m. The embankment's geometry and construction technology will be identical to those described for the southern section. D
2. The service road planned along the flood protection wall will be incorporated into the crest of the designed embankment (or alternatively will run along the air side of the embankment) and further into the public road on lot no. 483 in Piasek cadastral district.
3. Construction of a drainage system to be connected with an existing ditch, the location of which clashes with the planned route of the embankment on the protected side.
4. Construction of an embankment culvert where the embankment's route coincides with the ditch (the construction technology will be the same as in the southern embankment). Slope stairs will be built in the culvert area.
5. At the place where the flood protection wall connects with the earth embankment, the service roads and the embankment crossing will merge.
6. Embankment slope reinforcement on the water side with stone riprap or gabion mattresses.
7. Maintenance of existing trenches both on the water and air side. Locally, ditch channels will be redeveloped to optimize the embankment culvert location. Prior to the actual works, vegetation will be removed from the ditches (if necessary).
8. The section of the north embankment will be closed leading up to the existing public road on the land lot 483. In order to do that, a 120 m section of the existing road within the boundaries of lot 483 and a 140 m section of the road on lot 12/1 in Raduń (municipality of Chojna, owner: State Treasury - State Forest Authority, Chojna Forest Division) will be elevated in order to ensure height alignment.

The scope of the Project includes redevelopment of a 120 m section of a public road (paved surface municipal road) within the boundaries of lot 483 (cadastral district of Piasek, municipality of Cedynia). The redevelopment will involve elevating the road's top surface in order to align it with the flood embankment, thus ensuring mobility of technical services during flood control operations. The part of public road to be redeveloped changes into a road lying on the State Treasury land belonging to the State Forest Authority, Chojna Forest Division – lot 12/1, Raduń cadastral district, municipality of Chojna. A 140 m long section of road running through Chojna Forest Inspectorate will be also reconstructed to match the height of the traffic route on the public road. The above flood protection configuration, i.e. two sections of an earth embankment and a sheet pile wall, is adjusted to the terrain conditions and resultant restrictions.

When constructing the flood protection structures, rainwater and snowmelt will be managed using the existing system of ditches that discharge rainwater and snowmelt to Kanał Piasek. To ensure the sufficient flow capacity, the ditches will be maintained before starting proper works. In case of a temporary limitation of the existing ditches' flow capacity in result of works performed at the embankments' body, water from ditches will be pumped to the canal.

The area of lot 669, cadastral district of Piasek (wp – Kanał Piasek), with a surface area of approx. 0.15 ha, located immediately next to lot 343/2 (private property), and lot 342 (public road) will be used for the construction of a maneuvering area for technical services, and a water intake point for combating natural disasters, including fires. The maneuvering area's surface will be made of mineral aggregate, locally reinforced with ferroconcrete slabs. On the protected side near the flood wall a water removal system in the form of underground drainage will be installed. Drainage water will be discharged to Kanał Piasek through outlets fitted with backwater valves. The existing rainwater pipelines will pass through the flood wall as well. On the side facing Kanał Piasek, the flood wall will be protected against erosion with the existing stone apron. As part of the project, the upper zone of the apron will be partially redeveloped in connection with the technology of performing the main flood protection works. Maintenance and repair works involving the apron will be carried out if and as necessary.

In connection with the Sub-Task, it will be necessary to clear about 0.9 hectare of forest in the southern part of the site, as well as about 187 single trees in the northern part, forming a forested patch of approx. 0.4 hectare.

2.2.4 Modernization of pump station Krajnik

The scope of works for the Sub-Task is:

1. Refurbishment of the building, including:

- clearing vegetation from the canal prior to commencing the works (if necessary);
- new interior and exterior plastering;
- replacement of doors and windows;
- installation of anti-slip flooring;
- new power supply and control system, security system and electric heating system;
- repair of the existing winch, including corrosion protection of the crane girder;
- removal and thermal insulation of roofing;
- repair of concrete surfaces;
- installation of new hatches for roof openings in the pressure pipeline chamber;
- a brand new system for pump control, failure alarm and monitoring of the current water level upstream of the inlet, at the pumps and downstream of the pump station;
- removal of steel access stairs and installation of manhole rungs;
- installation of new safety railings;
- installation of a water-tight working platform for pump operation;
- installation of a hydrostatic level probe for pump station operation;
- construction of a new lockable hatch for the intermediate chamber manhole, including rungs to enable access to the chamber bottom;
- construction and installation of new inlet grids;
- installation of new water level gauges;

- installation of new working footbridges and inlet grids (compatible with pump requirements);
- installation and replacement of worn submersible pumps in the underground part of the pump station building; Installation of two submersible pumps of the same capacity (500 liters per second each) is planned. The power of their motors will be approx. 24kW each. One of the units will serve as an emergency (back-up) solution and will be used in case of a failure of any of the other units. The overall power consumption of the pumps and other consumers installed in the pump station will remain unchanged.

2. General repair of the power line supplying the pump station:

- cablework for the existing 15 kV power line (works will be carried out in a 4m strip of land; excavations will be made with a mini digger);
- at field access points and under roads the power line will be secured with protection tubes (in open trenches or trenchless).
- pulling the cable line on rollers with admissible force, using applicable mechanical equipment (due to the cable's length, it will be installed in two or three pieces);
- dismantling of the existing overhead line (after completion of cable line works), coiling of phase wires, dismantling of accessories (insulators and cross arms), extraction of poles (using a mini digger and a light crane);
- site restoration works.

Note:

The above overview of the Sub-Tasks is for reference only and does not serve as engineering documentation for the Contract. All works must comply with Technical Specifications for Works and Commissioning for each type of works.

3 INSTITUTIONAL, LEGAL, AND ADMINISTRATIVE CONSTRAINTS

3.1 INSTITUTIONAL STAKEHOLDERS

The Investor in the Contract is State Water Holding Polish Water in Warsaw, represented by the Manager of the Regional Water Management Board (RZGW) in Szczecin.

In addition, the construction and operation of the Contract may require involvement of central, regional and local administration bodies. Day-to-day coordination of the OVFMP Project implementation by each PIU will be ensured by the OVFMP Project Coordination Unit (see Chapter 9.1).

3.2 NATIONAL ENVIRONMENTAL REGULATIONS

There are at least several dozen laws and regulations in the Polish law with regard to environmental aspects of investment projects. A list of selected legal acts in force at the time of developing EMP is presented in Annex 3 hereto - List of national legislation related to environmental protection. The number and content of the regulations listed there may change in case of any legislative changes taking effect in Poland. Apart from applying the principles set out in this EMP, the Contractor must comply with all currently applicable legal regulations on environmental protection.

3.3 EIA PROCEDURE IN POLAND

The environmental impact assessment procedure provided for in the Polish legislation is presented in the Environmental and Social Management Framework Plan (ESMF), published for instance on the websites of the World Bank[11] and the Project Coordination Unit of the Odra and Vistula Flood Management Project[12]. Furthermore, the EIA procedure must comply with the regulations listed in Annex 3 hereto - List of national legislation related to environmental protection.

3.4 WORLD BANK GUIDELINES

The Contract will be co-financed by, among others, the International Bank for Reconstruction and Development (the World Bank). Therefore, the conditions for its implementation in the field of environmental protection are consistent with the Operational Policies and Bank Procedures with regard to environmental protection, including *inter alia* the following: OP/BP 4.01 (environmental assessment), OP/BP 4.04 (natural habitats), OP/BP 4.11 (physical cultural resources). The said policies and procedures of the World Bank are presented in the Environmental and Social Management Framework Plan (ESMF), published for instance on

[11] http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework
[12] http://odrapcu2019.odrapcu.pl/popdow-dokumenty/

the websites of the World Bank [13]and the Project Coordination Unit of the Odra and Vistula Flood Management Project.[14] Original wording of the policies and procedures are available on the World Bank's website[15].

3.5 CURRENT PROGRESS OF EIA PROCEDURES FOR CONTRACT 1A.2

This chapter presents the current progress of the procedures for obtaining environmental decisions, broken down by Sub-Tasks. During the Contract, all necessary administrative decisions, e.g. derogations, extension of validity of existing decisions or necessary changes thereto, will be obtained by the Contractor on the basis of a power of attorney granted by the Employer.

3.5.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The Sub-Task has not been classified as an undertaking that could significantly impact the environment, according to the regulation of the Council of Ministers dated 10 November 2019 on projects that could significantly affect the environment.

3.5.2 Flood protection of Ognica

The Sub-Task may potentially have a significant impact on the environment. It was classified pursuant to Article 3 (1) (67) of the regulation of the Council of Ministers of September 10, 2019 on projects that could significantly affect the environment. On 25 November 2020 the environmental constraints decision was obtained for the project with regard to the village of Ognica (ref. No.: ISOR.6220.4.2020.PP), issued by the Mayor of Widuchowa Municipality. In the decision the authority found that there was no need to assess the environmental impact of the project and specified key preconditions for use of the environment during the Sub-Task. The specified conditions were implemented to EMP as mitigating measures, which does not release the Investor or the Contractor from the obligation to carry out the investment in accordance with the provisions of the environmental constraints decision.

A copy of the decision is included in Annex 4 to the EMS - Decisions, permits, correspondence.

3.5.3 Flood protection of Piasek

The Sub-Task may potentially have a significant impact on the environment. It was classified as such pursuant to Article 3 (1) (65) of the regulation of the Council of Ministers of November 9, 2010 on projects that could significantly affect the environment in effect on the date of submitting the application for the decision (June 3, 2019). On October 31, 2019, the environmental constraints decision was obtained for the project with regard to the village of Piasek (ref. No.: WONS-OŚ.420.44.2019.MB.12), issued by the General Directorate for Environmental Protection in Szczecin. The Directorate found that there was no need to assess

[13] http://documents.worldbank.org/curated/en/2015/04/24502899/poland-odra-vistula-flood-management-project-environmental-social-management-framework

[14] http://odrapcu2019.odrapcu.pl/popdow-dokumenty/

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

the environmental impact of the project and specified key preconditions for use of the environment during the Sub-Task. The specified conditions were implemented to EMP as mitigating measures, which does not release the Investor or the Contractor from the obligation to carry out the investment in accordance with the provisions of the environmental constraints decision.

A copy of the decision is included in Annex 4 to the EMS - Decisions, permits, correspondence.

3.5.4 Modernization of pump station Krajnik

The Sub-Task has not been classified as an undertaking that could significantly impact the environment, according to the regulation of the Council of Ministers dated 10 November 2019 on projects that could significantly affect the environment.

3.6 GRIEVANCE REDRESS MECHANISM

Anyone affected by the consequences of the Contract will have access to appropriate grievance redress mechanisms. Everyone has the right to file a complaint or motion. Filing complaints or motions is not subject to fees. Furthermore, in accordance with the regulations, the person filing a complaint or request may not be exposed to any damage or allegation on account of such submission.

More information on the grievance redress mechanisms applicable to the Contracts co-financed by the World Bank is available in the Project Operations Manual (POM) of the OVFMP, available on the website of the Project Coordination Unit[16].

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4 ELEMENTS OF THE ENVIRONMENT

4.1 LAND SURFACE AND LANDSCAPE

4.1.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The estimated area to be occupied during the works is below 0.16 hectare and includes land earmarked for leveling and paving as well as a road. The area is currently used for operating purposes of the nearby ice breaker port. Along the Odra River and partially in the access zone the surface is paved; the remaining area is covered by lawn and isolated trees and shrubs.

The landscape is typical for developed urban riverside areas.

4.1.2 Flood protection of Ognica

The estimated area to be occupied during the works is not more than about 0.7 hectare and includes arable land, unused meadows, roads and the Kanał Rynica - Ognica watercourse itself.

The landscape in the vicinity of the Sub-Task area is dominated by farmlands (mostly vegetable plantations). Buildings of the village of Ognica and a forest (to the north) are visible in the background. From the west the project site is directly adjacent to the Odra river.

4.1.3 Flood protection of Piasek

The estimated area to be occupied during the works is approximately 3.2 hectares, including 0.8 hectare for the northern embankment, 0.85 hectare for the flood wall and 1.55 hectares for the southern embankment.

The landscape in the Sub-Task area is dominated by the neighboring village of Piasek. Its historical layout of a village built on a multi-road pattern has been preserved. The buildings are close to one another and clustered along a few streets. The properties are rather small. A typical household consists of two buildings situated at the front of the farmstead, with the ridges facing the road. Somewhat larger farmsteads (with three buildings each) can be found in the eastern part of the village. The western part of the village is dominated by late 19th century and early 20th century buildings. The latter prevail in the remaining parts of the village.

4.1.4 Modernization of pump station Krajnik

The estimated area to be occupied during the works is below 0.05 hectare and includes the pump station area and immediately adjacent areas (surface water, flood embankment).

The landscape is typical for the Międzyodrze zone, with vast meadows criss-crossed by drainage and irrigation ditches to the east and the Odra to the west of the Sub-Task. It is part of the Lower Odra Valley.

4.2 CLIMATE

All the Sub-Tasks are located in the climatic zone of the Lower Odra (Koźmiński 2007).[17] It is the warmest climatic region of the Zachodniopomorskie Voivodeship, with the longest vegetation period. Spring starts here around April 1, while winter starts late and continues for not more than 42 days. The climate is characterized by a large number of days with spring and autumn frosts. Westerly winds are the most common. Average annual air temperatures in the voivodeship vary between 7.0°C and 8.5°C. In the last 30 years (1981-2010) these temperatures increased by about 0.85°C as compared to the previous 30-year period (1951-1980). Average annual precipitation increases from south-west to north-east and ranges from 490 to 770mm, and multi-annual amounts of precipitation do not show any significant changes. While in general westerly winds prevail, southern winds are also fairly common in the cold season.

4.3 SANITARY CONDITION OF ATMOSPHERIC AIR

The air quality was assessed on the basis of 2019 data[18] published by the Chief Inspectorate of Environmental Protection. In terms of health protection criteria, the investments carried out as part of the Contract are located in the Zachodniopomorskie zone (the part of the Voivodeship other than the Szczecin agglomeration and the town of Koszalin). In 2019, the concentration of one pollutant - benzo(a)pyrene in PM10 - was exceeded in the Zachodniopomorskie Voivodeship, but the exceedance zones do not overlap with the Sub-Task sites. In terms of vegetation protection in the Zachodniopomorskie zone, no air quality standards were exceeded.

4.4 SOIL AND LAND

4.4.1 Flood protection of Ognica

In immediate vicinity of the Dopływ z Rynicy there are soils formed on organic formations (fens). At some distance away there are also fluvial sands and a small patch of glacial till.

On the basis of the information available in the National Environmental Monitoring System[19] (2015), there is no land that does not meet the standards set out in the Regulation of the Minister of the Environment of 1 September 2016 on the method of land surface pollution assessment (Polish Journal of Laws of 2016, item 1395).

4.4.2 Flood protection of Piasek

The planned flood protection measures are largely located in soilless areas. The entire section of the removable flood protection wall will be built on or directly adjacent to the existing seawall. The embankment in the northern part of the Sub-Task will be erected on fluvisols whose top

[17] Koźmiński C., Michalska B., Czarnecka M. 2007. Klimat województwa zachodniopomorskiego. AR w Szczecinie, Uniwersytet Szczeciński. Szczecin.

[18] http://powietrze.gios.gov.pl/pjp/publications/card/19100 – annual air quality assessment for Zachodniopomorskie Voivodeship 2019

[19] http://www.gios.gov.pl/pl/stan-srodowiska/monitoring-jakosci-gleby-i-ziemi

layer is formed by organic soils. The southern part of the investment will be located on fluvial sands where podzolic soils have been formed.

According to the data available in the National Environment Monitoring System[17] (2015) there is no land that incompliant with the standards specified in the regulation of the Minister of environment dated 1 September 2016 on the conduct of the assessment of contamination of the surface of earth (Polish Journal of Laws 2016, item 1395).

4.4.3 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

Since this Sub-Task's site is located in a town, its surface is dominated by anthropogenic land and soils with heterogeneous transformed profiles.

On the basis of the information available in the National Environmental Monitoring System[17] (2015), there is no land that does not meet the standards set out in the Regulation of the Minister of the Environment of September 1, 2016 on the method of land surface pollution assessment (Polish Journal of Laws of 2016, item 1395).

4.4.4 Modernization of pump station Krajnik

Ground conditions are related to the fact that the site of this Sub-Task is located in a river valley, therefore organic and alluvial soils (soils under the power line) prevail in the immediate vicinity of the pump station. These are fluvial and swamp accumulation deposits. They have been transformed as a result of construction of land improvement systems. The pump station building itself is located on transformed anthropogenic soils that form the crown of earth embankments, among other things.

According to the data available in the National Environment Monitoring System[17] (2015) there is no land that incompliant with the standards specified in the regulation of the Minister of environment dated 1 September 2016 on the conduct of the assessment of contamination of the surface of earth (Polish Journal of Laws 2016, item 1395).

4.5 SURFACE WATER

4.5.1 Flood protection of Ognica

Works will be carried out at a 350 m section within the boundaries of a natural water body (Dopływ z Rynicy - RW60001819192). The status of this water body is bad, but the achievement of its environmental objectives (good ecological status and good chemical status) is not at risk. The water body is not monitored as part of the National Environmental Monitoring. Some works will also be carried out within the boundaries of the BSW described in Chapter 4.5.2. - Odra from Warta to Western Odra (RW60002119199).

4.5.2 Flood protection of Piasek

The sub-task is located in the catchment area and direct vicinity of river BSW - the Odra River from the Warta River to the Odra Zachodnia (Western) (RW60002119199). In accordance with the relevant typology, the BSW is type 21 (large lowland river) and is classified as a heavily modified water body. It is characterized by overall poor condition. The environmental target

for the BSW is to ensure good ecological potential and specifically includes ensuring migration conditions of aquatic organisms at the relevant section of the water course. With regard to chemical parameters, the objective is to ensure good chemical status. The risk assessment for this BSW shows that the achievement of the above objectives is at risk. The BSW has no pressure identified that could lead to exceeding the quality indicators. It is necessary to make a detailed survey of the reasons to properly plan the corrective measures. Identification of the reasons for failure to achieve the good status will be made possible by the implementation of measures at the national level: creation of a national database of hydromorphological changes, an in-depth analysis of pressures in terms of hydromorphological changes, development of good practices for hydrotechnical works and maintenance works and adoption of a set of rules for their implementation, as well as development of a national program for surface water renaturalization. Bearing in mind the above, derogations have been issued for the said body of water due to:

- technical unfeasibility [until 2021],
- the measures planned as part of the tasks causing changes in the physical characteristics of the BSW, serving important social purposes (i.e. flood protection).

According to the data from the National Environmental Monitoring, in 2018 the average annual limit values were exceeded for fluoranthene (measured concentration: 0.007 µg/l) and benzo(a)pyrene (0.00259 µg/l).

4.5.3 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The Sub-Task is located with the catchment area of the following BSW: Odra from Western Odra to Parnica (RW6000211971); its conditions are described in Chapter 4.5.4.

4.5.4 Modernization of pump station Krajnik

The pump station is located within the catchment area of the following BSW: Odra from Western Odra to Parnica (RW6000211971). In accordance with the relevant typology, the BSW is type 21 (large lowland river[14]) and is classified as a heavily modified water body. It is characterized by overall poor condition. Achievement of its environmental objectives (good ecological potential and good chemical status) is at risk. Derogations have been issued for the said body of water due to technical unfeasibility (until 2027). The BSW has no pressure identified that could lead to exceeding the quality indicators. It is necessary to make a detailed survey of the reasons to properly plan the corrective measures. Identification of the reasons for failure to achieve the good status will be made possible by the implementation of measures at the national level: creation of a national database of hydromorphological changes, an in-depth analysis of pressures in terms of hydromorphological changes, development of good practices for hydrotechnical works and maintenance works and adoption of a set of rules for their implementation, as well as development of a national program for surface water renaturalization.

According to the data from the National Environmental Monitoring, in 2018 the average annual limit values were exceeded for benzo(a)pyrene (measured concentration: 0.00183 µg/l).

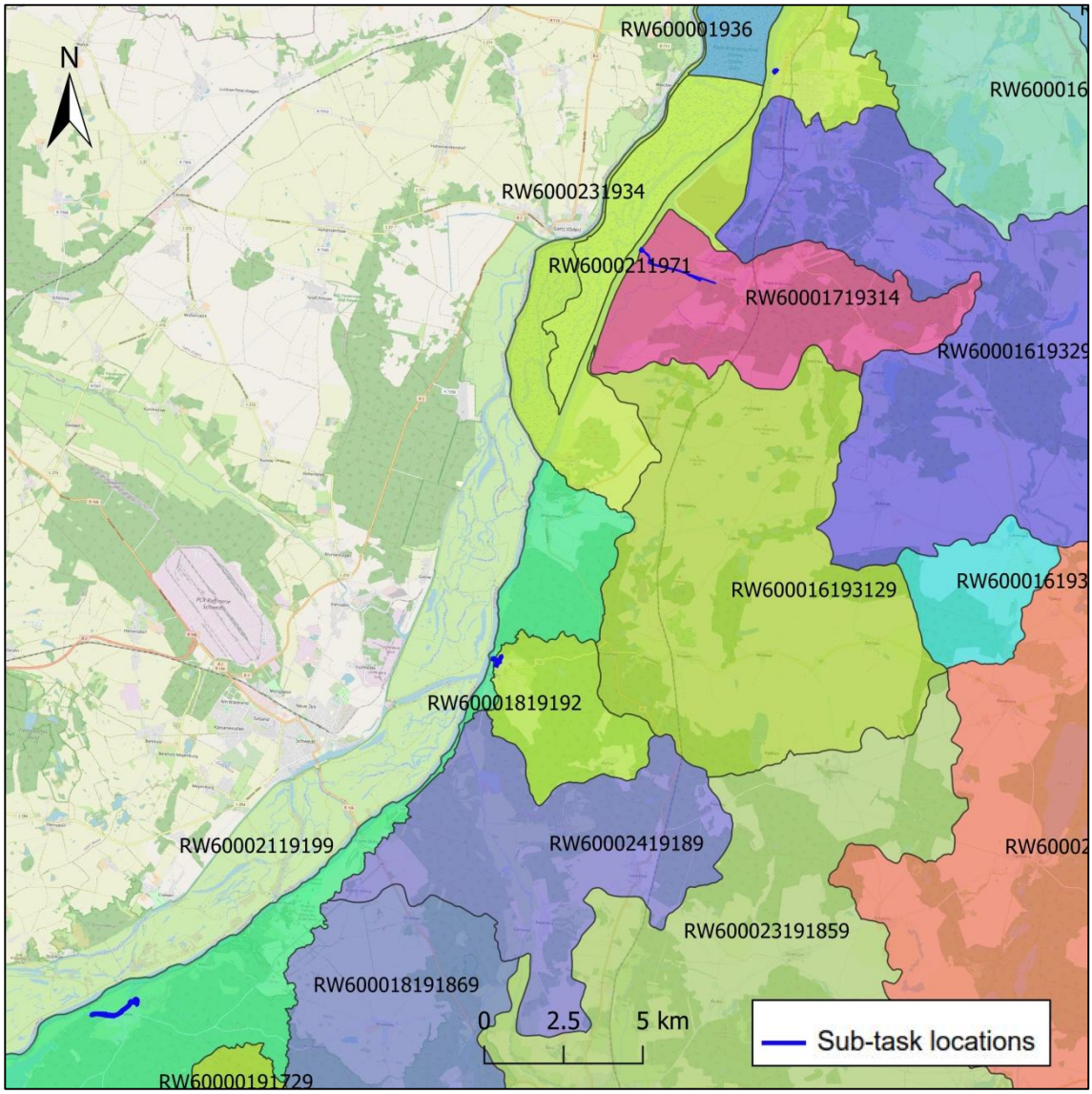

Fig. 6. Contract 1A.2 location against BSWs

4.6 GROUND WATER[20]

4.6.1 Flood protection of Ognica

The Sub-Task coincides with BGW No. 23 (PLGW600023); its surface area is 2907.1 km^2. In accordance with Paczyński's hydrological division[21], it is located in the Pomorskie region (V). The hydrogeological structure of the BGW No. 23 is formed by a diverse system of permeable and poorly permeable layers on Quaternary and Tertiary formations. `The first level of unconfined water is present at a depth of 0.5-20.0 m. Perched water is present at a depth of 40.0-80.0 m. The available monitoring data from 2016[22] show that the chemical and quantitative status of the BGW is good. Diagnostic monitoring data from the National

[20] Based on BGW data sheets Nos. 4 and 23, available at https://www.pgi.gov.pl/psh/zadania-psh/8913-zadania-psh-jcwpd.html#20-39
[21] Paczyński B. (red.), 1995 – Atlas hydrogeologiczny Polski 1:500 000. Państw. Inst. Geol. Warszawa.
[22] http://mjwp.gios.gov.pl/mapa/mapa,172.html

Environmental Monitoring (2019) do not indicate any exceeded substance levels that would result in a change of the chemical status of the BGW. The prevailing environmental objective for the part of water is maintaining good chemical condition and good quantitative status. The available ground water quantity is 278484 m^3 per day, 5.9% of which is currently in use. The key risks in terms of BGW pollution are related to agricultural fertilization (nitrogen fertilizers, liquid manure) and lack of sewage systems in urban and rural areas.

4.6.2 Flood protection of Piasek

The Sub-Task is also located within the boundaries of the BGW No. 23 (PLGW600023). Therefore, the ground water overview is identical to that for the Ognica Sub-Task.

4.6.3 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The Sub-Task coincides with BGW No. 4 (PLGW60004); its surface area is 226 km^2. In accordance with Paczyński's hydrological division, it is located in the Pomorskie region (V). The first level of unconfined water is present at a depth of 0.0-10.0 m. Perched water is present at a depth of 34.5-88.0 m. The available monitoring data from 2016 show that the chemical and quantitative status of the BGW is good. Diagnostic monitoring data from the National Environmental Monitoring (2019) do not indicate any exceeded substance levels that would result in a change of the chemical status of the BGW. The prevailing environmental objective for the part of water is maintaining good chemical condition and good quantitative status. The available ground water quantity is 18755 m^3 per day, 38.0% of which is currently in use. The key risks in terms of BGW pollution are related to the port of Szczecin and the lack of a comprehensive sewage management policy in the Międzyodrze area in Szczecin.

4.6.4 Modernization of pump station Krajnik

The Sub-Task coincides with BGW No. 4 (PLGW60004); its conditions are described in Chapter 4.6.3.

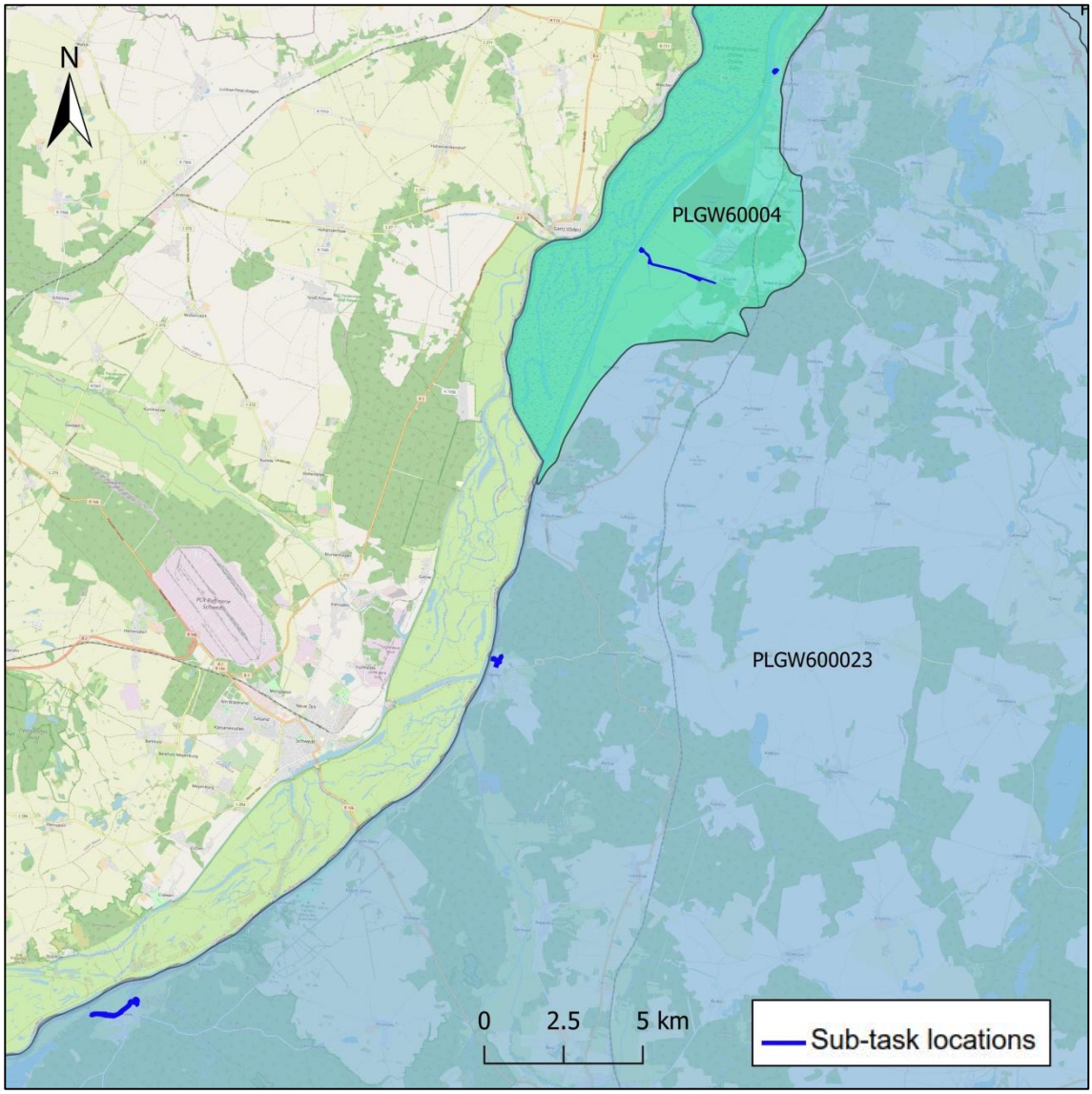

Fig. 7. Contract 1A.2 location against BGWs

4.7 ACOUSTIC CLIMATE

4.7.1 Flood protection of Ognica

The Sub-Task is located on the outskirts of a village. The nearest building is about 80 m away. The acoustic climate reflects the daily activities of residents of the surrounding buildings. There are no sources of persistent excessive noise in the neighboring area.

The Sub-Task area and the directly adjacent areas are not covered by local zoning plans, so there are no noise control areas with set standards of noise pollution. However, taking into account the actual type of land development, there are reasons to consider the surrounding buildings (at a distance of 80 m) as single-family, multi-family and collective housing areas and homestead areas, as defined in the Regulation of the Minister of Environment of June 14, 2007 on permissible noise levels in the environment (Polish Journal of Laws 2014, item 112).

4.7.2 Flood protection of Piasek

The planned Sub-Task is directly adjacent to the village of Piasek, so the acoustic climate reflects the daily activities of residents of the surrounding buildings. During the local inspection no activities generating high-level noise (such as industrial operations) were identified in the immediate vicinity. An important component of the acoustic climate is the county road, located 10 - 70 m from the Sub-Task site.

The Sub-Task area and the directly adjacent areas are not covered by local zoning plans, so there are no noise control areas with set standards of noise pollution. However, taking into account the actual type of land development, there are reasons to consider part of the area as single-family, multi-family and collective housing areas and homestead areas, as defined in the Regulation of the Minister of Environment of June 14, 2007 on permissible noise levels in the environment (Polish Journal of Laws 2014, item 112).

4.7.3 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The acoustic climate reflects the urban surroundings. The main noise levels include: vehicle traffic in Targowa Street, operation of a fishing base located at the southern border of the Sub-Task site and – to a limited extent – inland navigation, including the operations of an icebreakers' port.

The Sub-Task site is located in an area covered by the local zoning plan for the area located in cadastral district No. 3 in the town of Gryfino (Targowa Street area), adopted by virtue of the resolution of the Gryfino Town Council No. XII/110/11 of October 27, 2011. Part of the Sub-Task (along the redeveloped road) borders on the elementary area G3-63.3 MN, MW, mainly allocated for single-family and multi-family residential projects. Therefore, the area is subject to environmental quality standards specified in the Regulation of the Minister of Environment of June 14, 2007 on permissible noise levels in the environment (Polish Journal of Laws 2014, item 112).

4.7.4 Modernization of pump station Krajnik

The Sub-Task is located in the Marwicki Polder. No infrastructure capable of generating excessive noise has been identified within a radius of 1.5 km. Situated at a longer distance is the Dolna Odra Power Plant, an industrial facility that can influence the acoustic climate in the vicinity of the Sub-Task site.

The Sub-Task area is not covered by the local zoning plans and therefore no acoustically protected areas with statutory noise levels have been designated. Similarly, there are no actual forms of development that would justify classification of the area as one of the types specified in the Regulation of the Minister of Environment of June 14, 2007 on permissible noise levels in the environment (Polish Journal of Laws 2014, item 112).

4.8 NATURE

4.8.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

NATURAL HABITATS

No natural habitats have been identified on the Sub-Task site or in its direct vicinity (100 m).

FLORA

No habitats of protected plants have been identified on the Sub-Task site or in its direct vicinity (100 m).

All trees to be cut down are ash trees with circumferences ranging from 164 cm to 208 cm.

FAUNA

No habitats of protected animals have been identified on the Sub-Task site or in its direct vicinity (100 m).

4.8.2 Flood protection of Ognica

NATURAL HABITATS

The nearest habitat is located approx. 200 m to the north of the planned Sub-Task site (riverside tall herb communities - 6430). The habitat is fairly common along the whole section of the Odra. The conservation status of the inventoried tall herb patches is considered bad (U2).

FLORA

No protected plants were reported in the planned work area; the nearest sites are located about 90-150 m to the south. The species identified there is the marsh spurge *Euphorbia palustris* - Polish red list of plants - NT (near threatened).

Trees to be cut down mostly include white willows of considerable circumference (above 250 cm) and younger hornbeams, poplars and alders.

FAUNA[23]

In order to determine the local faunal conditions in the Sub-Task area and in its vicinity, wildlife inventories were carried out for each individual taxa. Findings of the site survey are presented below.

Insects

- Buff-tailed bumblebee *Bombus terrestris*(PP), LC,
- Early bumblebee *Bombus pratorum*(PP), LC,
- Red-tailed bumblebee *Bombus lapidarius*(PP), LC,
- Common carder bee *Bombus pascuorum*(PP), LC,
- Green snaketail *Ophiogomphus cecilia*(SP), LC.

Reptiles and amphibians

- European toad *Bufo bufo*(PP), LC,
- Common frog *Rana temporaria*(PP), HD V, LC,

Birds

During the inventory, nesting of two species from Annex I of the Birds Directive were identified: red-backed shrike(SP), HD I, LC and black woodpecker(SP), HD I, LC. Two pairs of the common merganser were identified as well(SP), HD II, LC. During inspections in the interbank area, black kites(SP), HD I, LC were regularly spotted as well.

Bats

The bats survey in the planned work site revealed occurrence of 5 bat species / groups:

- Nathusius' pipistrelle *Pipistrellus nathusii*SP, HD IV, LC,
- Common pipistrelle *Pipistrellus pipistrellus s.s*SP, HD IV, LC,
- Soprano pipistrelle *Pipistrellus pygmaeus*SP, HD IV, LC,
- Common noctule *Nyctalus noctula*SP, HD IV, LC,
- Serotine bat *Eptesicus serotinus*SP, HD IV, LC.

[23] The superscript following the species name specifies its protection status, i.e.:**SP** – species subject to strict protection in Poland; **(PP)** – species subject to partial protection in Poland; **HD II, IV, V** – species from annexes II, IV, and / or V to the Habitats Directive; Species entered into the IUCN Red List, status@@ (sprawdzić czy jest "least concern"): **LC** – least concern.

Mammals

- Eurasian beaver *Castor fiber*(PP), HD II, IV, LC,
- European mole *Talpa europaea*(PP), LC.

Ichthyofauna and macrozoobenthos

The direct catchment area of BSW tributary from Rynica, along the stretch of 70% of the length of the watercourse is made of intensively used agricultural land (fields and meadows) and a built-up rural area of Ognica and Rynica towns. Consequently, the watercourse, despite having a significantly natural bed, is subject to significant anthropopressure and has the role of a typical drainage ditch undergoing regular maintenance (vegetation clearance and desilting), which has significant impact on the quality of habitats existing there, hence also species living in the watercourse in question. Due the above, inspections found only aquatic organisms of low environmental requirements. Scarce ichthyofauna was represented only by two species, namely nine-spined stickleback (*Pungitius pungitius*)LC and three-spined stickleback (*Gasterosteus aculeatus*)LC. On the other hand, in the benthos specimens of the following species and families were found: *Asellusaquaticus*, Chironomidae, Culicidae, Muscidae, *Gammaruspulex*, *Gammarusroeseli*, *Planorbariuscorneus*, *Planorbisplanorbis*, *Viviparusviviparus*, *Anisus* sp. and Oligochaeta, however, the predominant species were Chironomidae as well as amphipods of the species *G. roeseli*.

4.8.3 Flood protection of Piasek

NATURAL HABITATS

There are no natural habitats in the area covered by the Sub-Task. There are patches of willow gallery forests about 390 m and 220 m away from the site (91E0). The patch located on a peninsula is used for cattle grazing. As a result, the ground cover is dominated by grass species; most of the sparse trees are white willows. The ground cover of the other patch located to the north of the Sub-Task site is dominated by rushes and tall herbs, such as reed canary grass or common nettle.

FLORA

No habitats of protected plants have been identified on the Sub-Task site. However, one strictly protected species (floating fern *Salvinia natans*) has been found in Kanał Piasek. Habitats of the following plants have been identified 550 m and 350 m (respectively) from the Sub-Task site:

- skullcap *Scutellaria hastifolia* (found on a sandy hill upon the Odra canal near Piasek, where over 20 shoots were identified), Polish red list of plants (VU - vulnerable)
- marsh spurge *Euphorbia palustris*, Polish red list of plants (NT -near threatened).

The trees to be cut down in the western part of the Sub-Task (approx. 0.9 hectare) mainly include pine with an admixture of, acacia, oak, sycamore, birch and elm trees. The approximate age of those trees is 60 years. Single trees include mostly white willows and

individual specimens of linden, elm, ash, pine and alder. 8 of the willows have a circumference above 250 cm.

FAUNA[24]

In order to determine the local faunal conditions in the Sub-Task area and in its vicinity, wildlife inventories were carried out for each individual taxa in 2017. Findings of the site survey are presented below.

Insects

- Buff-tailed bumblebee *Bombus terrestris*(PP), LC,
- White-tailed bumblebee *Bombus lucorum*(PP), LC,
- Tree bumblebee *Bombus hypnorum*(PP), LC,
- Early bumblebee *Bombus pratorum*(PP), LC,
- Red-tailed bumblebee *Bombus lapidarius*(PP), LC,
- Garden bumblebee *Bombus hortorum*(PP), LC,
- Common carder bee *Bombus pascuorum*(PP), LC,
- Red-shanked bumblebee *Bombus ruderarius*(PP), LC,
- Shrill carder bee *Bombus sylvarum*(PP), LC,
- Ground beetle *Carabus coriaceus*(PP), NT.

Amphibians and reptiles (all species subject to partial protection)

- Deaf adder *Anguis fragilis*(PP), NT,
- Common frog *Rana temporaria*(PP), HD V, LC,
- European toad *Bufo bufo*(PP), LC.

Birds

Two species from Annex I to the Birds Directive were identified: woodlark(SP), HD I, LC and red-backed shrike(SP), HD I, LC. Furthermore, in the meadows north of the canal nests of 3-4 pairs of the common redshankSP, LC, 2 couples of lapwingSP, NT, and one couple of the garganeySP, LC were identified. As regards non-breeding species, black storksSP, LC and great egretsSP, LC were spotted (up to 7 individuals).

[24] The superscript following the species name specifies its protection status, i.e.:**SP** – species subject to strict protection in Poland; **(PP)** – species subject to partial protection in Poland; **HD II, IV, V** – species from annexes II, IV, and / or V to the Habitats Directive; Species entered into the IUCN Red List, status@@ (sprawdzić czy jest "least concern"): **LC** – least concern, **NT** - near threatened.

Table 1. Results of birds inventory in the Sub-Task area

Item	English name	Latin name	Number of pairs
1.	red-backed shrike	*Lanius collurio*	2
2.	woodlark	*Lullula arborea*	1
3.	lapwing	*Vanellus vanellus*	2
4.	gadwall	*Anas strepera*	3-4
5.	tawny owl	*Strix aluco*	1

The following protected species zones are located in the vicinity of the Sub-Task site: black stork (2 km)$^{(SP),\ LC}$, white-tailed eagle$^{(SP),\ HD\ I,\ LC}$ (2 km), lesser spotted eagle$^{(SP),\ HD\ I,\ LC}$ (3 km).

Bats

The bats survey in the planned work site revealed occurrence of 5 bat species / groups:

- Nathusius' pipistrelle *Pipistrellus nathusii*$^{SP,\ HD\ IV,\ LC}$,
- Common pipistrelle *Pipistrellus pipistrellus s.s*$^{SP,\ HD\ IV,\ LC}$,
- Soprano pipistrelle *Pipistrellus pygmaeus*$^{SP,\ HD\ IV,\ LC}$,
- Common noctule *Nyctalus noctula*$^{SP,\ HD\ IV,\ LC}$,
- Serotine bat *Eptesicus serotinus*$^{SP,\ HD\ IV,\ LC}$.

Mammals

- Common shrew *Sorex araneus*$^{(PP),\ LC}$,
- Eurasian pygmy shrew *Sorex minutus*$^{SP,\ LC}$,
- European water vole *Arvicola amphibius*$^{(PP),\ LC}$,
- Wood mouse *Apodemus sylvaticus*$^{(PP),\ LC}$,
- Hedgehog *Erinaceus sp.* $^{(PP),\ LC}$,
- Eurasian beaver *Castor fiber*$^{(PP),\ HD\ II,\ IV,\ LC}$,
- Eurasian red squirrel *Sciurus vulgaris*$^{(PP),\ LC}$,
- Weasel *Mustela nivalis*$^{(PP),\ LC}$,
- European otter *Lutra lutra*$^{(PP),\ NT}$.

4.8.4 Modernization of pump station Krajnik

NATURAL HABITATS

No natural habitats have been identified in the direct vicinity of the pump station (100 m). According to the available literature sources[25], the nearest habitat (3150 - Oxbow lakes and natural eutrophic lakes with Nympheion and Potamion communities) is 35 m away from the pump station and directly adjacent to the cable route. According to the same sources, at a distance of about 20 m from the cable line there is a 6120-1 habitat (xeric sand calcacerous grasslands).

FLORA

No protected plant sites have been identified in the direct vicinity of the pump station and the power supply cable (100 m).

FAUNA[26]

The following (partially) protected insect species have been identified in the direct vicinity of the pump station (100 m):

- Buff-tailed bumblebee *Bombus terrestris*$^{(PP),\ LC}$,
- Early bumblebee *Bombus pratorum*$^{(PP),\ LC}$,
- Red-tailed bumblebee *Bombus lapidarius*$^{(PP),\ LC}$,
- Common carder bee *Bombus pascuorum*$^{(PP),\ LC}$,

According to the data collected in the framework of "Waloryzacja przyrodnicza województwa zachodniopomorskiego" (*Natural Valorization of Zachodniopomorskie Voivodeship*) (BKP 2010) three bird species were identified at distances above 100 m (nearest sites): aquatic warbler$^{SP,\ HD\ I,\ VU}$, gadwall$^{SP,\ HD\ I,\ LC}$, common snipe$^{SP,\ HD\ II,\ LC}$.

4.8.5 Areas subject to protection pursuant to the Act of 16 April 2004 on Nature Conservation and Wildlife Corridors

This chapter presents a brief description of the area-based forms of nature protection in which Sub-Task sites are located. The actual location of the Sub-Tasks against the protected areas is shown in Annex 6.

Flood protection of Ognica

Lower Odra Valley Natura 2000 Special protection area (PLB320003)

The area includes the Odra valley between the town of Kostrzyn and the Szczecin Lagoon (total length: 150 km) including Lake Dąbie. The Natura 2000 site is a European important bird

[25] „Waloryzacja przyrodniczej województwa zachodniopomorskiego" (BKP 2010 r.)

[26] The superscript following the species name specifies its protection status, i.e.:**SP** – species subject to strict protection in Poland; **(PP)** – species subject to partial protection in Poland; **HD II, IV, V** – species from annexes II, IV, and / or V to the Habitats Directive; Species entered into the IUCN Red List, status@@ (sprawdzić czy jest "least concern"): **LC** – least concern, **NT** - near threatened, **VU** - vulnerable.

area (IBA). At least 43 bird species from Annex I of the Birds Directive and 14 species from the Polish Red Book (PCK) are present here. The site is particularly important for wetland species in their breeding, migration and wintering periods. During the breeding period, the area is inhabited by at least 1% of the national population of the following bird species: bittern, marsh harrier and greylag goose; relatively common are also black terns, red-backed shrike and aquatic warbler. In the migration period the site hosts at least 1% of the population of the migration route of the following bird species: taiga bean goose and white-fronted goose. Other relatively common species include: whooper swan, common grebe, lapwing and European golden plover; the flocking of cranes in the fall attract over ten thousand individuals. High numbers of the common grebe are also observed in winter. The area plays a very important role in the national special birds protection system, providing high-quality habitats for breeding, migrating and wintering birds within the Odra Valley.

The area is covered by the Plan of Conservation Tasks established by the Order of the Regional Director of Environmental Protection in Szczecin of April 30, 2014 (Plan of Conservation Tasks for the Lower Odra Valley Natura 2000 area PLB320003 - Journal of Laws of Zachodniopomorskie Voivodeship, item 1934, 2014), amended by the Order of the Regional Director of Environmental Protection in Szczecin of April 27, 2017.

Lower Odra Natura 2000 Special Areas of Conservation (PLH320037)

The Odra Valley (with the main two channels: Eastern Odra and Western Odra) spans a distance of approx. 90 km and is a mixture of diverse landscapes: marshlands with peat bogs and meadows flooded in the spring season, alder and riparian forests, oxbow lakes, numerous distributaries and islands. Natural floodplains represent a considerable share of the Odra Valley. The conservation area also includes fragments of the edge zone of the Odra Valley with patches of forests and xeric grasslands. It is surrounded by farmlands. Meadows are used for cattle grazing only in a small fragment of the SAC. There are a number of well preserved habitats, including 21 habitat types listed in Annex I to the Council Directive 92/43/EEC. There are also large populations of rare and endangered animal species, including 17 species from Annex II to the Council Directive 92/43/EEC. Międzyodrze, i.e. the peat island located between the Eastern Odra and the Western Odra is the largest fluviogenic peat bog in Europe with a thickness of up to 10 m, crossed by a network of channels, old river beds, ditches and floodplains (total length: approx. 200 km). In these special conditions, with very limited farming operations, a characteristic plant cover has developed. Well-preserved habitats provide a shelter and wintering place and provide a food base for many rare and endangered animal species. The channels of Międzyodrze are home to floating fern and fringed water lily (endangered species in Poland).

The area is covered by the Plan of Conservation Tasks established by the Order of the Regional Director of Environmental Protection in Szczecin of March 31, 2014 (Plan of Conservation Tasks for the Lower Odra Natura 2000 area PLH320037 - Journal of Laws of Zachodniopomorskie Voivodeship, item 1661, 2014), amended by the Order of the Regional Director of Environmental Protection in Szczecin of December 6, 2016.

The Sub-Task is located on the edge of the Gorzów Forest - Bukowa Forest wildlife corridor (KPn-29A).

Flood protection of Piasek

Cedynia Landscape Park

The Park was established on April 1, 1993 by virtue of the regulation No. 3/1993 of the Szczecin Voivode of April 1, 1993 on the establishment of the Cedynia Landscape Park. The said regulation was subsequently amended by the regulation No. 24/2006 of the Zachodniopomorskie Voivode of February 16, 2006 on the Cedynia Landscape Park and the regulation No. 99/2006 of the Zachodniopomorskie Voivode of May 29, 2006 amending the regulation on the Cedynia Landscape Park.

The vegetation of the Cedynia Landscape Park is very abundant and diversified. It includes 640 species, 352 genera and 92 families. Eighteen species are legally protected. These include: yew, wild service tree, common honeysuckle, small pasque flower, snowdrop anemone, St Bernard's lily, European feather grass, golden feather grass, Stipa capillata, lady orchid and floating fern. Among 92 rare plant species, thermophilic and steppe species are the most common. They are clustered on the steep slopes in the edge zone of the Odra Valley. Out of 62 flower species, 29 are xerothermic plants from near-Mediterranean areas, four of which are present in Poland only in the Bielinek Nature Reserve - mossy oak, purple gromwell, *Dorycnium herbaceum* and *Inula germanica*.

The Nature 2000 Special Protection Area of Birds, Lower Odra Valley (PLB320003), and the Site of Community Importance, Lower Odra (PLH320037), are characterized in the previous section.

The Sub-Task site is part of the Nadodrzańskie Forests wildlife corridor (GKPn-28A).

Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The Sub-Task site is not part of any area-based conservation areas or wildlife corridors.

Modernization of pump station Krajnik

The Nature 2000 Special Protection Area of Birds, Lower Odra Valley (PLB320003), and the Site of Community Importance, Lower Odra (PLH320037), are characterized in the previous section. The Sub-Task site is part of the Lower Odra Valley wildlife corridor (KPn-19A).

4.9 CULTURAL LANDSCAPE AND HISTORICAL BUILDINGS

4.9.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

No monuments, including archeological monuments, have bee reported in the direct vicinity of the Sub-Task (within 100 m).

4.9.2 Flood protection of Ognica

The planned Sub-Task does not conflict@@ with registered archeological sites. Within a radius of 100 m from the Sub-Task site there are no heritage sites recorded in municipal or voivodeship registers.

4.9.3 Flood protection of Piasek

The planned Sub-Task does not conflict@@ with registered archeological sites. The nearest historical structure listed in the register of the Voivodeship conservator is 50 m away. It is a former Evangelical Catholic church, now Our Lady Queen of Poland Roman Catholic Church and the adjacent Roman Catholic cemetery (A-1242). The nearest structure recorded in the municipal register is approx. 45 m away (a residential building).

4.9.4 Modernization of pump station Krajnik

No monuments, including archeological monuments, have bee reported in the direct vicinity of the Sub-Task (within 100 m).

4.10 POPULATION

4.10.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The Sub-Task is located in the town of Gryfino. According to the available data[27] the town has a population of 21393 people. The two nearest residential buildings are 2 and 25 m away, respectively.

4.10.2 Flood protection of Ognica

The Sub-Task is located in the vicinity (approx. 80 m) of the village of Ognica. According to the available data[28] the village has a population of 446 people. The nearest residential buildings are located 2 m away from the road and 110 m away from the watercourse.

4.10.3 Flood protection of Piasek

Part of the Sub-Task is located in the village of Piasek. According to the available data[29] the village has a population of 475 people. The three nearest residential buildings are 2, 13 and 13 m away, respectively.

4.10.4 Modernization of pump station Krajnik

The Sub-Task site is located in an uninhabited area. There are no residential buildings within a radius of 1.5 km from the pump station. The nearest village is Krajnik. The nearest residential buildings are approx. 220 m away from the power line. According to the available data[30] the village has a population of 169 people.

[27] National Population and Housing Census 2011
[28] National Population and Housing Census 2011
[29] National Population and Housing Census 2011
[30] National Population and Housing Census 2011

4.11 OTHER ES MATTERS

In Poland, ES issues (i.e. those related to environmental, social and occupational health and safety aspects) are addressed in a number of legislative documents, including the Environmental Protection Law of April 27, 2001, the Act on disclosure on environmental information, public participation in environment protection and on environmental impact assessments of October 3, 2008, the Nature Conservation Act of April 16, 2004, the Act on preventing and remedying environmental damage of April 13, 2007, the Waste Act of December 14, 2012, the Act on Environmental Protection Inspectorate of July 20, 1991, the Act on the State Sanitary Inspection of March 14, 1985, the Act on preventing and combating infections and infectious diseases in humans December 5, 2008, the Construction Law Act of July 7, 1994, the Water Law Act of July 20, 2017, the Labor Code Act of June 26, 1974, the Act on the National Labor Inspectorate of April 13, 2007, Regulation of the Council of Ministers of August 24, 2004 on the list of occupations prohibited for adolescents and conditions of their employment in some of these works, the Act of 3 December 2010 on the implementation of certain provisions of the European Union in the field of equal treatment, the Civil Code Act of April 23, 1964, the Penal Code Act of June 6, 1997 and others.

The objectives of the above regulations include:

- ensuring the proper condition of the abiotic and biotic environment in and around construction project sites;
- ensuring safety and protection of individuals involved in and affected by construction projects;
- preventing sexual harassment and bullying in the workplace;
- ensuring proper social conditions and work and pay conditions for the staff.

Compliance with the provisions of the above regulations is supervised by a number of state institutions and bodies, including but not limited to the General Directorate for Environmental Protection, Regional Directorates for Environmental Protection, Environmental Protection Inspectorate, State Sanitary Inspectorate, Building Supervision (including Regional and District Building Inspectorates), State Labor Inspectorate, Ombudsman, Government Plenipotentiary for Equal Treatment, Government Plenipotentiary for the Disabled, the Police.

Notwithstanding the above, taking into account the high priority of ES issues and the requirements of international institutions financing the OVFMP Project (including the World Bank), this Environmental Management Plan and other Contract documents contain a number of detailed conditions aimed at ensuring proper implementation of all the applicable regulations and maintaining high standards of conduct in this regard.

5 OVERVIEW OF ENVIRONMENTAL IMPACT

5.1 LAND SURFACE AND LANDSCAPE

5.1.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The land use will not change after the implementation of the Sub-Task. The area will continue to be used in connection with icebreakers' operations.

The implementation of the Sub-Task will have a local impact on the landscape by clearance of 4 trees, changing the ground level, as well as partial introduction of another type of surface (concrete slabs). Once completed, the project will improve the local aesthetic aspects.

5.1.2 Flood protection of Ognica

The land use will not change after the implementation of the Sub-Task. The areas in the vicinity of the watercourse will continue to be used for farming purposes.

The implementation of the Sub-Task will have a local impact on the landscape. The watercourse morphology will change, and a number of trees (not more than 17) will be cleared. It is expected that during several vegetation periods after the completion of the works, the low vegetation will be restored spontaneously by natural succession. As a result, the landscape in the operating period will be similar to that from before the works.

5.1.3 Flood protection of Piasek

Once completed, the Sub-Task will alter the current landscape by becoming its prominent feature. However, flood protection facilities are an integral part of the cultural landscape in places at risk of flooding. Given the small size of the occupied area, the adopted technical solutions such as building a flood protection wall next to Piasek preclude any interference in nearby buildings. It will support maintaining the current development layout of the place and its character. Using earthen embankments for protecting developments ensures their blending, when covered with vegetation, with the surrounding landscape and their reduced visibility. Undoubtedly however it will be a prominent feature of the landscape.

The new facility in the vicinity of Piasek will impact the way the land is used. Access to the waters of Kanał Piasek will be restricted - with the exception of dedicated access areas. Local layout of dirt roads will also change. A fragment of a managed forest (approx. 0.9 hectare) will be cut down (a total of approx. 138 trees).

5.1.4 Modernization of pump station Krajnik

The way the land is used will not change.

Execution of the Sub-Tax will contribute to improving the aesthetics of the existing pump station building which will favorably impact local landscape quality. Thanks to the removal of the overhead power line, a discernible foreign aspect will disappear from the landscape, thus improving its overall aesthetics.

5.2 CLIMATE

The Contract implementation phase will involve the emission of greenhouse gases from the equipment used on the construction site. The amount of these emissions will not be significant in terms of climate impact. The operation of the Projects developed as part of the Contract will not generate atmospheric pollutions. To conclude, the Contract does not intensify climate change.

5.3 SANITARY CONDITION OF ATMOSPHERIC AIR

The performance of the Contract will involve atmospheric emissions of substances such as dusts and mixtures of various gases, mainly from fuel combustion in construction machinery and equipment. The emissions will be of a fugitive nature and, therefore, the emission level is difficult to estimate, also due to the fact that their scale is very much influenced by temporary atmospheric conditions (the current ground humidity, frequency, amount and type of precipitation, air temperature, wind) or the type of machinery used. Since these will be short-term emissions limited to the implementation phase, they are not expected to affect air quality in the long term.

5.4 SOIL AND LAND

5.4.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The construction site is located in an urban area and, therefore, there is no valuable soil there; the land in the entire area of the works will be transformed. After completion of works the topsoil, except paved areas, will be restored with fertile substrate.

According to the Design Documentation, the estimated volume of earth used for site grading is about 150 m^3.

The soil used for the works will meet the standards specified in the regulation of the Minister of Environment dated 1 September 2016 on the conduct of the assessment of contamination of the surface of earth (Polish Journal of Laws 2016, item 1395). No works related to checking the quality of soil were performed at the Project Documentation drafting stage. The responsibility for meeting the standards rests with the Contractor. The detailed procedure of checking soil parameters will be described in the Quality Assurance Plan and if it is necessary to store soil outside the site, the Contractor will provide information on the planned quantity to be moved and place of storage in the Waste Handling Plan.

5.4.2 Flood protection of Ognica

Execution of the Sub-Task will involve soil damage in result of the earthworks. After completion of the works the topsoil will be restored with fertile substrate. It will result in few years of reduced fertility of the soil.

According to the Design Documentation, the project will not require delivering significant amounts of earth; material obtained at the construction site will be used to execute the works.

The excess quantity of earth that needs to be transported away will be confirmed (in relation to the values estimated in the Design Documentation) at the execution stage in the form of a quantity survey for the works.

The soil used for the works will meet the standards specified in the regulation of the Minister of Environment dated 1 September 2016 on the conduct of the assessment of contamination of the surface of earth (Polish Journal of Laws 2016, item 1395) and the regulation of the Minister of Environment dated 11 May 2015 on recovery of waste outside the installations and facilities (Polish Journal of Laws 2015, item 796), in the case of spoil from watercourses. No works related to checking of the quality of soil and spoil were performed at the Project Documentation drafting stage. The responsibility for meeting the standards rests with the Contractor. The detailed procedure of checking soil parameters will be described in the Quality Assurance Plan and if it is necessary to store soil outside the site, the Contractor will provide information on the planned quantity to be moved and place of storage in the Waste Handling Plan.

5.4.3 Flood protection of Piasek

The impact on the soil will be caused mainly by earthworks related to the necessary construction works needed to form flood protection embankments. The work will be carried out primarily with heavy duty equipment. As a result of the excavations, the soil cover will be stripped. Based on the design concept, it is expected that the earth works will be limited to an area of not more than 3.2 ha. The earth works will be of linear nature. Surface of the embankments will be topped with fertile soil substrate collected when preparing the ground for construction of the embankments. The area around the facilities being constructed will also be reclaimed using previously collected organic soil layer.

According to the Design Documentation, the estimated volume of earth to be used for the construction of the embankment is approx. 54,000 m³. The final quantity of earth that needs to be transported away will be confirmed (in relation to the values estimated in the Design Documentation) at the execution stage in the form of a quantity survey for the works.

The soil used for the works will meet the standards specified in the regulation of the Minister of Environment dated 1 September 2016 on the conduct of the assessment of contamination of the surface of earth (Polish Journal of Laws 2016, item 1395) and the regulation of the Minister of Environment dated 11 May 2015 on recovery of waste outside the installations and facilities (Polish Journal of Laws 2015, item 796), in the case of spoil from watercourses. No works related to checking of the quality of soil and spoil were performed at the Project Documentation drafting stage. The responsibility for meeting the standards rests with the Contractor. The detailed procedure of checking soil parameters will be described in the Quality Assurance Plan and if it is necessary to store soil outside the site, the Contractor will provide information on the planned quantity to be moved and place of storage in the Waste Handling Plan.

5.4.4 Modernization of pump station Krajnik

The work of implementing the Sub-Task is concentrated mainly in the existing pumping station building; therefore, there will be no soil degradation. The construction of a power connection in the form of an underground cable line does not involve a significant impact on the condition

of the land and does not require supplying earth from an external source; after the line excavation is backfilled, the fertile surface layer will be restored using the native soil substrate. The soil used for the works will meet the standards specified in the regulation of the Minister of Environment dated 1 September 2016 on the conduct of the assessment of contamination of the surface of earth (Polish Journal of Laws 2016, item 1395). No works related to checking the quality of soil were performed at the Project Documentation drafting stage. The responsibility for meeting the standards rests with the Contractor. The detailed procedure of checking soil parameters will be described in the Quality Assurance Plan and if it is necessary to store soil outside the site, the Contractor will provide information on the planned quantity to be moved and place of storage in the Waste Handling Plan.

5.5 SURFACE WATER

5.5.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The specified scope of works does not require altering the morphology of the identified BSW, neither it involves emission of substances or energy to the water environment. The limited scale of potential spillage (mainly leaks caused by failures of the machinery and vehicles used for the works) poses no risk to the BGW's environmental objectives.

5.5.2 Flood protection of Ognica

The implementation of the Sub-Task does not involve any significant emission of pollutants or energy into the aquatic environment; therefore, there is no risk of their impact on the physico-chemical and biological indicators determining the ecological status of surface waters, or the chemical indicators determining the chemical status of water. These indicators are show whether a good status of these waters is achieved, taking into account the respective water category as per the Regulation on the method of classification of the status of surface water bodies (Polish Journal of Laws 2019, item 2149). During the works there will be a periodic increase in suspended matter in the water; since the impact is occasional and mitigating measures are implemented as specified in Annex 1 to EMP and in the environmental decision, this impact will not be significant. The project does not involve using water resources of the following BSWs: "Tributary from the Rynica" and "Odra from Warta to Western Odra". The implementation of the Sub-Task will not affect the continuity of flow in Kanał Rynica – Ognica, which is why it will not reduce its biological continuity. The Project will have a small impact on the change of morphology of Kanał Rynica - Ognica, related mainly to the reduction of its length in the section covered by the Sub-Task. The shortening of the bed section is caused by elimination of its meanders that used to considerably contribute to diversion of energy of high water flow in result of heavy rains. The run of the bed will not change. The bed morphology change will not impact water flow conditions in the estuarial section of Kanał Rynica-Ognica bed and will not alter natural flow volumes. During the periods of medium and low flows in the canal's bed, their condition depends on the water level in the receiver, i.e. in the Odra River. Therefore, the water flow conditions will not change during this period. The water level and flow rate will be the same as before the new bed is formed. A change of flow conditions will be perceivable when there is a high water flow in the bed of Kanał Rynica – Ognica. Then the water energy line will not change as there will be no obstructions in the form of meanders in the Channel bed. This will have an effect of accelerating the outflow of high

water discharged by Kanał Rynica - Ognica and significantly reduce the risk of water overflowing the bed to the detriment of the adjacent land. It should be emphasized that the change of flow conditions during the occurrence of high water will be of a short-term nature and will depend on the duration of heavy rainfall. All the works will be carried out outside the Odra riverbed; therefore, they will not in any way affect the indicators defined for the "Odra from Warta to Western Odra" uniform body of surface water.

The measure is not significant on the BSW scale. The reconstruction of the culvert and the engineering of the bed of Kanał Rynica-Ognica affects 4.98% of the BSW's length.

As any leakage of substances will be on a small scale, mainly due to possible breakdowns of machines and vehicles used during the implementation, such circumstances also do not jeopardize the environmental objectives defined for the BSW. The scale of PAH (fluoranthene and benso(a)pyrene) emission from the machinery used for the works has no impact on the contaminant's concentration in water.

To sum up, the implementation of the Sub-Task does not increase the risk of not achieving the environmental objectives leading to a good water status according to the Water Framework Directive.

5.5.3 Flood protection of Piasek

Execution of the Sub-Task will involve water abstraction from Kanał Piasek, will not impact the canal's water regime and water flow conditions, including reaction of water, its temperature, and physical and chemical composition. Works carried out from the water to erect the sheet pile wall will have an impact similar to shipping traffic. The implementation of the mitigating measures (as outlined in Section 6.3) during the construction allows to reduce the short-term impacts of this stage to a limited level[31].

Table 2 Summary of the quality elements for the classification of the ecological status/potential together with the expected impact of the planned project and an analysis of the impact of the project on the deterioration of the ecological status/potential of waters.

Quality elements for ecological status classification		Expected impact of the planned project
biological	Composition and abundance of phytoplankton	There is no altering of the watercourse bed: no impact on the element is expected.
	Composition and abundance of other aquatic flora [macrophytes and phytobenthos]	The project does not involve any works that could have a significant impact on the water flora of the BSW.
	Composition and abundance of benthic macroinvertebrates	There is no altering of the watercourse bed: no impact on the element is expected.
	Composition, abundance and age structure of ichtyofauna	There is no altering of the watercourse bed: no impact on the element is expected.

[31] Katalog dobrych praktyk w zakresie robót hydrotechnicznych i prac utrzymaniowych wraz z ustaleniem zasad ich wdrażania (Catalogue of good practices in the field of water engineering and maintenance works with principles of their implementation), Kraków, 2018. [Project financed by the European Union from the Cohesion Fund and the national budget under technical assistance Infrastructure and Environment Programme]

Quality elements for ecological status classification		Expected impact of the planned project
hydromorphological	Size and dynamics of water flows	There will be no change in this parameter - the water flow will oscillate at the same level
	Relationship with groundwater	There will be no impact related to groundwater
	Depth and width variations	There is no altering of the watercourse bed: no impact on the element is expected.
	Bed shape	There is no altering of the watercourse bed: no impact on the element is expected.
	Substrate structure and shape	There is no altering of the watercourse bed: no impact on the element is expected.
	Conditions and structure of bank zones	There are plans within the project to partly remove the crown of the seawall, but the existing Kanał bank reinforcements will remain unaffected. As a result, the structure and conditions in the bank zone will not change.
	Continuity	There is no altering of the watercourse bed: no impact on the element is expected.
physico-chemical	Thermal conditions	No significant adverse impact on thermal conditions is expected
	Oxygen conditions [oxygenation conditions]	No significant adverse impact on oxygen conditions is expected
	Salinity	No significant adverse impact on salinity is expected
	Acidification	No significant adverse impact on acidification is expected
	Biogenic substances	No significant adverse impact is expected from the growth of biogenic substances
	Substances particularly harmful to the aquatic environment	No significant adverse impact is expected from an increase in the amount of substances particularly harmful to the aquatic environment

The flood embankment construction project will not increase the risk of failure to meet the environmental objectives set for RW60002119199 - Odra from Warta to Western Odra.

The operation of the designed facility does not involve any emissions of pollutants or energy into the water environment; therefore, there is no risk of its impact on the values of physico-chemical, biological and ecological potential indicators for surface waters or on the values of chemical indicators showing the chemical status of water which correspond to a situation in which a good potential of these waters is achieved, including water categories as per the Regulation on the method of classification of the status of surface water bodies. The designed flood protection wall will be constructed within the right bank of Kanał Piasek, in place of the existing stone seawall. The earth flood embankments will also be constructed on land without interfering with the morphology of the canal's bed. Therefore, there will be no change in the values of the hydromorphological indicators. Water levels in Kanał Piasek depend on the water levels in the Odra (backwater relationship). In its lower section, Kanał is connected directly to the Odra River. The flood protection being implemented will not in any way limit the biological continuity of the canal's bed; consequently, it will not affect the values of the biological

indicators. Migration of water organisms in the canal will not be restricted. The limited scale of potential spillage (mainly leaks caused by failures of the machinery and vehicles used for the works) poses no risk to the BGW's environmental objectives. The scale of PAH (fluoranthene and benso(a)pyrene) emission from the machinery used for the works has no impact on the contaminant's concentration in water.

5.5.4 Modernization of pump station Krajnik

The specified scope of works does not require altering the morphology of the identified BSW, neither it involves emission of substances or energy to the water environment. The limited scale of potential spillage (mainly leaks caused by failures of the machinery and vehicles used for the works) poses no risk to the BGW's environmental objectives. The scale of benzo(a)pyrene emissions from the construction machinery has no impact on the water content of these pollutants.

5.6 GROUND WATER

The performance of the Contract does not involve taking up groundwater in the areas of the Sub-Tasks, there is also no need for long-term (lasting more than one year) construction drainage. No industrial sewage is expected to be generated during the works. Therefore, the implementation of the Contract will not affect the possibility of maintaining the environmental objectives of the BGW at the implementation stage, let alone at the operation stage. As leakage of substances will be on a small scale, mainly due to possible breakdowns of machines and vehicles used during the implementation, such circumstances also do not jeopardize the environmental objectives of the BGW.

5.7 ACOUSTIC CLIMATE

Noise will occur during the construction work due to the operation of earth-moving machinery and equipment, and vehicles. It will be noted that the Regulation of the Minister of the Environment of 14 June 2007 on permissible noise levels in the environment does not specify noise emission standards, what it does specify are environmental quality standards which must be achieved within a certain time period by the environment as a whole or by its individual natural elements (Article 3 (34) of the Environmental Protection Act of 27 April 2001). These standards relate to the individual categories of land designated under local law. They are not directly applicable to events of limited duration, such as construction. The level of acoustic power of equipment used in the construction industry is subject to restrictions in accordance with the guidelines contained in the Regulation of the Minister of Economy of 21 December 2005 on the essential requirements for equipment used outdoors in terms of noise emission to the environment (Polish Journal of Laws of 2005 no. 263, item 2202). The operating stage does not involve noise emissions.

5.8 NATURE

5.8.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

Given the specific environmental conditions, the scope of the Sub-Task and the mitigating measures, no environmentally significant pressures on the flora and natural habitats during

the implementation and operation stages are expected. Impact on animals is limited to their disturbance by the noise generated by machinery used at the site. The trees cleared in connection with the work will be compensated for in the ratio of 2:1 and the species defined in the administrative decision will contribute to biodiversity.

5.8.2 Flood protection of Ognica

FLORA AND NATURAL HABITATS

No protected plant sites nor natural habitats have been reported in the work area and its direct vicinity, so no negative impact on the environment elements is expected. Clearing the trees that clash with the investment project will naturally speed up the process of dieback of older specimen damaged by beavers. The trees cleared in connection with the work will be compensated for in the ratio of 2:1 and the species defined in the administrative decision will contribute to biodiversity around the investment. In order to reduce the adverse impact on biodiversity, particularly in the long term, the solutions set out in Annex 1 to EMP should be implemented.

FAUNA

No direct threat of destruction of sites or of breeding, nesting or other areas of key importance for individual development of animals of the species was identified. However, presence of the machinery, lit back-up facilities and construction works will disturb the animal species that occupy the area adjacent to the site.

At the construction stage the main anticipated risk to reptiles and amphibians is disturbance (approximately up to 100 m from the Sub-Task) and incidental killing of specimen during the works. Casual killing of amphibians or reptiles might result from collisions with vehicles operating at the construction site and falling into trenches. Nonetheless, no significant long-term impact is expected to pose a risk to the populations' continuity or to reduce the size. Additionally, the minimizing measures will reduce the impact of this stage on amphibians and reptiles.

During the works there will be no destroying or killing of hatches (due to the minimizing measures implemented). At the construction stage, the direct impact may consist in physical removal (after the breeding period) of nests at the construction site during the clearance and topsoil stripping in the area. The indirect impact will come from the disturbance. The works performed for the project will involve presence of humans and machinery in birds' breeding sites. Additionally, the works will generate noise. The increased area penetration and noise level can cause indirect impact leading to abandoning hatches and site by the birds in the vicinity. The distance at which disturbance has an effect on birds will vary among species. It should be pointed out that the construction site will be located outside "sensitive" birds concentrations (birds of prey, gulls, owls, species that make courtship flights) and outside sites that are particularly valuable (such as wetlands) to breeding birds. The minimizing measures will help additionally reduce the scale of the impact at the construction stage to a non-significant level.

Due to mobility of the reported insect species, execution of the Sub-Task can impact insects in the site area mainly indirectly. This impact will be associated with a temporary reduction of

the food base (change in habitat quality). This impact will be insignificant considering the proportion of the implementation area to the area of the food base in its vicinity.

Bat populations are characterized by high dynamics, every year locations and sizes of colonies in day roosts are different, which leads to differences in patterns of using hunting grounds. Interference with the structure of a part of Rynica - Ognica Channel will entail changes in the quality of insect habitats, which may affect the attractiveness of the feeding grounds in the Sub-Task area.

The planned tree clearance can negatively impact birds and bats of the area. The nature of the impact results from potential damage of occupied nests or day roosts and hibernation roosts. The scale of the impact depends on the rate of tree occupancy by protected species at the time of starting the clearance. Therefore, to reduce the probability of damage, the minimizing measures specified in Annex 1 to EMP should be implemented.

The Sub-Task will not, at its operation stage, limit the area of pre-existing wetlands or floodplains where habitats of animal species directly dependent on the floodplains of the Odra may be found.

5.8.3 Flood protection of Piasek

FLORA AND NATURAL HABITATS

Sub-Task implementation involves clearing vegetation for setting the flood protection structures, which may involve the risk of destroying sites of valuable plant species. Based on the inventories of flora that were carried out, it was determined that:

- the nearest protected plant species' habitat (*Scutellaria hastifolia*, spear-leaved skullcap) is located about 550 m from the Sub-Task area and there is no risk of destroying it,

- the nearest stretch of habitat 91E0 (willow, poplar, alder, and ash gallery forests) is about 220 m away from the construction site and will not be affected (whether directly or indirectly) during the construction,

- a stretch of the floating moss (*Salvinia natans*) with the total surface of about 14.3 ha was identified in a direct vicinity of the Sub-Task; as it is considered to perform some of the work from water (when constructing the flood protection wall), there is a risk of damaging or moving the plant. The impact will be similar to that of navigation traffic. The estimated maximum surface of the damage is 2.0 ha. The scale of damage can depend on the finally adopted solutions (e.g. type of the barge), while it is certain it will not exceed the specified area. The data gathered for flood protection projects shows the occurrence of the floating moss (*Salvinia natans*) is deemed to be common. Therefore it has been concluded that the scale of the interference in the population's dynamics will not be significant.

In the western part of the Sub-Task area trees will be cleared along the existing road, across the young stand, to the border of the forest compartment dominated by Scots pine. Due to the location of the trees to be cleared and its scale, the forest will not be fragmented. The

biodiversity of the biotope will not be significantly impoverished either, as only a small part of the stand within a larger forest complex will be cleared, and the trees being cleared are “middle-aged” and are common in the surroundings of the project. In terms of individual trees, from the point of view of reducing biodiversity, the most significant impact will be the removal from the landscape of older trees which may have biocenotic functions, while mere removal of such trees will not impoverish the species composition of trees growing in the vicinity of the Undertaking. Individual trees felled in connection with the works shall be compensated for on the basis of an agreement with the local government, thus the impact on tree species biological diversity will be significantly reduced. In order to reduce the adverse impact on biodiversity, particularly in the long term, the solutions set out in Annex 1 to EMP should be implemented.

FAUNA

Due to mobility of the reported insect species, execution of the Sub-Task can impact insects in the site area mainly indirectly. This impact will be associated with a temporary reduction of the food base. This impact will be insignificant considering the proportion of the implementation area to the area of the food base in its vicinity.

At the construction stage the main anticipated risk to reptiles and amphibians is disturbance (approximately up to 100 m from the Sub-Task) and incidental killing of specimen during the works. Casual killing of amphibians or reptiles might result from collisions with vehicles operating at the construction site and falling into trenches. Nonetheless, no significant long-term impact is expected to pose a risk to the populations’ continuity or to reduce the size. Additionally, the minimizing measures will reduce the impact of this stage on amphibians and reptiles.

During the works there will be no destroying or killing of hatches (due to the minimizing measures implemented). At the construction stage, the direct impact may consist in physical removal (after the breeding period) of nests at the construction site during the clearance and topsoil removal in the area, as in the case of one red-backed shrike site. Since the habitats convenient for the red-backed shrike (open, sunny sites with numerous shrubs) will not be depleted as a result of the Sub-Task, removing one nest outside of the breeding season will not affect the stability of the population of that species. The indirect impact will come from the disturbance. The works performed for the project will involve presence of humans and machinery in birds’ breeding sites. Additionally, the works will generate noise. The increased area penetration and noise level can cause indirect impact leading to abandoning hatches and site by the birds in the vicinity. The distance at which disturbance has an effect on birds will vary among species. It should be pointed out that the construction site will be located outside “sensitive” birds concentrations (birds of prey, gulls, owls, species that make courtship flights) and outside sites that are particularly valuable (such as wetlands) to breeding birds. The minimizing measures will help additionally reduce the scale of the impact at the construction stage to a non-significant level.

Bat populations are characterized by high dynamics, every year locations and sizes of colonies in day roosts are different, which leads to differences in patterns of using hunting grounds. Interference in the structure of the canal’s bank line will entail changes in the quality of insect habitats, which may affect the attractiveness of the feeding grounds along the embankment being constructed.

The Sub-Task will not have a significant impact on the mammals of the area examined if mitigating measures are maintained. The greatest impact is predicted during the construction stage. Every effort should be made during the implementation stage to limit land occupation to the necessary minimum. Given the high migration capacity and behavior of the species found in the area, the animals should be affected mostly by disturbance from operating equipment. In the case of otter and beaver the construction stage might involve reducing the food base, when the works exert anthropopressure on reducing the range of the feeding grounds.

The planned tree clearance can negatively impact birds and bats of the area. The nature of the impact results from potential damage of occupied nests or day roosts and hibernation roosts. The scale of the impact depends on the rate of tree occupancy by protected species at the time of starting the clearance. Therefore, to reduce the probability of damage, the minimizing measures specified in Annex 1 to EMP should be implemented.

5.8.4 Modernization of pump station Krajnik

Bearing in mind the natural considerations, the scope of the Sub-Task, and the mitigating measures, no environmentally relevant pressure on flora and natural habitats is expected. Impact on animals is limited to their disturbance by the noise generated by machinery used at the site. Burial of overhead power lines, which at present cross areas valuable for birds should be regarded a positive aspect of the Undertaking, minimizing potential risk of birds flying into power lines.

5.8.5 Areas subject to protection pursuant to the Act of 16 April 2004 on Nature Conservation and Wildlife Corridors

Upgrade of the wharf of RZGW icebreaker base in Gryfino.

With the location of the Sub-Task outside nature protection areas, and the scope of works which do not generate any significant environmental pressures, the implementation of the Sub-Task will not affect the objectives and objects of nature conservation in its surroundings. The planned tree clearance can negatively impact birds and bats of the area. The nature of the impact results from potential damage of occupied nests or day roosts and hibernation roosts. The scale of the impact depends on the rate of tree occupancy by protected species at the time of starting the clearance. Therefore, to reduce the probability of damage, the minimizing measures specified in Annex 1 to EMP should be implemented.

Flood protection of Ognica

No sites of flora species or protected habitats that would be subject to protection within nature protection areas were identified at the site of the Sub-Task and in its direct vicinity.

The Sub-Task is located in Nature 2000 areas: Lower Odra Valley (PLB320003) and Lower Odra (PLH320037). Execution of the Sub-Task will not significantly impact the subjects and objectives of protection of the areas specified above for the following reasons:

- The closest stretch of a protected habitat (Hydrophilous tall herb fringe communities - 6430) is about 200 m away from the site boundaries. The works will not encroach on the site.

- The implementation of the Sub-Task does not contradict the protection measures for species recorded in the vicinity of the project (Eurasian beaver, goosander), its implementation will not contribute to reducing their population. The implementation of the Sub-Task will involve a local change of beaver habitat conditions. On the other hand, given the local scale of the intervention, the population size as well as the high abundance of substitute habitats, the planned works are not expected to have a significant impact on the populations of this species.

- The measures related to the implementation and use of the Sub-Task are not included in the catalogue of threats to the species identified (Eurasian beaver, goosander) as listed in the plan of protection tasks ("PZO").

The planned Sub-Task will not have, whether alone or in combination with other measures, a significant adverse effect on the conservation objective of Natura 2000 sites, including in particular:

- It will not deteriorate the condition of natural habitats or habitats of plant and animal species for the protection of which Natura 2000 sites have been designated.

- It will not adversely affect the species for which the Natura 2000 site has been designated.

- It will not compromise the integrity of the Natura 2000 site or its links with other areas.

The investment works can temporarily disturb fauna but after the Sub-Task's completion and due to its nature no significant impact on fauna should be expected. In result of the disturbance animals can temporarily migrate to adjacent areas of similar habitat profiles.

The expected impact will be transitory and spatially limited. Overall, the impact will not be relevant and will not significantly reduce the area's biodiversity or affect the continuity of wildlife corridors.

Flood protection of Piasek

The Sub-Task is located in Nature 2000 areas: Lower Odra Valley (PLB320003) and Lower Odra (PLH320037). Execution of the Sub-Task will not significantly impact the subjects and objectives of protection of the areas specified above for the following reasons:

- The closest stretch of a protected habitat (riparian forest – 91E0) is about 220 m away from the site boundaries. The works will not encroach on the site.

- The implementation of the Sub-Task does not contradict the protection measures for species recorded in the vicinity of the project (Eurasian beaver, otter), its implementation will not contribute to reducing their population.

- The measures related to the implementation and use of the Sub-Task are not included in the catalogue of threats to the species identified (lapwing, gadwall, heron) as listed in the plan of protection tasks ("PZO").

- The Sub-Task may potentially limit nesting possibilities for the black stork due to forest clearance for the purposes of the earth flood embankments. Commercial forests intended for clearing are less attractive as nesting sites than wetland forests (e.g. willow gallery forests) in the near vicinity, which are also located at a greater distance from buildings. Therefore, the actual impact in terms of loss of potential nesting habitats is assumed to be insignificant.

The investment works can temporarily disturb fauna but after the Sub-Task's completion and due to its nature no significant impact on fauna should be expected. In result of the disturbance animals can temporarily migrate to adjacent areas of similar habitat profiles. The expected impact will be transitory and spatially limited. Overall, the impact will not be relevant and will not significantly reduce the area's biodiversity.

As its scale is local and there is no fragmentation of valuable habitats and structures ensuring ecological continuity, the Sub-Task's implementation will not affect the integrity of Natura 2000 sites or the continuity of wildlife corridors.

Modernization of pump station Krajnik

Given the specific nature of the works (renovation of the existing flood protection infrastructure), the implementation of the Sub-Task will not cause damage to natural habitats or habitats of species that are subject to protection in Natura 2000 sites: Lower Odra Valley PLB320003 and Lower Odra PLH320037 and will not affect the continuity of wildlife corridors. The impact of the construction and assembly works will be limited to disturbance.

5.9 CULTURAL LANDSCAPE AND HISTORICAL BUILDINGS

No archaeological sites have been found in the locations of individual Sub-Tasks; therefore, the risk of destroying such assets is negligible. It should be noted, however, that, under Articles 32 and 33 of the Act of 23 July 2003 on the protection and care of historical monuments (Polish Journal of Laws 2018, item 2067), if an object which may be a historical monument is discovered during work, such work should be suspended and the relevant authority (the voivodeship conservator or the mayor) should be notified.

5.10 TANGIBLE PROPERTY

The purpose of Contract 1A.2 is to protect tangible assets by reducing the flood risk. As for the projects planned in Ognica and Krajnik, the residential and commercial buildings are outside the range of direct impact of the construction works; in the case of the projects planned in Piasek and Gryfino, the buildings are located at a relatively short distance from the planned construction sites; therefore, there may be an impact on the above mentioned buildings located in the vicinity. However, these impacts will be short-term and linked to the stage of the construction works.

The implementation of the Contract does not require resettlement and demolition of residential buildings; the projects carried out as part of Sub-Tasks will, at the operation stage, have a

positive effect on residents and tangible assets by increasing flood protection. The Contractor will be responsible for planning, organizing and conducting construction works in such a way that no threat to tangible goods will arise. The Contractor will also be responsible for any damage caused by him or his subcontractors to buildings, structures, roads, elements of technical infrastructure (ditches, culverts, transmission networks), as well as information boards, cultural assets, etc. Therefore, no adverse impact on tangible goods is expected.

The matters related to the social context of the implementation of Contract 1A.2, including those concerning expropriation, restriction of the existing use or access to the property, are described in more detail in the Land Acquisition and Resettlement Action Plan (LA&RAP) for the Contract.

5.11 HUMAN HEALTH AND SAFETY

5.11.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The construction stage involves earthworks, construction and transport. This work is carried out using heavy equipment. All activities will be carried out in accordance with health and safety rules on the construction site, so no impact of the construction stage on human health is expected. The work may temporarily affect the living conditions of the residents of the nearest houses. During the construction stage, the following impacts may temporarily affect the living conditions of people in the vicinity of the construction site on which the work will be carried out:

- traffic noise and noise from the operation of construction equipment,
- vibrations resulting from the work or vehicle traffic close to the buildings,
- traffic pollution emissions (exhaust fumes, dust) and pollution associated with the operation of construction equipment,
- traffic inconvenience along the route of special vehicles delivering structural elements to the place where the work is carried out,
- accident risk.

The impact on the living conditions of the general public will be spatially limited (to the immediate vicinity of the fenced-out construction site) and transitory (limited to the duration of the construction and installation works), and all nuisance or inconvenience will disappear when the work is completed. Work sites should be properly marked and secured against access of third parties. Given the short duration of the work, no significant adverse impact on living conditions and human health are expected.

5.11.2 Flood protection of Ognica

The impact will be of similar nature to what is described in subchapter 5.11.1. Given the distance to the closest buildings, the type of tangible goods at the site (mainly arable land), and the technologies to be applied, no significant adverse impact on the population and tangible goods is expected.

5.11.3 Flood protection of Piasek

The impact will be of similar nature to what is described in subchapter 5.11.1. In addition, as the Sub-Task is located in a village and the land is partly developed, there may be temporary difficulties in using the land directly adjacent to the construction site.

5.11.4 Modernization of pump station Krajnik

Given the distance of the Sub-Task from built-up areas and the scope of the works, the implementation and operation stages are not expected to affect human health, living conditions and tangible goods.

5.12 EXTRAORDINARY RISKS FOR THE ENVIRONMENT

Extraordinary circumstances resulting in environmental risks in relation to the Contract may be considered a flood during the period in which the works are carried out in the vicinity of: Piasek, Ognica and Gryfino. When flood water passes the area there may be construction machinery, building materials, and other elements of infrastructure or equipment of construction sites there. Such flood waves are extreme events. However, the arrival of the flood wave can be predicted well in advance and preventive measures can be taken - evacuation of equipment and people from danger zones.

Another type of extraordinary risk is leakage of oil derivatives or other substances harmful to the soil and water environment. To this end, however, appropriate precautionary measures are taken with regard to the proper organization of construction sites and back-up facilities, regular inspections of the construction equipment used and the use of neutralizing substances in the event of a leak.

Another type of extraordinary risk to the environment and human health and safety is the possibility of discovering unexploded ordnance or misfires. In such a case the Contractor should immediately stop the works and evacuate workers as well as notifying the police, a licensed ordnance disposal unit, the Investor and the Engineer. The Contractor is also obliged to ensure permanent ordnance disposal supervision during the earthworks, which is to include regularly checking and clearing the area of dangerous objects of military origin and disposing of them. After the ordnance disposal supervision is completed, the Contractor will prepare a report and present it to the Engineer.

At the performance stage, there is a risk of an emergency situation, i.e. fire (e.g. in result of equipment failure, negligence, explosion of flammable substance, lighting, etc.). Such a situation poses a threat to both the Contractor's personnel and the environment. However, to minimize the probability of such situations, e.g. only equipment in proper technical condition will be used and will be properly operated and maintained.

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. Pursuant to the regulation of the Minister of Health on announcing the state of epidemic in the territory of the Republic of Poland dated 20 March 2020 (Polish Journal of Laws, item 491, as amended), the state of epidemic was imposed on 20 March 2020 in Poland until further notice due to SARS-CoV-2 infections. The regulation (and/or other legislation in force during the

Contract) introduce a number of restrictions and requirements for citizens, companies and institutions. All participants of the investment process are obliged to follow the guidelines that were announced.

5.13 OTHER ES RISKS

The implementation of Contract 1A.2 may involve a number of ES impacts (i.e. environmental, social and health and safety aspects). In addition to the matters discussed earlier in sections 5.1-5.12, there may be additional related problems or threats during the Contract such as:

- § accidents and near misses involving persons engaged in the implementation of the Contract and/or third parties;
- § incidents of unacceptable behavior in the workplace, such as sexual harassment or bullying;
- § intentional or unintentional violations of labor law, including those related to welfare and staff working and pay conditions;
- § infections with sexually transmitted diseases (including HIV/AIDS) and other infectious diseases (including those caused by coronaviruses, e.g. COVID-19), due to lack of knowledge of, or failure to comply with, the existing rules on the prevention and control of such infections.

Given the significant social impact of the above mentioned threats, this Environmental Management Plan and other Contract documents contain a number of detailed conditions aimed at preventing and responding effectively in such events and ensuring proper implementation of all the provisions of national law applicable in this respect (see, inter alia, Chapter 6.13).

5.14 CUMULATIVE AND TRANSBOUNDARY IMPACTS

Matters relating to the cumulative impact for the Flood protection of Ognica and Flood protection of Piasek Sub-Tasks were analyzed in the environmental impact assessment procedures. According to the information contained in the statements of reasons for the decisions on environmental constraints issued for the above mentioned projects (see Annex 4), the cumulative impacts were considered in particular in the context of the tasks carried out on the Odra River within the framework of the Odra-Vistula Flood Management Project and the maintenance works included in the Water Maintenance Plan (Resolution No. 13/2016 by the Director of Regional Water Management Board in Szczecin dated 19 December 2016 on the water maintenance plan for the Lower Odra and Przymorze Zachodnie water region and the Ücker water region). As it transpires from the statements of reasons for the environmental decisions concerning the above projects, their implementation does not involve any accumulation of impacts with respect to the projects planned under the Odra-Vistula Flood Management Project; however, to avoid impacts cumulative with maintenance works it is necessary to coordinate the dates of these works in relation to the projects that are planned. As to the ‘Modernization of the wharf for the RWMA icebreakers base in Gryfino’ and

'Modernization of pump station Krajnik' Sub-Tasks, with a small scale of the emissions (noise, substances into the air) and its potential range, it is predicted that there will be no accumulation of impacts on a scale that would cause any significant threats to the abiotic or biotic environment.

Even though the Sub-Tasks are to be implemented in the vicinity of the border between the Republic of Poland and the Federal Republic of Germany (from approx. 300 m to 2300 m), with the nature, location and scale of these Sub-Tasks, the related impacts will not affect areas outside Poland. It was not found during the administrative proceedings that there could be any transboundary impact.

6 DESCRIPTION OF MITIGATING MEASURES

In order to limit the adverse impact of the planned Contract on the environment, Annex 1 to EMP provides a list of mitigating measures required of the Contractor executing the Contract 1A.2. The agreed contract price covers all costs of implementing EMP, and the Contractor agrees under the contract to cover all the related costs. The Bidder (Contractor) shall submit EMP which is part of the Bidding Documentation after it has been signed (on every page) together with the bid. Therefore, the Contractor acknowledges the obligation to meet the requirements specified therein at every stage of the Contract's performance. The Contractor shall reflect the conditions of Contract implementation arising from EMP in the schedule of works.

The measures in EMP were developed on the basis of the conditions contained in the binding administrative decisions in the field of environmental protection as issued for the Contract, with the addition of conditions established at the stage of preparing EMP. The mitigating measures to be implemented should ensure that the Contract is performed in line with the guidelines of the World Bank (The Environmental, Health, and Safety (EHS) Guidelines). The requirements for the construction stage are set out in the General EHS Guidelines[32], in particular in point 4 (Construction and Decommissioning).

In order to supervise and monitor the mitigating measures included in EMP, a dedicated EMP coordinator in the Contractor's team will be appointed within the Contractor's structure (see Chapter 9.4).

Below is a selection of characteristic mitigating measures broken down into individual environmental components discussed in Chapter 5 of EMP.

6.1 LAND SURFACE AND LANDSCAPE

The adverse impact on land surface and landscape will be mitigated by implementing the following mitigating measures described in Annex 1 to EMP), which will, among other things, serve the purpose of:

- restoring or maintaining the transformed space (items 31, 32, 39, 99, 102, 103, 104);
- siting temporary acquisitions in such a way as to minimize the area and the impact on landscape visual amenity (items 3, 54),
- minimizing adverse perception of the landscape during the implementation stage (items 1, 23, 45, 48, 55, 56, 80, 94);
- maintaining facilities created as a result of Sub-Task implementation (items 69, 100).

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

6.2 CLIMATE

In the case of this Contract, no mitigating measures were found to be necessary to protect the climate.

6.3 SANITARY CONDITION OF ATMOSPHERIC AIR

The basic ways in which the planned performance of Contract 1A.2 could have adverse impact on the atmospheric air are discussed in Chapter 5.3.

To mitigate these impacts, Annex 1 to EMP introduces mitigating measures which, among other things, serve the purpose of:

- reducing air pollution by exhaust fumes (e.g. items 77, 97);
- reducing air pollution resulting from dust emissions (e.g. items 46, 49, 88, 93).

6.4 SOIL AND LAND

The adverse impact on soil surface and land will be mitigated by implementing the following mitigating measures described in Annex 1 to EMP), which will, among other things, serve the purpose of:

- limiting soil resource losses related to land acquisitions (items 1, 23, 33, 34, 37, 39, 45, 54, 55, 99, 100);
- safe handling of waste (items poz. 60, 61, 62, 63, 64, 65, 66, 67, 68, 127),
- reducing the risk of soil contamination at the stage of the works (items 7, 38, 48, 51, 52, 56, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 94, 95, 118).

6.5 SURFACE WATER AND GROUND WATER

The adverse impact on surface water and ground water will be mitigated by implementing the following mitigating measures described in Annex 1 to EMP), which will, among other things, serve the purpose of:

- safe handling of waste (items poz. 60, 61, 62, 63, 64, 65, 66, 67, 68, 127),
- limiting the risk of water parameters changing at the works stage (7, 24, 25, 26, 27, 28, 29, 30, 35, 36, 48, 51, 52, 55, 56, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 94, 95, 118).

6.6 ACOUSTIC CLIMATE

The adverse impact on the acoustic climate will be mitigated by implementing the following mitigating measures described in Annex 1 to EMP, mainly aimed at reducing noise generated at the stage of works (items 4, 20, 49, 76, 77, 96, 97).

6.7 NATURE

The adverse impact on nature will be mitigated by implementing the following mitigating measures described in Annex 1 to EMP), which will, among other things, serve the purpose of:

- limiting losses of natural resources related to land acquisitions and substances used (items 2, 3, 5, 6, 16, 17, 88);
- limiting losses of natural resources related to clearing trees and shrubs (items 69, 70, 71, 72, 73, 74, 75);
- eliminating or reducing losses of natural resources related to accidental mortality of specimens of protected species (items 8, 12, 15);
- eliminating or reducing the impact of the works on the results of breeding of protected animal species (items 18, 20, 21, 22, 53, 57, 58);
- eliminating or reducing the impact of the works on the conditions of migration of protected animal species (items 15, 45);
- reducing the impact of the works on the condition of natural habitats and habitats of protected species at the construction site and in its immediate vicinity (items 13, 14, 19, 21, 23, 28, 29, 59);
- eliminating or reducing the impact of the works on the spread of invasive plant species of foreign origin (item 12).

6.8 CULTURAL LANDSCAPE AND HISTORICAL BUILDINGS

The adverse impact on monuments will be mitigated by implementing the following mitigating measures described in Annex 1 to EMP), mainly aimed at:

- implementing appropriate procedures if movable monuments or archaeological sites are discovered during the works (107, 108, 109, 110),
- preserving the cultural and natural landscape values (items 101, 102, 103, 104, 105, 106, 108).

6.9 TANGIBLE PROPERTY

According to the information provided in chapter 5.10, the matters related to land purchases or changes in land use, as well as the problems, if any, related to the impact of the Contract on the areas of temporary acquisitions and their surroundings, are discussed in detail in the Land Acquisition and Resettlement Action Plan (LA&RAP) for the Contract[33] and the World Bank's Operational Policy. 4.12[34]. LA&RAP contains a detailed list of measures and procedures related to the acquisition of land for the implementation of the Contract. The activities of acquiring land for the projects are also carried out in accordance with the procedures set out in LARPF (Land Acquisition and Resettlement Policy Framework[35]). Objections to and comments on the resettlement action plan and any reservations about resettlement are classified under Polish law as complaints and requests (*Grievance Redressal Mechanism*). This mechanism also includes filing and managing any complaints that may be made during the project by persons or entities affected in any way by the project. This is discussed in detail in the POM for the OVFMP Project[36].

In order to limit the potential impact of the works on tangible goods, mitigating measures were introduced in Annex 1 to EMP to ensure the protection of buildings, roads and other infrastructure elements against adverse impact of works and/or transport related to the implementation of Contract 1A.2 (items 23, 101, 102, 103, 104, 105, 106).

6.10 HUMAN HEALTH AND SAFETY

The adverse impact on human health and safety will be limited by implementing the following mitigating measures described in Annex 1 to EMP), which will, among other things, serve the purpose of:

- limiting the impact of the Sub-Task on the sanitary condition of atmospheric air (items 46, 49, 77, 88, 93, 97);
- limiting the impact of the Sub-Task on the acoustic climate, including vibrations (items 4, 20, 49, 76, 77, 96, 97);
- eliminating or reducing the risk of chemical contamination of water and soil at the stage of the works (items 7, 24, 25, 26, 27, 28, 29, 30, 35, 36, 38, 48, 51, 52, 55, 56, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 94, 95, 118);

[33] Link to download the LA&RAPhttp://bs.rzgw.szczecin.pl/files/assets/1/RAP%201A.2/20201023%20PPNiP%201A.2%20upublicznienie.pdf
[34] http://documents1.worldbank.org/curated/en/206671468782373680/pdf/301180v110PAPE1ettlement0sourcebook.pdf
[35] http://odrapcu2019.odrapcu.pl/doc/OVFMP/Ramowy_dokument_dotyczacy_Przesiedlen_i_Pozyskiwania_Nieruchomosci.pdf
[36] http://odrapcu2019.odrapcu.pl/doc/POM_PL.pdf

- ensuring safety on the site and in its vicinity (items 1, 40, 41, 42, 43, 44, 46, 47, 49, 50, 52, 98, 101, 102, 103, 104, 106, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 138),

- ensuring appropriate response in emergencies (items 84, 85, 121, 123, 125, 126, 129, 149);

- specific requirements of the World Bank's ES policies (items 139, 140, 141, 142, 143, 144, 145, 146, 147, 148).

6.11 EXTRAORDINARY RISKS FOR THE ENVIRONMENT

It is the Contractor's obligation to first prevent risk and, if they materialize, to limit their consequences. The basic risks are described below; however, the list of these risks is not exhaustive and risks other than those listed in EMP can also occur.

The adverse impact of the Contract in the event of extraordinary risks will be limited by implementing the following mitigating measures described in Annex 1 to EMP, which will, among other things, serve the purpose of:

Flood

Prior to the commencement of the works, the Contractor will prepare an appropriate flood protection plan (Site Flood Protection Plan) and obtain the Engineer's approval of its content. This document will describe, among other things, the procedures to be followed if such events occur (see Chapter 6.13). In the event of flood, the Contractor shall follow the procedures described in the aforementioned document, and, in particular, if high water levels on the Odra River are anticipated, the Contractor shall protect the construction site against adverse effects of surface water flow, evacuate people, equipment and materials accordingly, and prevent water pollution with substances and materials originating from the construction site, including hazardous ones. The requirement to prepare and approve the above mentioned plan is provided for in Annex 1 to EMP, item 125.

Unexploded bombs or munitions

The Contractor is obliged to ensure permanent ordnance disposal supervision during the earthworks, which will include performing an ordnance disposal survey and regularly checking and clearing the area of dangerous objects of military origin (e.g. unexploded bombs or munitions) and disposing of them. The workers who carry out the works are not allowed under any circumstances to lift, unearth, bury, carry or throw any unexploded ordnance that has been found into fire or dispose it into rivers, canals, old river beds, ditches, etc.

The mitigating measures for the risks of finding unexploded ordnance are specified under item 129 of Annex 1 to EMP.

Fire

Fire protection in the Contract implementation area is the responsibility of the Contractor. At the performance stage, there is a risk of an emergency situation, i.e. fire (e.g. in result of

equipment failure, negligence, explosion of flammable substance, lighting, etc.). The risks and consequences of such events are mitigated by strictly following health and safety regulations, organizing the site back-up facilities properly and maintaining the proper technical condition of vehicles, machinery and equipment used on site, and, if such events occur, strictly complying with the procedures for emergency and crisis situations.

A detailed fire procedure will be included in the SHP (Safety and Health Plan) prepared by the Contractor (see Chapter 6.13.). The requirement for the Contractor to prepare an SHP and obtain its approval from the Engineer is specified in item 121 of the table in the Annex 1 to EMP.

Epidemic threat

If there is an epidemic crisis situation or an epidemic alert during the works, the Contractor shall be obliged to act in accordance with the legal requirements, including in particular the Act of 5 December 2008 on preventing and combating infections and infectious diseases in humans (consolidated text: Polish Journal of Laws 2019, item 1239, as amended), all the obligations resulting from the announcement of an epidemic alert or an epidemic crisis situation and the relevant guidelines of the World Bank. The Contractor's actions should reduce the risk of spreading the infection to the staff of the Contractor, the Contracting Authority, the Engineer and the local community. Guidelines on how to act in the epidemic crisis situation or in the situation of epidemic alert are provided in item 149 of Annex 1 to EMP.

Notwithstanding the above, the Contractor shall, in accordance with item 131, implement an awareness-raising program on spreading infectious diseases (e.g. COVID 19).

6.12 OTHER ES RISKS

Examples of additional ES-related risks (other than those discussed earlier in Chapters 5.1 to 5.12) are presented in Chapter 5.13.

In order to address these risks, in addition to the measure listed in chapters 6.1 to 6.11, Annex 1 to EMP introduces additional mitigating measures, such as:

- § preventing accidents and near misses on the site and in other places related to the performance of the Contract (e.g. items 116, 117, 123, 143, 144, 145 and other listed in Chapters 6.10 and 6.11);
- § counteracting unacceptable behavior in the workplace, such as sexual harassment or bullying (e.g. items 139, 140, 141, 147);
- § ensuring appropriate welfare conditions and lawful work and pay conditions for the staff involved in the implementation of the Contract (e.g. items 142, 146);
- § ensuring appropriate procedures for ongoing reporting of any problems or threats related to the above mentioned topics (e.g. items 141, 142);

- reducing the risk of spreading infectious diseases, especially sexually transmitted diseases (including HIV/AIDS) and diseases caused by coronaviruses (e.g. COVID-19) (e.g. items 131, 149).

6.13 REQUIREMENTS FOR THE IMPLEMENTATION OF ACTION PLANS AT THE CONSTRUCTION STAGE

In order to ensure proper organization of the works and proper implementation of the conditions specified in Annexes 1 and 2 to the Environmental Management Plan, the Contractor is obliged to prepare, obtain the Engineer's approval of, and then implement the following documents (see also items 1, 84, 121, 122, 123, 124, 125, 127, 148 in Annex 1 to EMP):

- The construction and work management plan which should, among other things, include such elements as:
  - the location of the back-up facilities,
  - the use of the back-up facilities,
  - how the back-up facilities are to be secured,
  - haul roads,
  - environmental protection in the back-up facilities, haul roads and yards.
- The waste management plan which should, among other things, include such elements as:
  - the types and quantities of waste found and anticipated,
  - the ways of preventing the adverse impact of waste on the environment,
  - the method of waste management, including collection, transport, recovery and disposal of waste,
  - the type of waste generated and how it is stored.
- The quality assurance plan which should, among other things, include such elements as:
  - the organization of the works,
  - the traffic management on the construction site with the marking of the works,
  - health and safety and environmental protection,
  - a list of working groups,
  - the responsibilities of key personnel,

- quality control,
- laboratory tests.

Quality assurance plan should be prepared for every type of the works, as one document or separately, as detailed quality assurance plans.

§ The site flood protection plan for the duration of the works which should, among other things, include such elements as:

- the monitoring of the hydrological and meteorological situation,
- the conditions for the passage of freshet flows during the period in which the works are executed,
- the working rules for the Contractor's team in the period of flood risk,
- the basic responsibilities of key members of the Flood Protection Team,
- a list of persons with roles at the time of flood risk,
- a list of equipment and vehicles needed for rescue operations.

§ A plan for dealing with uncontrolled emissions (leakage) of oil derivatives or other substances harmful to the soil and water environment - Spillage procedure which should include, among other things, information on how to deal with the spillage of chemical and oil-derived substances, i.e.:

- mode of equipping with appropriate materials for expected threats and substances;
- mode of alerting and notifying individual services,
- procedures for constraining spill range,
- handling of sorption materials,
- For the Spill procedure, the Contractor shall particularly consider work with the use of boats (if such technology is to be used) and works within water courses and their immediate vicinity.

The Contractor shall develop a work and health safety plan, which should include among others the following elements:

- indicating components of lot or area management which might endanger human safety and health,
- information concerning anticipated risks occurring during construction works, determining threat scale, types and a location and time of their occurrence,

- information on designating and marking the construction site, depending on the threat type,
- information on the manner of instructing employees before commencement of particularly dangerous works,
- determining a method for storing and transporting materials, substances and preparations which are dangerous on the building site,
- determining technical and organizational measures preventing dangers resulting from completing construction works in zones of risk to health or in their vicinity, including those ensuring safe and effective communication, enabling swift escape in case of fire, faults or other emergency,
- determining a location where the construction site documentation and documents necessary for proper machine and other equipment operation are to be stored,
- information about solving problems related to epidemiological risk including those related to COVID-19 (attention should be paid also to other information about works under pandemics as specified in Annexes 1 and 2 to EMP).

When preparing the above documents the Contractor should take into account, among others, the provisions of the decision on environmental constraints (and other administrative decisions related to environment protection, if applicable), conditions specified in EMP, relevant Operational Policies and Procedures of the World [37]Bank concerning environmental and social issues, World Bank Guidelines on Environment Protection, Environment, Health and Safety (EHS Guidelines), [38]ES Code of Conduct and conditions resulting from Polish legal acts in force (including Labor Code, Building Law, etc.).

6.14 MITIGATING MEASURES DURING OPERATION

Embankment operation in the vicinity of Piasek means the necessity for maintaining them in proper technical condition, among others periodic mowing plants growing embankments using agricultural equipment.

In the period of reporting defects the Contractor will be responsible for mowing embankments and reclaimed areas for temporary acquisition. Mowing should take place at least twice a year. The mowing schedule should be determined by the Contractor's wildlife supervision team and approved by the Engineer (see item 100 in Annex 1 to EMP).

[37]https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx#S3-2 (in In*vestment Project Financing / Environmental and Social Safeguard Policies*).

[38]https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/EHS-Guidelines/ and https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=jOWim3p

Continuity of the cannal in the vicinity of Ognica will have to be maintained through removal of alluvial deposits and vegetation (both aquatic and growing on the banks) and carrying out necessary works if channel banks are damaged. In the period of reporting defects, the Contractor shall be responsible for the above tasks.

7 DESCRIPTION OF MONITORING MEASURES

7.1 ENVIRONMENTAL MONITORING DURING CONSTRUCTION PERIOD

Annex 2 to EMP includes a set of monitoring measures that are obligatory to the Contract 1S.2 Contractor. Those measures have been developed basing on the terms included in the valid decisions on environmental conditions, supplemented with additional terms determined at the stage of EMP preparation.

7.2 ENVIRONMENTAL MONITORING DURING OPERATION PERIOD

Infrastructure implemented within such Sub-Tasks as Flood protection of Piasek, Modernization of the RZGW icebreaker base wharf in Gryfino and Flood protection of Ognica are not related to the use of substances dangerous to the environment or emission of substances or energy into the environment. Monitoring of that infrastructure will be limited to maintenance on a current basis to ensure it protects against flooding.

The infrastructure implemented in the course of Sub-Task Modernization of pump station Krajnik uses electric power, the installations generate noise and vibration of small amplitude during operation. Monitoring of the facility will be carried out by the owner or administrator and will consist in periodic checks of installed equipment performance, among others to reduce energy emission into the environment.

8 PUBLIC CONSULTATIONS

8.1 PUBLIC CONSULTATIONS ON THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (2015)

The draft of this document will be subject to a public consultation procedure conducted in accordance with World Bank Operational Policy OP 4.01. Their aim was to make it possible for the public to familiarize with the document contents and to provide their comments, queries or proposals.

The documentation of the ESMF public consultation procedure is available on the website of Odra-Vistula Flood Management Project Coordination Unit[39].

8.2 PUBLIC CONSULTATIONS AT THE EIA STAGE

8.2.1 Upgrade of the wharf of RZGW icebreaker base in Gryfino.

The Sub-Task has not been considered an undertaking that could significantly impact the environment, so no public consultations have been held.

8.2.2 Flood protection of Ognica

As there was no need to produce any report on the environmental impact during the procedure of obtaining a decision on environmental conditions for project implementation, no public consultations were conducted.

The parties were notified of all the circumstances of the proceedings, including the petition for the decision to the other party and rights of the parties resultant from Article 10 of APC specifying that persons that have the status of a party to the proceedings can: actively take part in any stage of the proceedings, access the documentation submitted for the proceedings, express their opinion regarding the gathered materials and evidence, and make comments and proposals. According to Article 10 (1) of APC, before issuing the environmental constraints decision the Mayor of Widuchowa Municipality made it possible for the parties to express their opinions regarding the gathered materials and evidence and filed requests. Therefore, with the announcement dated 5 November 2020, the authority notified the parties of collecting the evidence necessary for issuing the requested decision, and the possibility of accessing the prepared documentation as well as expressing opinions on the collected materials and evidence and making comments and proposals, and specified the deadline for the above. None of the parties appeared in the office before the deadline to access to the documentation collected for the case. Furthermore, no comments or proposals were made in that period, therefore, based on the collected evidence, the local authority issued this decision.

[39] http://www.odrapcu.pl/doc/OVFMP/RPZSiS_Zalacznik_08_Raporty_z_procedury_upublicznienia_projektu_EMAF.pdf, http://www.odrapcu.pl/doc/OVFMP/RPZSiS_Zalacznik_09_Raporty_z_konsultacji_spolecznych_RAF.pdf

8.2.3 Flood protection of Piasek

As there was no need to produce any report on the environmental impact during the procedure of obtaining a decision on environmental conditions for project implementation, no public consultations were conducted.

The parties were notified of all the circumstances of the proceedings, including the petition for the decision to the other party and rights of the parties resultant from Article 10 of APC specifying that persons that have the status of a party to the proceedings can: actively take part in any stage of the proceedings, access the documentation submitted for the proceedings, express their opinion regarding the gathered materials and evidence, and make comments and proposals. Pursuant to z Article 10 (1) of APC, before issuing the environmental constraints decision, the Regional Directorate for Environmental Protection in Szczecin made it possible for the parties to express their opinions regarding the gathered materials and evidence and filed requests. Therefore, with the announcement dated 26 September 2019, the authority notified the parties of collecting the evidence necessary for issuing the requested decision, and the possibility of accessing the prepared documentation as well as expressing opinions on the collected materials and evidence and making comments and proposals, and specified the deadline for the above. None of the parties appeared in the office before the deadline to access to the documentation collected for the case. Furthermore, no comments or proposals were made in that period, therefore, based on the collected evidence, the local authority issued this decision.

8.2.4 Modernization of pump station Krajnik

The Sub-Task has not been considered an undertaking that could significantly impact the environment, so no public consultations have been held.

8.3 PUBLIC CONSULTATIONS ON EMP (2020)

The draft of this document will be subject to a public consultation procedure conducted in accordance with World Bank Operational Policy OP 4.01.

Once the draft LA&RAP document has been prepared, its electronic version and information about the public debate on the draft LA&RAP, its date and place will be placed on publicly available websites: Detailed information about how to access the document and how to submit motions and comments, including detailed contact particulars (email address, address of the place where the draft document can be read, office hours, telephone number and name of the contact person) will be made public on the above websites and in the local press.

Due to the present status of the COVID-19 epidemics, the plan of actions related to publishing the Environmental Management Plan follows the recommendations included in the World Bank's "Technical Note Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints on conducting public meetings".

A meeting related to publication of the document, so far organized in the form of an open debate, will be replaced with a webinar, that is, a kind of an online seminar, carried out with the use of webcast technology, which enables two-way communication between a facilitator and participants using virtual tools. The remote meeting will take place in Microsoft Teams.

The application makes it possible to prepare and conduct a webinar whose participants may share their presentations or screens, switch among several presenters and ask questions on chat (solely in writing) to which presenters respond. Participants are required just to have Internet access and a browser - they do not need to install any other application to take part in a webinar

Therefore, the notification of EMP document publication will include information on a date and time of the webinar start plus a message indicating a link is available on the investor's website, which is required to join a webinar.

A hotline will operate during EMP publicizing to allow for questions. Hotline details will be included in the notification of EMP publication.

The comments from the community that need to be included will be added to LA&RAP and the final version of the document will be prepared.

9 ORGANIZATIONAL STRUCTURE OF EMP IMPLEMENTATION

Contract 1A.2 constitutes part of Odra-Vistula Flood Management Project co-financed by the World Bank, the International Bank for Reconstruction and Development, European Union Cohesion Fund, and the State Budget. Therefore, the architecture of supervision over EMP implementation has to comply both with the Polish legal regulations and World Bank requirements.

9.1 ODRA-VISTULA FLOOD MANAGEMENT PROJECT COORDINATION UNIT

The Project Coordination Unit (PCU) is responsible for overall coordination of implementation of individual EMPs within the OVFMP framework. The unit operates as an organizational unit of the National Water Management Board (NWMB), which is in turn an organizational unit of State Water Holding Polish Water (SWHPW).

PCU responsibilities include, i.a.[40]:

- Managing of tasks performed by Project Implementation Units (PIU) with respect to tasks making up the Project;
- Providing PIU technical assistance and support in completing tasks making up the Project, including use of World Bank procedures for procurement, environment protection and social issues;
- Developing annual work programs within the project and their progress evaluation;
- Supervising tasks within the project and their progress evaluation;
- Checking on a current basis and monitoring financial means for Project implementation and co-participating in management of Project funds;
- Reporting, including preparing and sending quarterly reports on Project execution to the World Bank, CEB and Steering Committee.

9.2 PROJECT IMPLEMENTATION UNIT

The Project Implementation Unit (PIU), that is State Water Holding Polish Water (SWHPW), Regional Water Management Board (RZGW) in Szczecin is directly responsible for implementation of EMP for the Contract and monitoring its progress.

In connection with the OVFMP project, a Project Implementation Unit (PEU) was designated, which is a separate organizational unit supervised by the President of State Water Holding

[40] The organizational regulations of State Water Holding Polish Water, Resolution No. 80/2019 of the President of State Water Holding Polish Water (SWHPW) of 31 December 2019 on adopting the organizational regulations by State Water Holding Polish Water (SWHPW)

Polish Water. Such a structure is transparent and the decisions are made at a very high level of management, which enhances effectiveness of Contract implementation. With relation to EMP implementation, PIU performs the following tasks:

- § EMP progress status
- § Financial management and keeping the books;
- § Preparing necessary reports with relation to EMP progress monitoring and coordination of its execution by all the parties taking part in EMP completion.

Responsibilities of PIU staff in relation to supervision of EMP implementation[41] are the following:

- § Managing, coordinating and supervising EMP monitoring performed by a Designer, Engineer and Contractor;
- § Direct supervision over Contract performance;
- § cooperation z BKP;
- § Administrative and legal supervision over EMP implementation;
- § Verification of reports on EMP progress prepared by an Engineer and Contractor;
- § Financial supervision over EMP implementation;
- § Supervision over correctness of formal procedures related to EPM implementation, following from, i.a., the Contract, Building Law, Environment Protection Law.

9.3 CONSULTANT - ENGINEER

The Engineer is to support PIU (SSWH PW RWMA Szczecin) in effective completion of the whole investment process (from developing a contract to a final settlement of accounts).

The Engineer will be appointed following the QCBS (Quality Cost-Based Selection) method, according to Guidelines for Selection and Employment of Consultants by World Bank borrowers".

According to the scope of activities specified in the Contract Engineer Agreement, the Engineer among others shall supervise EMP implementation[42] in line with the scope specified in the Engineer Contract, including:

- § Monitoring of EMP implementation performed by the Contractor;

[41] The supervision is performed among others by an environmental specialist in the PIU team.

[42]This supervision shall be performed among others by the Key Environmental Management Expert, OHSE Specialist, Supervision Inspectors and Resident Engineer.

- Monitoring of the Contractor's activities;
- Checking the quality of the built-in construction materials and works performed by the Contractor of Contract 1A2, and in particular preventing from using faulty construction materials, which are not authorized for use in the building industry;
- Representing the Investor on a building site by checking construction compliance with the project and building permit/investment permit, environment protection regulations and technical knowledge rules;
- Supervising all issues related to environment protection by an experienced specialists in the field (including the key environment protection expert) and other Engineer staff;
- no adverse environmental impact was reported.
- Carrying out additional studies if Contractor's reports have to be verified;
- Identifying issues resulting from adverse environmental impact of construction works and proposing methods for solving those problems;
- Performing checks of construction works and rough-in inspections, participating in acceptance tests and handing over installations and equipment to operation, participating in acceptance of ready structures and commissioning them;
- Approving actually performed works and removal of defects, and also, on Investor's request, checking construction site accounts.

9.4 CONTRACTOR

For completion of the construction works, the Contractor will be assigned. The Contractor will be responsible for implementation of individual EMP measures.

In the Contractor's Team an EMP Coordinator will be appointed who will be responsible for coordination and supervision of activities related to EMP implementation. Throughout the contract performance the Contractor will ensure participation of environmental specialists as needed. The Contractor will appoint an environmental supervision team of naturalists, representing the following areas: botany, herpetology, ornithology, mammalogy and chiropterology. Work of the team of experts will be coordinated by EMP Coordinator, representing the Contractor.

Throughout the project duration, the contractor will also have an OHSE specialist in their team who will be responsible for implementation of OSHE tasks.

Contractor's responsibilities in this field include:

- Performing construction works as specified in EMP, according to the Contract provisions and project documentation and in line with the legal regulations in force and requirements of the administrative decisions issued for the Contract;
- Appointing EMP Coordinator referred to under item 132 of Annex 1 to EMP;

- Ensuring permanent environmental supervision (including a team of wildlife specialists [43]referred to in item 133 of Annex 1 to EMP), ordnance disposal supervision (pursuant to item 128 of Annex 1 to EMP) and archeological supervision (pursuant to item 107 of Annex 1 to EMP);
- Ensuring the on-going OHS supervision referred to under item 143 of the Annex 1 to EMP;
- Ensuring participation of an expert in prevention against sexual harassment and mobbing referred to in item 140 in Annex 1 to EMP;
- Satisfying Engineer's recommendations (including specialists in environmental supervision and a project supervision inspector) concerning EMP implementation;
- Ensuring development of work and health safety plan, waste management plan, quality assurance plan/plans, flood protection plan for the building site in the construction period and Building Site Design;
- If needed, the Contractor's wildlife supervision team will prepare necessary documentation and proposals to obtain permits/decisions allowing for an exempt from the prohibitions related to animal, fungi and animal species conservation as specified in the Nature Conservation Act. The Contractor shall obtain the above decisions issued by RDOŚ/GDOŚ. The Contractor will be obliged to satisfy provisions of the obtained decisions concerning exempts from plant, fungi and animal species conservation;
- keeping Construction records;
- Preparing reports (i.a., monthly and final reports, reports for RDOŚ and/or GDOŚ [the scope of the latter ones exclusively within the scope resulting from decisions of the above authorities obtained at the execution stage if the Contractor obtains such decisions]);
- Preparing notes and reports concerning environment protection;
- Applying to the Investor for updates in project solutions if it is justified by the necessity of improving construction works safety or improvement in the construction process concerning EMP implementation;
- removal of defects and failures that have been reported by the Engineer and/or Investor (when the period of reporting defects, and guarantee and statutory warranty is covered with Engineer's technical support) during the construction works and in the period of reporting defects, and when guarantee and statutory warranty are valid. The Contractor is obliged to report any actions that have been performed in order to remove defects/failures. The report should be submitted to the Engineer/Investor.

[43] One member of the environmental supervision team can specialize in not more than 2 fields.

10 SCHEDULE OF EMP IMPLEMENTATION AND REPORTING PROCEDURES

EMP implementation makes it possible for the parties working on Contract preparation, execution and supervision to:

- Identify various environmental factors exerting a significant impact on environment condition, which allows for their monitoring, correcting or reducing but consequently has economic effects;
- Mitigate adverse effects of the ongoing construction works to benefit the environment and the financial outcome;
- Determine the aims and tasks to be met under the assumed environmental policy and covered with EMP, which require financial input and have measurable effects;
- Identify and eliminate possible threats and failures, prevent and eliminate environmental effects that might be related to them and result in losses which are disproportionate to the costs of prevention;
- Reasonable use of natural assets with minimum environmental damages and at optimum costs.

Besides, implementation of the recommendations and measures following from EMP may reduce or even eliminate the risk of Contract-related events and phenomena that are adverse in social, environmental and economic terms, in particular:

- A risk of disregarding environment protection issues by the Contractor while performing the Contract;
- A risk of escalation of local community protests as a result of Contractor failure to comply with the contract works technology and environmental procedures;
- A risk of additional environmental fines;
- A risk of additional environmental damages.

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

- Prior to Contractor selection, the Commissioning Party shall submit a draft EMP to PCU for reviewing;
- Then EMP will be subjected to social consultations following the procedure in force;
- At the same time the Contractor will submit a draft of this EMP to the World Bank to inform about the ongoing procedure and possibly to have the document reviewed;

- After social consultations, EMP will be supplemented with consultation results and its final version will be submitted for World Bank approval (to obtain “No Objection”); upon obtaining World Bank’s “No Objection” for this EMP, it will be published as final version following the Contract and included into tender documentation for Contractor selection;

- The inclusion shall take place by the date of Contractor selection and signing a contract with them so that the final bid price of the Contractor’s offer is related to and covers all the conditions included in EMP;
- All the Contractor’s activities shall be reported on a regular basis (once a month) in Polish and in English if needed, in paper and electronic forms, including obligations resulting from EMP and other contract documentation. The reports will be subject to Engineer’s and Contracting Party approvals.

Besides, respective parties engaged in the Contract’s performance will be obliged to perform additional tasks related to monitoring and reporting matters related to environment protection as specified in administrative decisions issued for the Sub-Tasks (item 3.5 of EMP) and presented in Annexes 1 and 2 to EMP (Mitigating Measures Plan and Monitoring Measures Plan).

According to the plan, at the works execution stage the Contractor is to prepare summary reports on nature monitoring, validated by members of the Contractor’s team wildlife supervision team and approved by the Engineer’s environmental supervision team. The Engineer will set a detailed report scope (opening report, periodic report - monthly, quarterly, ad-hoc, closing report), they also specify the deadlines.

The system of Project works progress reporting will be based on monthly reports submitted by Contractors to PIU via the Engineer, and Engineer’s monthly and quarterly reports. Also, monthly and quarterly reports on EMP implementation will be prepared as a part of monthly and quarterly reports (by the Contractors and Engineer).

PIU will quarterly report to the PCU, in the part concerning the performance of their tasks. Reports will contain the required set of information and records to enable the preparation of the quarterly report of the Project by PCU. Moreover, especially in case of problems with the implementation of tasks or subcomponents, PCU will be expected from the PIU transfer of statements and data on a monthly basis.

The following reporting procedures have been agreed:

1) Reporting
    a) reports (opening, monthly, quarterly, final) will be prepared by the Contractor and/or Contractor,
    b) a report review by the Engineer,
    c) submitting the report to the Contracting Party (for informative purposes),
    d) submitting the report to RDEP/MDEP (solely within the scope resulting from the issued administrative decisions, obtained at the execution stage if the necessity for reporting activities in question follows from those decisions),
    e) Submitting PIU quarterly reports to PCU.

f) The final report on EMP implementation prepared by the Engineer (submitted to World Bank upon PIU and PCU verification not later than 3 months from works completion).

2) IT / Data Archiving
   a) Contractor: One soft copy of each report for 5 years from the Contract end date,
   b) Engineer: One soft copy of each report for 5 years from the Contract end date,
   c) The Employer: One soft copy of each report for 5 years from the Contract end.
3) Assessment
   a) Assessing outcomes of implementation of the planned measures following from EMP on a current basis,
   b) Engineer's analysis of documentation (Contractor's reports) completed on a current basis,
   c) Providing the Commissioning Party with reliable information on the construction process with special focus on implementation of measures reducing adverse impact on the environment and recommendations following from environmental decisions,
   d) Preparing quarterly reports and submitting them to the World Bank by PCU.

Planned:

§ Ex-ante evaluation: A report prior to initiation of Contract implementation (Engineer's Report),

§ Evaluation on a current basis: Engineer's quarterly reports,

§ Ex-post evaluation:

  o A Report upon Contract completion (final reports on EMP prepared by the Contractor and Engineer),

  o A Report on EMP after the Period of reporting Defects, Guarantee and Statutory Warranty prepared by the Engineer.

11 LIST OF KEY SOURCE MATERIALS

1. Project Operations Manual for Odra - Vistula Flood Management Project. Project Coordination Office OPDOW. Wrocław, October 2015 (update July 2017).
2. Environmental and Social Management Framework Plan for Odra - Vistula Flood Management Project – the final document. RZGW in Szczecin, RZGW in Wrocław, RZGW in Kraków, Lubuskie Board of Land Reclamation and Water Infrastructure (BLRWI) in Zielona Góra, Zachodniopopmorskie BLWRI in Szczecin, Świętokrzyskie BLWRI in Kielce, Dolnośląskie BLWRI in Wrocław, Małopolskie BLWRI in Kraków, Podkarpackie BLWRI in Rzeszów, Institute of Meteorology and Water Management – State Research Institute, April 2015
3. Opinion confirming no need for completing environmental impact assessment for the project titled „Modernization of the area between embankments Osinów - Łubnica, Flood protection of Piasek", MINISTER OF MARITIME ECONOMY AND INLAND NAVIGATION dated 20 September 2019, ref.: DOK.DOK2.9750.29.2019.SW
4. Environmental constraints decision for: „Modernization of the area between embankments Osinów - Łubnica, Flood protection of Piasek", Regional Directorate for Environmental Protection in Szczecin of 31 October 2019., ref.: WONS-OŚ.420.44.2019.MB.12
5. Environmental constraints decision for the project consisting in "Flood protection of Gryfino, Ognica, and Piasek village on Odra River under Contract 1A.2 Flood protection of Gryfino, Ognica, and Piasek village on Odra River. Modernization of Marwicki Polder Stage III –pump station Krajnik" ISOR.6220.4.2020.PP (25 Nov 2020).
6. Project information sheet for: „Modernization of the area between embankments Osinów - Łubnica, Flood protection of Piasek", River Basin Management Board in Szczecin [Zarząd Zlewni w Szczecinie], May 2019
7. Project information sheet for: "Flood protection of Gryfino, Ognica, and Piasek village on Odra River under Contract 1A.2 Flood protection of Gryfino, Ognica, and Piasek village on Odra River. Modernization of Marwicki Polder Stage III - pump station Krajnik, July 2020
8. Water management plan for an investment project titled „Flood protection of Piasek", Sweco Consulting sp. z o.o., January 2020.
9. Water management plan for an investment project titled „Flood protection of Ognica", Sweco Consulting sp. z o.o., January 2020
10. Water management plan for an investment project titled "Modernization of the Marwicki Polder stage III – pump station Krajnik", Sweco Consulting sp. z o.o., May 2019.
11. Decision specifying the location of a public purpose investment consisting in modification of the existing culvert in Rynica - Ognica channel and regulation of the outlet section of Rynica - Ognica Channel, Mayor of Widuchowa Municipality of 19 September 2019, ref. no.: JSR.6733.6.2019

12 LIST OF ANNEXES

ANNEX 1 - PLAN OF MITIGATING MEASURES

ANNEX 2 - PLAN OF MONITORING MEASURES

ANNEX 3 - A LIST OF NATIONAL LAWS AND REGULATIONS RELATED TO ENVIRONMENT PROTECTION

ANNEX 4 - DECISIONS, RESOLUTIONS, PERMITS, LETTERS

a) Decision 43/2019 a decision on environmental conditions for project consisting in modernization of the area between Osinów - Łubnica embankments, flood protection of Piasek WONS-OŚ.420.44.2019.MB.12 (31 Oct 2019).
b) Environmental constraints decision for the project consisting in "Flood protection of Gryfino, Ognica, and Piasek village on Odra River under Contract 1A.2 Flood protection of Gryfino, Ognica, and Piasek village on Odra River. Modernization of Marwicki Polder Stage III – pump station Krajnik" ISOR.6220.4.2020.PP (25 Nov 20).
c) Decision of the Regional Director for Environmental Protection in Szczecin permitting for prohibited activities – Piasek, WOPN-OG.6401.00.33.2020.KA (03 Sep 2020).
d) Decision of the Regional Director for Environmental Protection in Szczecin permitting for prohibited activities – Ognica, WOPN-OG.6401.00.34.2020.KA (03 Sep 2020).
e) Decision of the Regional Director for Environmental Protection in Szczecin permitting for prohibited activities – Krajnik, WOPN-OG.6401.00.37.2020.MR (02 Oct 2020).
f) Decision of the Marshall of Zachodniopomorskie Voivodeship permitting for prohibited activities – Piasek, WRiR-I.7131.39.2020.MS (18 Aug 2020).
g) Decision of the Marshall of Zachodniopomorskie Voivodeship permitting for prohibited activities – Ognica, WRiR-I.7131.38.2020.MS (18 Aug 2020).
h) Decision of the Marshall of Zachodniopomorskie Voivodeship permitting for prohibited activities – Krajnik, WRiR-I.7131.45.MS (5 Oct 2020).
i) Decision of the Marshall of Zachodniopomorskie Voivodeship permitting for prohibited activities – Gryfino, WRiR-I.7131.40.2020.MS (18 Aug 2020).
j) Notification of the Regional Director for Environmental Protection in Szczecin of no objection for reported activities referred to in Article 118 of the Nature Conservation Act of 16 April 2004, Piasek, WOPN-OG.670.123.2020.PW (27 May 2020).
k) Permit for tree clearance in Gryfino municipality, BMP.ROŚ.6131.95.2020.AJB (22 Oct 2020).
l) Specification of tree clearance in Cedynia municipality, INF.6321.4.2020.PB (27 Oct 2020).

ANNEX 5 – MAPS OF CONTRACT LOCATIONS

ANNEX 6 – MAPS OF CONTRACT LOCATIONS AGAINST PROTECTED AREAS

ANNEX 7 – MAPS OF CONTRACT LOCATIONS AGAINST AREAS OF FLOOD RISK

ANNEX 8 – MAPS OF CONTRACT LOCATIONS AGAINST AREAS EXCLUDED FROM ZONES OF FLOOD RISK

ANNEX 9 - MAPS OF CONTRACT LOCATIONS AGAINST NATURAL HABITATS AND FAUNA OCCURRENCE SITES