State Water Holding Polish Waters
Regional Water Management Authority in Wrocław

ENVIRONMENTAL MANAGEMENT PLAN

ODRA-VISTULA
FLOOD MANAGEMENT PROJECT – 8524 PL

Environmental category B – according to OP 4.01 of WB

Component 1:

Flood Protection of the Middle and Lower Odra

Sub-component 1B:

Flood Protection on the Middle and Lower Odra

Contract for works 1B.6:

Flood protection of Nowa Sól and Below Krosno Odrzańskie

Task 1B.6/1:

Nowa Sól stage I and II

DRAFT

Issue	Date	Author	Checking person	Approval by the Client	Description
	February 16th, 2018				

ODRA-VISTULA
FLOOD MANAGEMENT PROJECT
co-financed by:
World Bank, Loan Agreement No. 8524 PL
Council of Europe Development Bank, Framework Loan Agreement No. LD 1866
Cohesion Fund of the European Union (IEOP 2014-2020)
State budget

ENVIRONMENTAL MANAGEMENT PLAN

Component: ***1 – Flood Protection of the Middle and Lower Odra***
Sub-component: ***1B – Flood Protection on the Middle and Lower Odra***
Contract: ***1B.6 – Flood protection of Nowa Sól and Below Krosno Odrzańskie***
Part of Contract: ***Implementation of Task 1B.6/1 – Nowa Sól stage I and II***

Project Implementation Unit:
State Water Holding Polish Waters
Regional Water Management Authority in Wrocław

Authors of the study:

State Water Holding Polish Waters
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PIO II OVFMP

Technical Assistance Consultant –
Joint Venture of *AECOM I&E UK Ltd, Halcrow Group Ltd, BRL Ingenierie and AECOM Polska Sp. z o.o.*

Wrocław/Zielona Góra, February 2018

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List of basic definitions and abbreviations used in the EMP

Name	Description
BGW	Body of Ground Water
BP	Bank Procedure[1]
BSW	Body of Surface Water
Consultant / Engineer / Contract Engineer	A company or a legal person providing the service of a Technical Assistance Consultant for the Investor as part of OVFMP
Contract / Contract for works	Contract for works *1B.6 – Flood protection of Nowa Sól and Below Krosno Odrzańskie*
Contractor / Task Contractor / Contract Part Contractor	A company or a legal person implementing the Part of Contract for works *1B.6 – Flood protection of Nowa Sól and Below Krosno Odrzańskie* concerning Task *1B.6/1 Nowa Sól stage I and II*
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
Environmental decision / DEC	Decision on the environmental conditions
ESMF	Environmental and Social Management Framework for OVFMP[2]
EU	European Union
GDOŚ	General Directorate for Environmental Protection
IEOP	Infrastructure and Environment Operational Programme
Investor / Employer / PIU *(since January 1st 2018)*	State Water Holding Polish Waters Regional Water Management Authority in Wrocław / OVFM Project Implementation Unit
Investor / Employer / PIU *(until December 31th 2017)*	Lubuskie Board of Amelioration and Hydraulic Structures in Zielona Góra / OVFM Project Implementation Unit
LA&RAP	Land Acquisition and Resettlement Action Plan
LSMP	Local spatial management plan
LZMIUW	Lubuskie Board of Amelioration and Hydraulic Structures in Zielona Góra
OP	Operational Policy (of the World Bank)[3]

[1] The World Bank's Operational Policies and Procedures are presented in the document entitled *The World Bank Operational Manual*, available on the following website: https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx.

[2] The document is available on the website of OVFM PCU, at the following address: http://www.odrapcu.pl/popdow_dokumenty_RPZSiSS.html. and on the World Bank's website, at the following address: http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework.

[3] See the footnote for *BP* (Bank Procedure)

ORBMP	Odra River Basin District Management Plan
PAD	Project Appraisal Document[4] for OVFMP
Part of Contract / Part of Contract for works	Part of Contract for works *1B.6 – Flood protection of Nowa Sól and Below Krosno Odrzańskie* concerning Task *1B.6/1 Nowa Sól stage I and II*
PCU / OVFM PCU	Project Coordination Unit / OVFM Project Coordination Unit
PGWWP	State Water Holding Polish Waters
PIO	Project Implementation Office – an organisational unit allocated as part of PIU
POM	Project Operations Manual[5] for OVFMP
Project / OVFMP / OVFM Project	Odra-Vistula Flood Management Project
RDOŚ	Regional Directorate for Environmental Protection
Road manager	An organizational unit fulfilling the obligations of managing public roads as defined by the *Public Road Act* or the obligations of managing a non-public road
RZGW	Regional Water Management Authority
SHP Plan	Safety and health protection plan
Task	Task *1B.6/1 Nowa Sól stage I and II*, constituting a Part of Contract for works *1B.6*
UBSW	Unified Body of Surface Water
WMP	Waste Management Programme
World Bank / WB	International Bank for Reconstruction and Development / World Bank
ZMiUW	Board of Amelioration and Hydraulic Structures

[4] The document is available on the World Bank's website, at the following address: *http://documents.worldbank.org/curated/en/320251467986305800/Poland-Odra-Vistula-Flood-Management-Project*.

[5] The document is available on the website of OVFM PCU, at the following address: *www.odrapcu.pl/lp.php?plik=doc/POM_PL.pdf*.

List of abbreviated names of legal acts used in the EMP

The names of legal acts cited in the text of this EMP are provided in abbreviated versions. Full names of those legal acts are stated on the list below.

Name in the text	Full name (with publication reference)
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 288 of 06.11.2007)
Construction Law	Act of July 7th, 1994 Construction Law (consolidated text: Journal of Laws of 2017, item 1332, as amended)
Environmental Protection Law	Act of April 27th, 2001 Environmental Protection Law (consolidated text: Journal of Laws of 2017, item 519, as amended)
EIA Regulation	Regulation of the Council of Ministers of November 9th, 2010 on projects likely to have significant effects on the environment (consolidated text: Journal of Laws of 2016, item 71)
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)
Inland Fishing Act	Act of April 18th, 1985 on inland fisheries (consolidated text: Journal of Laws of 2015, item 652, as amended)
Nature Conservation Act	Act of April 16th, 2004 on nature conservation (consolidated text: Journal of Laws of 2016, item 2134, as amended)
Public Road Act	Act of March 21st, 1985 on public roads (consolidated text: Journal of Laws of 2017, item 2222, as amended)
Waste Act	Act of December 14th, 2012 on waste (consolidated text: Journal of Laws of 2018, item 21)
Water Framework Directive (WFD)	Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (EU OJ L 327 of 22.12.2000, as amended)
Water Law	Act of July 20th, 2017 Water Law Act (Journal of Laws of 2017, item 1566 as amended)

EXECUTIVE SUMMARY

This Environmental Management Plan (EMP) concerns Task *1B.6/1 Nowa Sól stage I and II*, which constitutes a part of Sub-component *1B* within the Odra-Vistula Flood Management Project (OVFMP) and is implemented as the Part of Contract for works *1B.6*.

The EMP presents i.a. the following information:

- a short description of the OVFM Project and its Component 1, which includes the Task in question (chapter 1.1 and 1.2);
- a description of the Task constituting the subject of this EMP (chapter 2);
- characterization of institutional, legal and administrative conditions of Task implementation, including the current status of EIA procedures for the Task (chapter 3);
- a description of individual elements of the environment in the surroundings of the Task (chapter 4);
- a summary of the Environmental Impact Assessment for the Task (chapter 5);
- a description of mitigation measures aimed at eliminating or limiting the potential negative environmental impact of the Task (chapter 6) together with tables presenting those measures (Appendix 1);
- a description of environmental monitoring measures binding on the Task (chapter 7) together with tables presenting those measures (Appendix 2);
- a description of the course of public consultations conducted at particular stages of developing the environmental documentation for the Task (chapter 8);
- a description of the organizational structure of EMP implementation (chapter 9);
- an EMP implementation schedule and a description of reporting procedures (chapter 10);
- a list of source materials cited in the EMP (chapter 11);
- copies of administrative decisions in the scope of environmental protection issued for the Task (Appendix 4).

Characterization of the Task

The subject of the Task discussed in this EMP covers measures to improve the flood safety for the City of Nowa Sól through extension of flood defenses on the left bank of Odra upstream of the estuary of Czarna Struga and through extension of flood defenses and regulation works in the downstream course of Czarna Struga. The Task shall be implemented in the Lubuskie Province, nowosolski district, municipalities Nowa Sól and Otyń, in the city of Nowa Sól and in the village of Modrzyca.

Scope of the Task

The Task *1B.6/1 Nowa Sól stage I and II* consists of two stages, which include the following elements listed in chapter 2.2:

Stage I:

- expansion of flood embankment on the left bank of the Odra river, upstream of the Czarna Struga estuary, including the following:
  - raising the existing embankment, on a section of approx. 1.2 km long (downstream of the estuary of port branch in Nowa Sól);
  - demolition of the existing embankment, on a section of approx. 1.4 km long (upstream of the estuary of Czarna Struga);

  - construction of a new embankment, on a section of approx. 1.5 km long, located in a greater distance from the river and covering some areas of the land outside of the embankment (upstream of the estuary of Czarna Struga).
- expansion of flood embankment on the left bank of the Czarna Struga river, downstream of km 3+330, including the following:
  - raising the existing embankment, on a section of approx. 2.6 km long (upstream of the river estuary to Odra);
  - construction of a new embankment, on a section of approx. 0.5 km long, (upstream from the end of the previous embankment);
  - construction of roads on the downstream face of the embankment, over a length of approx.1.5 km.
- expansion of flood embankment on the right bank of the Czarna Struga river, downstream of km 3+330, including the following:
  - demolition of the existing embankment, on a section of approx. 0.2 km long (estuary section located downstream of the place of connection the Czarna Struga embankment with the newly constructed left-bank embankment of Odra);
  - raising the existing embankment, on a section of approx. 2.4 km long (upstream of the aforementioned section of the embankment to be demolished);
  - construction of a new embankment, on a section of approx. 0.4 km long, (upstream from the end of the previous embankment);
  - construction of roads on the downstream face of the embankment, over a length of approx.2.7 km.
- regulation of the Czarna Struga riverbed, downstream of km 3+330, including the following:
  - shaping of a trapezoid cross-section for the riverbed, with necessary revetments;
  - local relocation of the riverbed (approx. 0.06 km);
  - providing the river bottom with habitat elements.

Stage II:

- development of facilities protecting the Czarna Struga valley against backflows during Odra freshets, including the following:
  - construction of a flood embankment crossing the Czarna Struga valley within its estuary section (at extension of the newly constructed left-bank Odra embankment, in the section from km 432.5 to km 432.7 of the river);
  - construction of a flood protection pumping station with capacity of 10 m^3/s, discharging waters from Czarna Struga to Odra during Odra freshets;
  - regulation of the estuary section of the Czarna Struga riverbed (approx. 0.4 km), with relocation of the riverbed in a section of approx. 0.2 km and construction of a culvert in the embankment crossing the Czarna Struga valley.
- expansion of flood embankment on the left and right bank of the Czarna Struga river, upstream of km 3+330, including the following:
  - construction of embankment sections with the total length of approx. 7.0 km (downstream from the bridge in Lubieszów);
  - construction of culverts, descent roads and embankment crossings, and service roads.

- extension of embankments for the Power Channel in Nowa Sól, including the following:
  - construction of an earth-fill embankment on the left bank of the channel and construction of a reinforced-concrete retaining wall on the right bank of the channel.
- redevelopment of the existing land development, including sanitation, rainfall and piping canalizations, and power and telecommunication cables.
- demolition works along the Czarna Struga riverbed upstream of km 3+330, including the following:
  - demolition of a part of bricked wall in vicinity of km 3+400;
  - demolition of the destroyed water barrage at chainage km 3+429;
  - demolition of the existing traffic structures over Czarna Struga (reinforced-concrete bridge at chainage km 3+586, steel footbridge at chainage km 3+612, wooden and steel footbridge at chainage km 5+612);
  - demolition of an outbuilding on the right bank of the river in vicinity of km 3+710;
  - demolition of inactive chambers and sewerage outlets.
- regulation of the Czarna Struga riverbed, upstream of km 3+330, including the following:
  - shaping of a trapezoid or a rectangle cross-section for the riverbed, including necessary revetment;
  - placement of habitat elements on the river bottom.

Institutional, legal and administrative conditions

The Task is implemented in accordance with relevant national provisions of environmental protection in the scope of its characteristics, anticipated potential environmental impact and location in relation to protected areas.

The status of EIA administrative procedures

The following administrative decisions in the scope of environmental protection are among the ones issued for the Task in question in years of 2011-2014:

- a decision on the environmental conditions for the undertaking falling within the scope of stage I (including following two decisions transferring conditions under the aforementioned decisions to other administrative units);
- a decision on the environmental conditions for the undertaking falling within the scope of stage II.

The status of elements of the environment in the surroundings of the undertaking

As a result of works related to identifying the values of the natural and cultural environment it has been established that the Task implementation area and its surroundings are characterized by i.a. the following environmental conditions:

- the Task implementation area is located within the boundaries of two Bodies of Surface Water (BSW), named PLRW60002115379 *Odra od Kanału Wschodniego do Czarnej Strugi* and PLRW600019153899 *Czarna Struga od Mirotki do Odry,* and also within the boundaries of one Body of Ground Water (BGW) No. GW600078;
- the presence of the following was established in the Task implementation area and its immediate surroundings: 3 protected species of plants, 115 protected animal species and 7 types of natural habitats listed in Annex I to EU *Habitats Directive*;

- the Task implementation area is located partly within the boundaries of two Natura 2000 sites and one Protected landscape area, protected by the *Nature Conservation Act*;
- there are some objects of cultural value in the Task implementation area and its surroundings (strict conservatory protection zone, archaeological site, urbanistic and architectural group, historic building).

Summary of the Environmental Impact Assessment

Earth surface and landscape

Task implementation is related to permanent transformation of the earth surface for the construction of the flood control objects and clearance of trees and shrubs, which shall have a small influence on the landscape on a local scale.

Climate

Task implementation has no influence on the climate status.

Atmospheric air

The influence of Task implementation on the sanitary status of the air is limited in time to the construction stage and is not significant.

Soils and grounds

Task implementation is related to permanent transformation of the earth surface (including soil and grounds) for the construction of the flood control objects, as well as to the possibility of polluting the substrate at the construction stage. At the operation stage, Task implementation has no influence on the soil and ground status. If the conditions set out in Appendix 1 to the EMP are correctly fullfilled, Task implementation will not have any negative impact on the condition of soils and grounds (including the soils and grounds within protected areas listed in chapter 4.8.2).

Surface waters

Task implementation shall have a significant negative influence on the surface water status in the Body of Surface Water (BSW) *Czarna Struga od Mirotki do Odry* (by influencing the biological and hydromorphological elements of water quality), therefore this BSW received a derogation under Article 4(7) of the WFD. The Task meets the requirements of Article 4(7-9) of the WFD and therefore its implementation does not constitute a violation of WFD provisions. More information on this is provided in chapter 4.5 and 5.5. Implementation of the project shall not constitute a hazard to the achievement of the environmental objective for the remaining BSWs covered by the Task.

Groundwater

Task implementation has no negative influence on groundwater.

Acoustic climate

The influence of Task implementation on the acoustic climate is limited in time to the construction stage and is not significant.

Biotic nature

Task implementation may have a negative impact on 5 types of natural habitats and several dozen protected animal species present on the terrains of planned works and in the immediate vicinity thereof. That impact stems first and foremost from the necessary scope of land occupation, regulation works in the Czarna Struga riverbed and tree/shrub felling, and shall be

significantly reduced owing to planned mitigation measures. Task implementation does not influence the status of Natura 2000 sites nor other protected areas or natural objects.

Cultural monuments and material goods

Task implementation has no negative influence on cultural monuments.

The influence of Task implementation on the status of the remaining material goods is related to the necessity of introducing changes to the existing infrastructural objects (flood embankments, communication objects, land development elements, etc.) and changes to the use of the lands located within Task boundaries. Additional impacts related to using the existing road network as access roads to the construction site may occur at the construction stage.

Human health and safety

Task implementation does not generate significant hazards to human health and safety. These may only occur in the case of breakdowns, catastrophes and other random incidents (e.g. pollutant leak, fire, finding unexploded bombs or unfired rounds, flood). The EMP defines appropriate conditions aimed at preventing such events and minimizing their potential effects.

Mitigation and monitoring measures

Chapter 6 and 7 and Appendix 1 and 2 to the EMP describe and present in tables a set of mitigation and monitoring measures aimed at eliminating or limiting the negative environmental impact of the Task and ensuring effective implementation of EMP conditions. Those measures contain conditions defined in the issued administrative decisions in the scope of environmental protection and additional conditions established when developing the EMP.

Public consultations

Chapter 8 of the EMP contains a report of public consultations conducted as part of EIA procedures for the planned Task, including:

- public consultations for the document entitled *Environmental and Social Management Framework (ESMF)* for OVFM Project (2015);
- public consultations conducted at the stage of issuing environmental decisions for the Task (2011-2013);
- public consultations for this Environmental Management Plan (2018) – the final version of the EMP text shall be supplemented with that description after conducting the EMP draft publication procedure and completing its public consultations.

1. INTRODUCTION

This Environmental Management Plan (EMP) concerns Task *1B.6/1 Nowa Sól stage I and II*, which constitutes a part of Sub-component *1B* within the Odra-Vistula Flood Management Project (OVFMP) and is implemented as the Part of Contract for works *1B.6*.

1.1. ODRA-VISTULA FLOOD MANAGEMENT PROJECT (OVFMP)

The Odra-Vistula Flood Management Project (OVFMP) is aimed at increasing the flood protection level of people living in selected areas of the Odra river basin and the Upper Vistula river basin as well as institutional strengthening of governmental administration in the scope of ensuring more effective protection against summer floods, winter floods and flash floods.

The project has five components (including three investment components and two institutional/organizational components):

Component 1 – Flood Protection of the Middle and Lower Odra, including:

Sub-component 1A – Flood protection of areas in Zachodniopomorskie Voivodship;

Sub-component 1B – Flood Protection on the Middle and Lower Odra;

Sub-component 1C – Flood protection of Słubice city.

Component 2 – Flood Protection of the Nysa Kłodzka Valley, including:

Sub-component 2A – Active protection;

Sub-component 2B – Passive protection.

Component 3 – Flood Protection of the Upper Vistula, including:

Sub-component 3A – Flood protection of Upper Vistula towns and Kraków;

Sub-component 3B – Protection of Sandomierz and Tarnobrzeg;

Sub-component 3C – Passive and active protection in Raba Sub-basin;

Sub-component 3D – Passive and active protection in San basin.

Component 4 – Institutional Strengthening and Enhanced Forecasting

Component 5 – Project Management and Studies

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

1.2. FLOOD PROTECTION OF THE MIDDLE AND LOWER ODRA (COMPONENT 1 OF THE OVFMP)

Component 1 of the OVFM Project entitled *Flood Protection of the Middle and Lower Odra* aims to enhance protection against summer floods and winter floods to the cities of Szczecin and Słubice, to the town of Gryfino, as well as other smaller towns along the river.

Three Sub-components shall be implemented within the Component:

Sub-component 1A – Flood protection of areas in Zachodniopomorskie Voivodship, consisting of the following elements:

- 1A.1 – Chlewice-Porzecze. Backwater embankment of Odra River at Myśla River and Modernization of Marwicki polder stage I and II.
- 1A.2 – Flood protection of Ognica village on Odra River Osinów-Łubnica. Modernization of inter-embankment.
  Flood protection of Radziszewo and Daleszewo villages on Odra River at 726+400÷727+960 km.
  Modernization of Marwicki polder stage III - pump station.
- 1A.3 – Restoring natural values of Lower Odra Valley by improving retention and flood protection capacities of Międzyodrze.

Sub-component 1B – Flood Protection on the Middle and Lower Odra, consisting of the following elements:

- 1B.1 – Reconstruction and modernization of river control infrastructure on the Odra River.
- 1B.2 – Modernization works on boundary sections of Odra River.
- 1B.3 – Construction of docking-mooring infrastructure.
- 1B.4 – Improvement of flood water-flow from Dąbie Lake in winter and Dreding of Klucz-Ustowo ditch.
- 1B.5 – Reconstruction of bridges to ensure a minimum clearance (4 bridges).
- 1B.6 – Flood protection of Nowa Sól and Below Krosno Odrzańskie.
  Task 1B.6/1 – Nowa Sól stage I and II.
  Task 1B.6/2 – Wężyska – Chlebowo.

Sub-component 1C – Flood protection of Słubice city, consisting of the following elements:

- 1C.1 – Extension and construction of flood embankments and Reconstruction of Czarny Kanał and Racza Struga.

2. DESCRIPTION OF THE TASK

The Task constituting the subject of this EMP concerns the extension of the left bank flood embankment of the Odra river upstream of the estuary of Czarna Struga river and regulation of the Czarna Struga riverbed in the downstream reach, including development of facilities protecting the Czarna Struga valley against backflow of dammed Odra waters. The Project Implementation Unit (PIU) for the Task is the State Water Holding Polish Waters, Regional Water Management Authority in Wrocław.

2.1. LOCATION OF THE TASK

The Task shall be implemented in the Lubuskie Province, nowosolski district, municipalities Nowa Sól and Otyń, in the city of Nowa Sól and in the village of Modrzyca.

The left bank flood embankment of the Odra shall be rebuilt on the section from the estuary of port branch in Nowa Sól to the estuary of Czarna Struga river (length of about 2.7 km). The works in the riverbed and on banks of Czarna Struga shall cover the entire downstream section of the river, from the bridge in Lubieszów to the estuary to Odra (length of about 7.6 km).

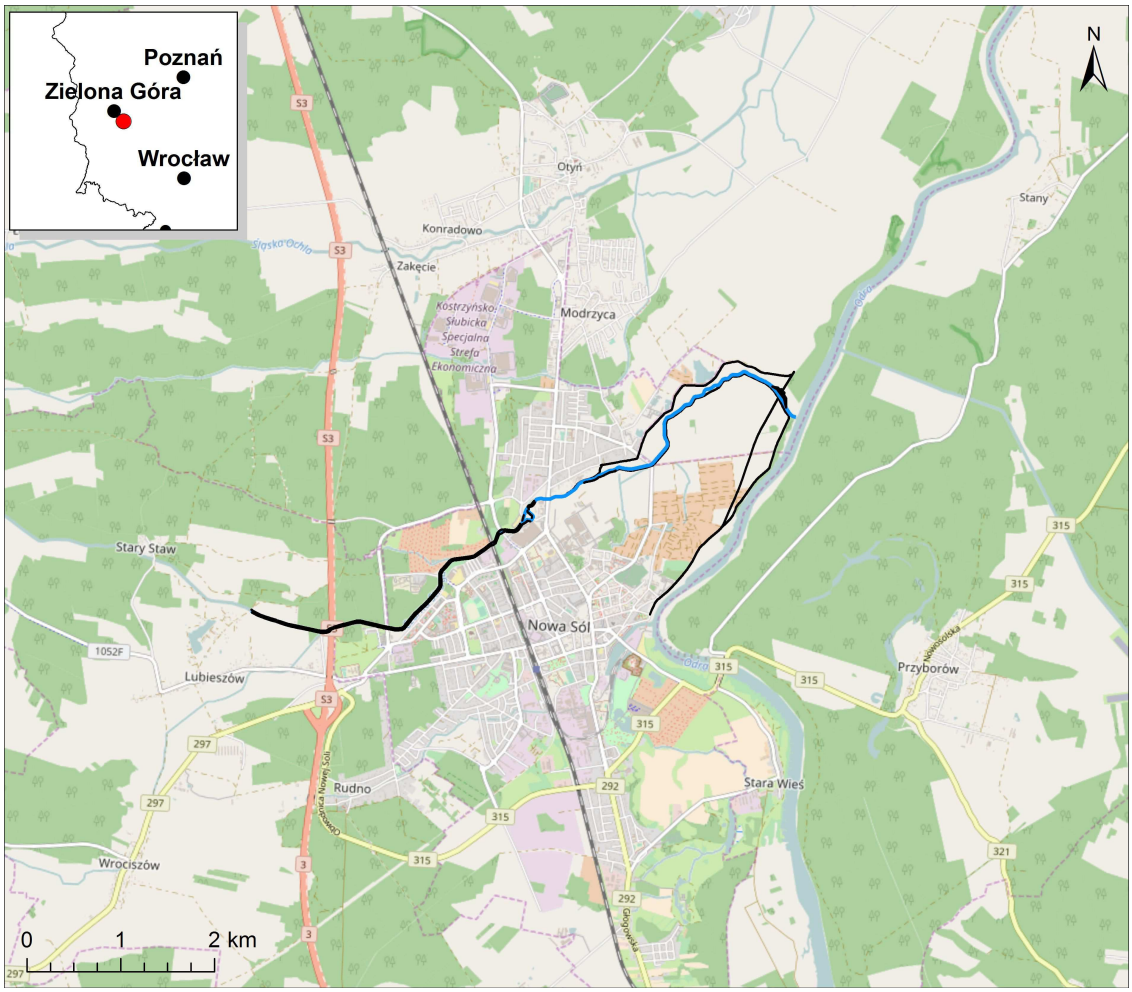

Figure 1. Task location – an overview map.
(source: © authors of OpenStreetMap; license: *http://www.openstreetmap.org/copyright*))

2.2. CHARACTERIZATION OF THE TASK

The Task constituting the subject of this EMP consists of two stages:

Stage I – includes the works associated with extension of the left-bank flood embankment of Odra in a reach of up to 2.7 km upstream of the estuary of Czarna Struga, and works in the riverbed and on banks of Czarna Struga in a reach of up to 3.3 km upstream of the estuary to Odra.

Stage II – includes the works associated with construction of a pumping station and of an embankment crossing the Czarna Struga valley in the estuary reach, and works in the riverbed and on banks of Czarna Struga in a reach from 3.3 km to 7.6 km upstream of the estuary to Odra.

Detailed information on the works included within the scope of particular stages is presented in chapters given below (see also the map in Appendix 6 to the EMP).

With respect to the environmental screening described in the *Environmental and Social Management Framework* for the OVFM Project, the proposed works are listed at item "ID 1_474_O" (ordinal number: 788) of List No. 1 in the Annex No. 2 to the *Master Plan for the Odra basin district* (2014) and at item "ID A_023_O" in Appendix No. 3 to the updated *Water Management Plan in the area of the Odra basin* (constituting an annex to the *Regulation of the Council of Ministers* of October 18th, 2016 [Journal of Laws item 1967]).

2.2.1. Stage I

The Stage I comprises the following elements of Task:

Expansion of flood embankment on the left bank of the Odra river, upstream of the Czarna Struga estuary

On the left bank of Odra (in the section from km 429.8 to km 432.4 of the river) the flood embankment shall be extended, including the following:

- raising the existing embankment, on a section of approx.1.2 km long (downstream of the estuary of port branch in Nowa Sól);
- demolition of the existing embankment, on a section of approx.1.4 km long (upstream of the estuary of Czarna Struga);
- construction of a new embankment, on a section of approx.1.5 km long, located in a greater distance from the river and covering some areas of the land outside of the embankment (upstream of the estuary of Czarna Struga).

Expansion of flood embankment on the left bank of the Czarna Struga river, downstream of km 3+330

On the left bank of Czarna Struga (in a reach of up to 3.3 km upstream of the river estuary to Odra) the flood embankment shall be extended, including the following:

- raising the existing embankment, on a section of approx. 2.6 km long (upstream of the river estuary to Odra);
- construction of a new embankment, on a section of approx. 0.5 km long (upstream from the end of the previous embankment);
- construction of roads on the downstream face of the embankment over a length of approx.1.5 km.

Expansion of flood embankment on the right bank of the Czarna Struga river, downstream of km 3+330

On the right bank of Czarna Struga (in a reach of up to 3.3 km upstream of the river estuary to Odra) the flood embankment shall be extended, including the following:

- demolition of the existing embankment, on a section of approx. 0.2 km long (estuary section located downstream of the place of connection the Czarna Struga embankment with the newly constructed left-bank embankment of Odra);
- raising the existing embankment, on a section of approx. 2.4 km long (upstream of the aforementioned section of the embankment to be demolished);
- construction of a new embankment, on a section of approx. 0.4 km long (upstream from the end of the previous embankment);
- construction of roads on the downstream face of the embankment over a length of approx.2.7 km.

Regulation of the Czarna Struga riverbed, downstream of km 3+330

In a section of Czarna Struga over a length of 3.3 km upstream of the river estuary to Odra the riverbed shall be regulated, including the following:

- shaping of a trapezoid cross-section for the riverbed, with necessary revetments;
- local relocation of the riverbed (approx. (0.06 km);
- providing the river bottom with habitat elements.

2.2.2. Stage II

The Stage II comprises the following elements of Task:

Development of facilities protecting the Czarna Struga valley against backflows during Odra freshets

Facilities protecting the upstream section of the upstream reach of the Czarna Struga valley against backwaters during Odra freshets shall be developed within the estuary section of Czarna Struga (on the left bank of Odra). The designed scope of works includes the following:

- construction of a flood embankment crossing the Czarna Struga valley within its estuary section (at extension of the newly constructed left-bank Odra embankment, in the section from km 432.5 to km 432.7 of the river);
- construction of a flood protection pumping station with capacity of 10 m^3/s, discharging waters from Czarna Struga to Odra during Odra freshets;
- regulation of the estuary section of the Czarna Struga riverbed (approx. 0.4 km), with relocation of the riverbed in a section of approx. 0.2 km and construction of a culvert in the embankment crossing the Czarna Struga valley.

Expansion of flood embankment on the left and right bank of the Czarna Struga river, upstream of km 3+330

On both banks of Czarna Struga (in a river reach from 3.7 km to 7.7 km upstream of the estuary to Odra) flood embankments shall be extended, including the following:

- construction of embankment sections with the total length of approx. 7.0 km (downstream from the bridge in Lubieszów);
- construction of culverts, descent roads and embankment crossings, and service roads.

Extension of Power Channel's embankments in Nowa Sól

Embankments shall be extended on both banks of the Power Channel (over a length of approx. 75 m), including the following:

– construction of an earth-fill embankment on the left bank of the channel and construction of a reinforced-concrete retaining wall on the right bank of the channel.

Redevelopment of the existing land development

Due to implementation of Task it is necessary to redevelop the existing land development colliding with designed objects, including sanitation, rainfall and piping canalizations, and power and telecommunication cables.

Demolition works

Due to implementation of Task it is necessary to develop the following scope of demolition works along the Czarna Struga riverbed upstream of km 3+330:

– demolition of a part of bricked wall in vicinity of km 3+400;
– demolition of the destroyed water barrage at chainage km 3+429;
– demolition of the existing traffic structures over Czarna Struga (reinforced-concrete bridge at chainage km 3+586, steel footbridge at chainage km 3+612, wooden and steel footbridge at chainage km 5+612);
– demolition of an outbuilding on the right bank of the river in vicinity of km 3+710;
– demolition of inactive chambers and sewerage outlets.

Regulation of the Czarna Struga riverbed, upstream of km 3+330

Regulation of the riverbed shall be done in a reach of Czarna Struga from 3.3 km to 7.6 km upstream of the estuary to Odra, including the following:

– shaping of a trapezoid or a rectangle cross-section for the riverbed, including necessary revetment;
– placement of habitat elements on the river bottom.

3. INSTITUTIONAL, LEGAL AND ADMINISTRATIVE CONDITIONS

3.1. INSTITUTIONS INVOLVED IN TASK IMPLEMENTATION

Until December 31th, 2017 the Task investor was the Lubuskie Province, represented by the Lubuskie Board of Amelioration and Hydraulic Structures in Zielona Góra (LZMiUW). Since January 1st, 2018 the Task investor is the newly-established unit: State Water Holding Polish Waters, Regional Water Management Authority in Wrocław (PGWWP, RZGW in Wrocław).

Moreover, at the construction and operation stages, Task implementation may require involving public administration bodies on the central, regional and local level. For the purposes of the current coordination of the Project implementation, an organizational unit named Odra-Vistula Flood Management Project Coordination Unit was established.

3.2. BINDING NATIONAL LEGAL ACTS CONCERNING THE ENVIRONMENT

Under Polish law, the investment process in the scope concerning the environment is governed by about a dozen of acts and regulations. Appendix 3 presents a list of selected primary legal acts related to the abovementioned thematic scope and binding in the period of the works on the EMP. The number and content of the legal acts listed there may change when the national provisions in the scope of environmental protection are amended. In each case, the Contractor is obliged to observe all legal regulations binding in Poland throughout the Contract term.

3.3. THE EIA PROCEDURE IN POLAND

A description of the Environmental Impact Assessment procedure binding under Polish law is included in the *Environmental and Social Management Framework (ESMF)*, published i.a. on the website of the Odra-Vistula Flood Management Project Coordination Unit[1] and of the World Bank[2].

3.4. GUIDELINES OF THE WORLD BANK

The Task in question is co-financed by the World Bank and its implementation conditions in the scope of environmental protection comply with WB *Operational Policies* and *Bank Procedures* in the scope of environmental protection, including i.a. the following policies and procedures: *OP/BP 4.01* (concerning the Environmental Impact Assessment), *OP/BP 4.04* (concerning natural habitats) and *OP/BP 4.11* (concerning cultural resources).

The source texts of the abovementioned policies and procedures are included in a document entitled *The World Bank Operational Manual*[3] and their descriptions are presented i.a. in the *Environmental and Social Management Framework (ESMF)*.

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

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

[3] On the website: https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx.

3.5. CURRENT STATUS OF EIA PROCEDURES FOR THE TASK

The following decisions in the scope of environmental protection have been obtained for the Task in question:

A) A decision on the environmental conditions for the stage I

The undertaking falling within the scope of stage I (see: chapter 2.2) belongs to group II, i.e. to undertakings which might have a potential significant impact on the environment and for which conducting an Environmental Impact Assessment may be required before issuing a decision on the environmental conditions.

The proceedings concerning issuing a decision on the environmental conditions for the stage I, during which the Environmental Impact Assessment was carried out, was concluded by issuing a decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of February 16th, 2011 on the environmental conditions (ref. No.: WOOŚ-II.4233.2.2011.TK – Appendix 4a to the EMP).

In 2012, at the request of the investor, the Regional Director for Environmental Protection in Gorzów Wielkopolski issued a decision of June 29th, 2012 transferring the aforementioned decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski from the Lubuskie Board of Amelioration and Hydraulic Structures in Zielona Góra in favour of the Lubuskie Province (ref. No.: WOOŚ-II.4233.4.2012.AN – Appendix 4b to the EMP).

In 2014, at the request of the investor, the Regional Director for Environmental Protection in Gorzów Wielkopolski issued a decision of November 14th, 2014 transferring both of the aforementioned decisions of the Regional Director for Environmental Protection in Gorzów Wielkopolski from the Lubuskie Province in favour of the Marshal of the Lubuskie Province (ref. No.: WOOŚ-II.4233.10.2014.NC – Appendix 4d to the EMP).

B) A decision on the environmental conditions for the stage II

The undertaking falling within the scope of stage II (see: chapter 2.2) belongs to group II, i.e. to undertakings which might have a potential significant impact on the environment and for which conducting an Environmental Impact Assessment may be required before issuing a decision on the environmental conditions.

The proceedings concerning issuing a decision on the environmental conditions for the stage II, during which the Environmental Impact Assessment was carried out, was concluded by issuing a decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of January 31st, 2013 on the environmental conditions (ref. No.: WOOŚ-II.4233.3.2012.AN – Appendix 4c to the EMP).

Copies of the abovementioned administrative decisions issued in years 2011-2014 are shown in Appendix 4 to the EMP.

Regardless of the above, the Contractor is obliged to obtain all further administrative decisions if it becomes necessary during Task implementation.

4. DESCRIPTION OF ELEMENTS OF THE ENVIRONMENT IN THE SURROUNDINGS OF THE TASK

This chapter describes the status of elements of the environment in the surroundings of the Task on the basis of the information contained in the EIA Reports (2009, 2010, 2012) with supplementations.

4.1. EARTH SURFACE AND LANDSCAPE

Considering the physical-geographical division of Poland, the planned investment is located within the Pradolina Głogowska mesoregion, being part of macro-region Obniżenie Milicko-Głogowskie.

The landscape surrounding the area of the planned Task is dominated by flat sculpture of the surface, which is typical for valleys of big lowland rivers. Meadows and – further on – riparian forests (elm-ash and willow-poplar ones) occur within the embanked area of Odra, over a length of approx. 1.5 km downstream of the port harbour. Developed areas of the city of Nowa Sól are located outside of the embanked area, and further on there is a huge complex of garden allotments and farm land with small quantity of trees. The embanked part of the Czarna Struga valley is of various width (from few tens to approx. 250 meters). The river in this location flows directly at the right-bank's embankment body. The Czarna Struga embanked area in a reach of up to 3 km upstream of the estuary is covered by meadows with minor quantities of trees and shrubs. In a reach from approx. 3 to approx. 7 km upstream of the estuary, the river flows through municipal areas, including housing estates, industrial development, and garden allotments (in the downstream part of this section), and through left-bank afforested area and right-bank farm lands (in the upstream part of this section).

4.2. CLIMATE

In the area of the Task in question the climate is moderate, central European, "interim", with explicit advantage of oceanic climate features. Winters are usually mild, with frequent periods of thaw, whereas summers are relatively cold, with a bit higher number of rainfalls. Because of the location in the valley of a big lowland river, the local climate is distinguished by high inversion, lower temperatures and increased air humidity, as well as high frequency of radiation fogs.

4.3. ATMOSPHERIC AIR

Sanitary condition of air in the Task implementation area does not deviate significantly from the condition typical for the surroundings of urban centers in the Lubuskie Province. Due to the fact that the level of industrialisation is relatively lower than in other parts of the country, air condition in this part of Poland is classified as good. Values of admissible air pollution can be exceeded only locally, in connection with the so-called low emission on developed areas, nearby busy transportation routes etc.

4.4. SOILS AND GROUNDS

The terrain in question, located on the areas of actual and historic floodplains of Odra and Czarna Struga rivers, is dominated by soils such as alluvial soils, locally with participation of peat soils, peat and silty soils, etc.

4.5. SURFACE WATERS

Task implementation area is located in the drainage basin of the Odra river, in the Middle Odra river basin region and in the Przyodrze's balance drainage basin. Hydrographic network within the Task is formed by the Odra river and its left-bank tributary – Czarna Struga river, with its tributaries, and by a rainfall canalization system within the City of Nowa Sól at Pleszówek.

The Odra river is a primary watercourse, approx. 855 km long, with surface area of river basin on the territory of Poland amounting to approx. 118 000 km^2. The river has its source in the Odrzańskie Mountains (in the Czech Republic) and it escapes to the Baltic Sea (through the Zalew Szczeciński).

On the section in question Odra flows through an almost straight bed north-eastwards. The river bed is regulated by a spur development with characteristic for such a development morphological elements in the bed, such as deep water zone between heads of opposite spurs, spurs and also shallowing and deepening in spaces between spurs. A part of the river's left bank in the upstream part of the section is reinforced with a band.

The Odra river is a controlled watercourse. The nearest water gauge is situated in the Nowa Sól water gauge profile, in km 429.8 of the Odra river. Design flows (Q_m) and control flows (Q_k) on the Odra section in question are:

Flow	Flow intensity Q [m^3/s]
$Q_m = Q_{1\%}$	2215
$Q_k = Q_{o,3\%}$	2675

The Czarna Struga river is a secondary watercourse, approx. 42 km long, with surface area of river basin amounting to approx. 240 km^2. The river has its source near the town Nowogród Bobrzański and it escapes to the Odra river (in km 432.4 of the Odra), as its left-bank tributary.

On the section in question Czarna Struga remains a course highly transformed by man, even within the undeveloped estuary section, where it flows within the wider embanked area. The river bed is formed in a shape of trapeze, and its numerous sections run straight.

Water relations within the downstream parts of the Czarna Struga valley (until approx. 3 km upstream to the estuary of the river) are shaped by the level of Odra river waters. In the period of average and high water levels in Odra, its waters inflow freely to the bed and valley of Czarna Struga, and cause temporary flooding for adjacent areas during higher freshets.

The characteristic flows in the cross section at the estuary of Czarna Struga river are:

Flow	Flow intensity Q [m^3/s]
SNQ	0.2
SSQ	0.9
$Q_{1\%}$	28.3
$Q_{o,3\%}$	31.2

Arrangements stemming from the *Odra River Basin District Management Plan* (ORBDMP)

Task implementation area is located in the Middle Odra water region, in the basin of two Bodies of Surface Water (BSW) named: *Odra od Kanału Wschodniego do Czarnej Strugi* (PLRW60002115379) and *Czarna Struga od Mirotki do Odry* (PLRW600019153899).

BSW Odra od Kanału Wschodniego do Czarnej Strugi

The length of watercourses in the basin of *Odra od Kanału Wschodniego do Czarnej Strugi* BSW amounts to 49.5 km, while the basin area – 68.4 km^2.

According to the binding *Odra River Basin District Management Plan*, the BSW in question belongs to type 21 – a great lowland river. *Odra od Kanału Wschodniego do Czarnej Strugi* BSW is a strongly inverted water body the status of which was assessed as bad. The environmental objective for this BSW is the achievement of a good water status by obtaining a good ecological capacity and a good chemical status, as well as enabling the migration of aquatic organisms on the Odra river section within the BSW.

The BSW in question is not threatened with a risk of failure to achieve the environmental objective according to the WFD, and therefore it has not received a derogation in the form of a prolongation of deadline for the achievement of environmental objective or establishing a less stringent environmental objective. In respect of other planned investment, which consists in the reconstruction and modernization of river control infrastructure on the Odra river on the section from the city of Ścinawa to the mouth of Nysa Łużycka river, the said BSW received however a derogation under Article 4(7) of the WFD.

Moreover, the area of *Odra od Kanału Wschodniego do Czarnej Strugi* BSW features detailed environmental objectives, set out due to the presence of protected areas, such as:

- areas sensitive to eutrophication caused by pollution coming from municipal sources (the entire area of Poland),
- areas intended for protection of natural habitats or species for which maintenance or improvement of water status is an important protection factor (Natura 2000 sites: Dolina Środkowej Odry [PLB080004], Nowosolska Dolina Odry [PLH080014], Łęgi Odrzańskie [PLB020008] and Kozioróg w Czernej [PLH020100], as well as a route for migration of anadromous subject of protection to the Natura 2000 site [TRANSIT RW6000211739], the objective of which is an ecological continuity according to needs of the salmon).

BSW Czarna Struga od Mirotki do Odry

The length of watercourses in the basin of *Czarna Struga od Mirotki do Odry* BSW amounts to 12.1 km, while the basin area – 17.6 km^2.

According to the binding *Odra River Basin District Management Plan*, the BSW in question belongs to type 19 – a sandy-clay lowland river. *Czarna Struga od Mirotki do Odry* BSW is a strongly inverted water body the status of which was assessed as bad. The environmental objective for this BSW is the achievement of a good water status by obtaining a good ecological capacity and a good chemical status.

The BSW in question is threatened with a risk of failure to achieve the environmental objective according to the WFD, and therefore it received a derogation – a prolongation of deadline for the achievement of environmental objective (by 2021.). In respect of the planned imple-

mentation of the Task constituting the subject of this EMP, the said BSW also received a derogation under Article 4(7) of the WFD.

Moreover, the area of *Czarna Struga od Mirotki do Odry* BSW features detailed environmental objectives, set out due to the presence of protected areas, such as:

- areas sensitive to eutrophication caused by pollution coming from municipal sources (the entire area of Poland),
- areas intended for protection of natural habitats or species for which maintenance or improvement of water status is an important protection factor (Natura 2000 sites: Dolina Środkowej Odry [PLB080004] and Nowosolska Dolina Odry [PLH080014].

4.6. GROUNDWATER

Task implementation area is located within the hydrological unit No XIII3, the Wielkopolski Region, the Wielkopolsko-Śląski sub-region, where the elementary aquifer horizon is in quaternary deposits, the thickness of which amounts to tens of meters. Water table has in general a free character, within the Odra river bottom slightly tensed by Surface layer of alluvial loam deposits. The planned Task is located within the Main Groundwater Reservoir (GZWP) No 302 (Pradolina Barycz-Głogów).

Task implementation area is located within the boundaries of the Body of Ground Water (BGW) code GW600078. The groundwater quantitative status and chemical status was assessed as good and the groundwater is not threatened with a risk of failure to achieve the environmental objectives.

4.7. ACOUSTIC CLIMATE

The Task shall be too a high extent implemented in the direct or close vicinity of tightly developed area – urban land of Nowa Sól. Acoustic climate of the Task implementation area is therefore mainly determined by the communication and industrial objects of the town, located in the direct neighborhood of the Task.

4.8. BIOTIC NATURE

4.8.1. Protected natural habitats and species

Natural habitats from Annex I to the *Habitats Directive*

7 types of natural habitats from Annex I to the *Habitats Directive* were determined in the area of the planned Task. They are:

- *3150* – Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation with *Nympheion* and *Potamion communities*. 2 patches of habitat were identified (in the form of oxbows), one of which is located within the left-sided embanked area of Czarna Struga (in the estuary section), and the second one – within the left-sided embanked area of Odra (downstream of the estuary of Czarna Struga).
- *6430* – mountain herbs (*Adenostylion alliariae*) and riparian herb growths (*Convolvuletalia sepium*). Numerous patches of habitat were identified within flood plains along banks of Odra and Czarna Struga.

- *6440* – alluvial meadows (*Cnidion dubii*). The habitat occurs often within flood plains, and the most advanced patches were identified on the left-bank embanked area of Czarna Struga, in a reach of up to 1 km upstream of the estuary.
- *6510* – lowland hay meadows (*Arrhenatherion elatioris*). This habitat usually occurs as a mosaic with alluvial meadows *6440*, wet meadows and sedge communities.
- *9170* – *Galio-Carpinetum* and *Tilio-Carpinetum* oak-hornbeam forests. This habitat usually occurs as a mosaic with riparian mixed forests *91F0* within the embanked area of Odra downstream of the estuary of Czarna Struga.
- **91E0* – Riparian mixed forests of willow, poplar, alder and ash tree (*Salicetum albo-fragilis, Populetum albae, Alnenion glutinoso-incanae*) as well as alder forests on percolating mires. The habitat is in the form of swathes of variable width, located on floodplains (i.e. within the embanked area) of the Odra and Czarna Struga.
- *91F0* – Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia*, along the great rivers (*Ficario-Ulmetum*). Patches of this habitat occur within the embanked area of Odra upstream and downstream of the estuary of Czarna Struga (as a mosaic with the riparian mixed forests **91E0* and the oak-hornbeam forests *9170*).

Information on the occurrence of natural habitats are also presented in the EIA Reports, prepared in years 2009, 2010 and 2012 (with subsequent additions of these reports). Location of the abovementioned natural habitats (based i.a. on data from EIA Reports) is presented on the map in Appendix 8 to the EMP.

Protected species of plants

Occurrence of 3 protected plant species was determined in the area of the planned Task.

A list of protected plant species is presented in Table 1 in Appendix 5 to the EMP.

Protected species of animals

A total of at least 115 protected animal species was identified within the impact area of the planned Task, including:

- at least 8 species of invertebrates;
- 3 species of fish;
- 8 species of amphibians;
- 84 species of birds;
- 8 species of flightless mammals;
- 4 species of bats.

A list of the above mentioned protected species of animals is presented in Tables 2-7 in Appendix 5 to the EMP.

4.8.2. Protected areas and objects

Natura 2000 sites

Task implementation area (in a part placed on the left-bank embanked area of Odra) is located within the boundaries of two Natura 2000 sites, belonging to a category of so-called habitat areas (PLH) or so-called bird areas (PLB). These are:

- "Dolina Środkowej Odry" (PLB080004)

  Protected site (with area of about 33700 ha) covers areas of the middle Odra valley (184 km of the river, including 50 km long boundary section) from Głogów to the area of Słubice. The area is especially important for the protection of breeding and migrating populations of 14 species of birds from Annex I of the Bird Directive (especially Black kite, Red kite and White-winged tern).
- "Nowosolska Dolina Odry" (PLH080014)

  Protected site (with area of about 6000 ha) covers areas of the middle Odra valley (42 km of the river) from the area of Czerna to Milsko. The area is especially important for 10 types of natural habitats from Annex I of the Habitat Directive and for 9 species of animals from Annex II of the Habitat Directive (including: 1 species of insects, 4 species of fish, 2 species of amphibians and 2 species of mammals).

Other protected areas and objects

Task implementation area (in a part placed on the left-bank embanked area of Odra) is located within the boundaries of one protected area, other than Natura 2000 sites. This is:

- Protected Landscape Area "Nowosolska Dolina Odry"

  Protected site (with area of about 10700 ha) covers parts of the middle Odra valley from the area of Czerna to Cigacice (about 62 km of the river), with numerous ox-bow lakes, riparian forests and flood meadows.

In addition, approx. 1.5 km north-west of the Task implementation area there is 1 more protected area: Protected Landscape Area "Dolina Śląskiej Ochli" (beyond the reach of the Task).

Location of aforementioned Natura 2000 sites and of remaining protected areas in relation to the boundaries of Task implementation area was presented on a map in Appendix 7 to the EMP.

4.9. CULTURAL MONUMENTS

Task implementation area is partially located within the two protected conservation areas shown in the map in Appendix 9. These are:

- strict conservatory protection zone
  (covering the urban-architectural complex of the city of Nowa Sól,
  entered to the register of monuments under number L-375a [log no. 2203]);
- surrounding of the strict conservatory protection zone
  (within a radius of up to 1 km).

In addition, in the close vicinity of the Task implementation area there are the following objects of cultural value, shown in the map in Appendix 9:

- archaeological site no. 4 (AZP 65-15/2 – Bronze Age cremation cemeteries);

- kindergarten building at Okrężna Street in Nowa Sól
  (former villa entered to the register of monuments under number 2211);
- the buildings of the former Grave brothers glue factory
  (entered in the municipal register of monuments).

4.10. POPULATION AND MATERIAL GOODS

The Task constituting the subject of this EMP shall be to a large extent implemented within the boundaries of the city of Nowa Sól, which is the third biggest city of Lubuskie Voivodship (about 40,000 inhabitants). As a consequence, there are lots of houses, as well as accompanying technical facilities, sewerage, water-supply, gas, power, telecommunication, etc. networks around construction work sites.

Task implementation area mainly covers areas taken for bodies of three flood embankments to be extended (left-bank Odra embankment and embankments of Czarna Struga on both sides) and the Czarna Struga riverbed. Undeveloped lands (farm lands, garden allotments, forests) border mainly with the embankments, whereas the developed lands dominate in the neighborhood of the middle section of Czarna Struga (from approx. 3 to approx. 6 km upstream of the estuary). In a reach placed within boundaries of the Task, Czarna Struga is spanned by 9 bridges (8 road bridges and 1 rail bridge). At chainage 4+016 of Czarna Struga there is a weir damming water for the needs of a hydro-electric power plant, which is located at the Power Channel.

5. SUMMARY OF THE ENVIRONMENTAL IMPACT ASSESSMENT

5.1. EARTH SURFACE AND LANDSCAPE

Earth surface

The impact exerted on the earth surface shall be related to temporary and permanent land occupation. At the construction phase, temporary exclusion of land from its previous use in the Task area shall be related i.a. to establishing a construction site backyard, staking yards and access roads – in total approx. 25 ha. After construction completion, the construction site backyard and the access roads shall be demolished and the land shall be reinstated.

Surface area of the most important permanent exclusion of land from its previous use connected with the Task implementation amounts to:

- expansion of the left-bank Odra embankment (stage I) – approx. 10 ha;
- expansion of the left-bank Czarna Struga embankment (stage I) – approx. 10 ha;
- expansion of the right-bank Czarna Struga embankment (stage I) – approx. 8 ha;
- construction of an embankment crossing the Czarna Struga valley, with a pumping station, a channel, and the relocated section of Czarna Struga (stage II) – approx.o 3 ha;
- expansion of the Czarna Struga embankments (stage II) – approx. 3 ha.

Additional information on this issue is presented in the *Land Acquisition and Resettlement Action Plan* (LA&RAP), which is available on the website of OVFM PCU (*www.odrapcu.pl*).

Landscape

Existing flood embankments of the Odra and Czarna Struga rivers are already permanently connected with existing landscape, and the designed extension of aforementioned embankments shall not be a significant landscape transformation. The newly built embankments, as the earth structures covered with grass vegetation, shall not significantly change the present landscape on the river valley section in question. Redevelopment of the Czarna Struga riverbed includes practically minor formation of the existing course bed and those adjustments do not have more than a negligible impact on the landscape.

In connection with the Task implementation it is necessary to fell approx. 2 500 trees and approx. 20 000 m^2 of shrubs. Logging of trees and shrubs shall be mainly performed within the areas of demolition and construction of a new flood embankment on the left bank of the Odra river (including construction of new embankment crossing the Czarna Struga valley, on a section of approx. 300 m long – see the map in Appendix 6 to the EMP) and in the areas of expansion of flood embankments of the Czarna Struga. The above losses (located partly outside the boundaries of Natura 2000 sites shown in Appendix 7 to the EMP, and partially along the boundaries of these sites) shall be at least partially compensated by enabling free succession of plants on the terrains which are located within the embanked area (item 55 in Appendix 1 to the EMP). Furthermore, numerous additional conditions to minimize environmental and landscape losses associated with the necessary logging of trees and shrubs were implemented in Appendix 1 to the EMP (see i.a. items 13-17, 25 and 28 in Appendix 1 to the EMP).

5.2. CLIMATE

Modification of climatic conditions

Implementation of the planned Task is not connected with the occurrence of any factors which could have an impact on the modification of climatic conditions, either regional or local.

Greenhouse gas emission

Exhaust fumes (including carbon dioxide, classified as a greenhouse gas) shall be emitted at the construction stage as a result of fuel combustion by vehicles and construction machinery. Moreover, demand for electrical energy shall occur in connection with using the construction site backyard, operating machines and devices and lighting the construction site (electrical energy consumption is related to greenhouse gas emission during its production in power plants).

At the operation stage the constructed structures shall not affect the emission of greenhouse gases (lack of demand for electrical energy, except for short period of pump station's operations during freshets).

Making the Task resistant to negative phenomena accompanying climate changes

The planned flood embankments were designed in accordance with binding hydraulic provisions, which take into account extreme phenomena taking place in the environment in connection with climate changes (this is governed by appropriate provisions concerning design, construction and operation of hydraulic structures). On the other hand, the Task implementation contributes to the improvement of flood protection on the terrains located outside of the embanked area in the Odra and Czarna Struga valleys and thus contribute to limiting the effects of negative phenomena accompanying climate changes.

5.3. ATMOSPHERIC AIR

At the construction stage, unorganized emission of exhaust fumes generated in connection with operating vehicles and construction machinery shall be the source of pollution emission to atmospheric air. The primary pollutants emitted to the air due to diesel oil combustion in machine and car engines shall be: SO_2, NO_2, CO, aliphatic hydrocarbons, soot and dust rising during the passage of cars and during earthworks, especially in long rainless periods. Since the construction site covers a relatively spacious area and the vehicles and construction machinery emitting the pollution shall not work on its entire surface area simultaneously (the works shall be performed section by section, according to their progress), one should not expect a significant influence of the works on the air pollution status beyond the Task area. One should expect local, short-term, increased concentration values of the abovementioned pollutants in the neighborhood of operating vehicles and machines, which is a typical phenomenon of construction works and withdraws after completing the works.

At the operation stage, impact on the air in connection with road transportation (emission of pollutants to the air) shall be limited only to periodic passage of cars carrying technical supervision staff arriving to inspect the flood defenses and to carry out maintenance works.

5.4. SOILS AND GROUNDS

The impact exerted on the soils at the construction stage shall be first and foremost related to direct transformations of the earth surface (excavations), permanent exclusion of a part of the land from its previous use, changes to earth structure on temporarily occupied land (access roads, construction site backyards) and the possibility of soil pollution as a result of a petroleum derivative leak caused by a breakdown. Construction and expansion of the flood embankments shall require provision of soil, meeting detailed technical conditions for objects of this type. Selection of soil source locations shall be done by the Contractor of works, at keeping the conditions determined in item 11 of Appendix 1 to the EMP.

After completing the construction stage and performing correct soil reinstating, one should not expect significant changes in the soil-water conditions or soil productivity in the areas of temporary occupation.

5.5. SURFACE WATERS

Biological elements of water quality

Macrophytes, benthic macroinvertebrate fauna and phytobenthos

Impact on the aforementioned biological elements of water quality shall be first of all associated with regulation of over 7.5 km of the Czarna Struga riverbed, It shall be a significantly adverse impact – all vegetation growing in this reach of the riverbed shall be destroyed, and the quantity of water organisms shall be significantly reduced. A fact that Czarna Struga is currently not a course having high environmental value shall be however taken into account. Due to applying a wide range of mitigation measures (e.g. items 46, 47, 48, 49, 50 and 51 in Appendix 1 to the EMP), habitat diversity within the regulated riverbed may even increase in comparison to the condition prior to regulation, what would result in quick reinstatement for and improvement to the condition of biological elements of water quality within the subject river reach.

Fish fauna

Description of impact on ichthyofauna was presented in chapter 5.8.1.

Hydromorphological elements of water quality

Hydrological conditions

As a result of moving the flood embankment away from the banks of Odra river, approx. 20 ha of the river valley terrains shall be within range of its freshets. Such an area is so small that comparing to surface of other part of the river valley it shall not have any impact on hydrological conditions of the Odra's BSW.

Hydrological conditions will however change for Czarna Struga during high freshets, due to crossing the wide river valley in the estuary reach with a new embankment. In standard conditions the free river flow shall be kept (through the embankment culvert). In flood conditions the water from the Czarna Struga valley shall be discharged to Odra by a pumping station, The Czarna Struga valley – constrained with modernized embankments – shall therefore perform a function of a reservoir temporarily collecting the water. It shall be noted that those areas were flooded with Odra waters during floods anyway; however, it is likely that currently the time of keeping the water in the Czarna Struga valley would be somewhat extended.

Morphological conditions

Adverse impact of the Task shall be associated with regulation of over 7.5 km of Czarna Struga. The riverbed shall have a trapezoid shape, and the banks and the bottom shall be sectionally protected with rip-rap, whereas the slope foot shall be protected with fascine bundle over the entire length of slope. Although the current riverbed has already been regulated and is currently not morphologically diverse, the impact of planned works shall be assessed as significantly adverse. The planned mitigation measures related to placement of habitat elements in the riverbed, etc. (see items 46, 47, 48, 49, 50 and 51 in Appendix 1 to the EMP) would allow for limiting the indicated adverse impact to a great extent.

In standard conditions the new embankment crossing the Czarna Struga valley shall not remain a barrier for fish migration, and only in time of high freshets the free flow of waters between Odra and Czarna Struga will temporarily be prevented.

Physical-chemical elements of water quality

Short-term and local impacts on particular physical-chemical elements of water quality are likely to occur at the construction stage, in connection with expansion of the embankments on the sections located close to the Czarna Struga and Odra river beds, which shall be manifested by increased concentration of suspension in pelagic zone. Due to small scale and transitory character of the said impact, its influence on the environment shall be minor and it shall not pose a threat to the achievement of the environmental objective.

Assessment of the impact on the BSW covered by the Task and on the neighboring BSW

The impact of planned works on the condition of water environment of the BSW *Odra od Kanału Wschodniego do Czarnej Strugi*, including its biological, physic-chemical, and hydromorphological elements shall be insignificant, and in long-term it should be a positive impact (moving the embankment away from the river). The planned Task shall neither cause status deterioration of the subject BSW nor of BSW *Odra od Czarnej Strugi do Nysy Łużyckiej* and does not constitute a hazard to WFD environmental objectives established for those BSWs.

Implementation of the Task causes however a risk of not achieving environmental aims by BSW *Czarna Struga od Mirotki do Odry*. As a consequence it was necessary to establish derogation under Article 4.7 WFD for the BSW, which was associated with the necessity to carry out analyses of compliance of the Task with the premises specified in art. 4.7 WFD (i.e. premises required for projects that causes a risk of not achieving environmental aims by a given BSW). Such analyses were done along with the works on this EMP, as an additional material supporting environmental documentation, which joins the cumulated assessment of the stage I and II for BSW under the Task. Conclusions resulting from the above-mentioned analyses have been fully taken into account in this EMP (among others as conditions in items 46-51 in Appendix 1 to the EMP). Such analyses have also been included in the new *Water Management Plan for the Odra River Basin*, which entered into force on December 13th, 2016. The Task meets rationale under Article 4.7-9 WFD, what means that its implementation does not violate provisions of the WFD in the range of compliance with Article 4.1 in reference to Article 4.7-9 WFD.

5.6. GROUNDWATER

The influence on the groundwater status

The construction and demolition of flood embankments and the construction of anti-filtering membranes in the embankment body shall not change water regime in a significant way on adjacent terrains. The construction of shallow anti-filtering membranes nearby the embankment and suspended in permeable soils shall limit water filtration through the embankment body during freshets, but will not have any significant impact on groundwater movement underneath it. This manner of preventing the embankment from being washed out cannot change hydrogeological conditions in the ground within the embankment area. Expanding the embankments and accompanying structures, as well as their functioning, is not connected with production of wastes and does not cause emission of any harmful substances to the water and soil environment.

Assessment of the impact on the achievement of BGW environmental objectives

The planned Task shall not infringe WFD objectives, i.e. shall not cause deterioration of the groundwater quantitative status or chemical status within the boundaries of the body of ground water (BGW) covered by the Task.

5.7. ACOUSTIC CLIMATE

The anticipated scope of works shall be related to periodic noise emission at the construction stage. The sources of noise shall be the work of individual construction machines and the traffic of vehicles, including trucks. Acoustic nuisance resulting from operations of machines and means of transport shall be limited in time and in space. The Task is located partially on developed lands or in their vicinity, and temporary nuisance associated with emission of noise may occur there. Reduction of such impact shall be done by limiting the works performance time to daytime and the Contractor's care for the technical state of machines and devices operating on the construction site.

After completing the construction stage, the use of constructed structures is not related to noise emission.

5.8. BIOTIC NATURE

5.8.1. Protected natural habitats and species

Natural habitats from Annex I to the *Habitats Directive*

Implementation of the planned Task shall cause an insignificant negative impact on 5 types of natural habitats occurring in its area. They are:

- *6430* – mountain herbs (*Adenostylion alliariae*) and riparian herb growths (*Convolvuletalia sepium*). In relation to Task implementation patches of habitat in the lower course of Czarna Struga shall be destroyed. After completion of the works spontaneous reinstatement of the habitat is possible due to natural succession.
- *6440* – alluvial meadows (*Cnidion dubii*). In relation to Task implementation small parts of patches of habitat in the lower course of Czarna Struga shall be destroyed.
- *6510* – lowland hay meadows (*Arrhenatherion elatioris*). In relation to Task implementation few patches of habitat in the Czarna Struga valley shall be destroyed.

- **91E0* – Riparian mixed forests of willow, poplar, alder and ash tree (*Salicetum albo-fragilis, Populetum albae, Alnenion glutinoso-incanae*) as well as alder forests on percolating mires. In relation to Task implementation patches of habitat adjacent to flood embankments to be demolished shall be destroyed. After completion of the works spontaneous reinstatement of the habitat is possible due to natural succession.
- *91F0* – Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia*, along the great rivers (*Ficario-Ulmetum*). As in case of habitat **91E0*.

Due to the small surface area of the damaged patches of the aforementioned natural habitats relative to their total area within Natura 2000 sites listed in chapter 4.8.2, these impacts will not be significant on a regional or local scale. In addition, a number of conditions have been introduced in Appendix 1 to the EMP to minimize losses in natural habitats in the Task implementation area (see i.a. items 24, 25, 28, 29, 35, 36, 43, 54, 55 and 56 in Appendix 1 to the EMP).

Protected species of plants

The implementation of the planned Task (both at the construction and operation stages) does not cause a negative impact on protected plant species.

Protected species of animals

Invertebrates

The implementation of the planned Task (both at the construction and operation stages) does not cause a significant negative impact on protected invertebrate species.

Fish

The implementation of the planned Task is associated with significant adverse impact on fish population in the Czarna Struga riverbed, mainly connected with regulation of approx. 7.6 km of the river (trapezoid bed shape, sectional protection of banks and bottom). A mitigation measure in this range shall first of all be the placement in the riverbed of habitat elements composed by wooden palisades in the form of groynes, sectionally and irregularly placed stones within the reaches, where the bottom is to be protected with rip-rap, and sectionally placed rolls made of coconut matts sown with water plants (items 46, 47, 48, 49, 50 and 51 in Appendix 1 to the EMP). All of those elements are to redevelop the micro-habitats for water organisms quicker, including fish (shelters, feeding grounds). The second form of adverse impact on ichthyofauna is separation of the Czarna Struga valley from the valley of Odra during floods, which would limit contacts between fish populations in both of the rivers. This impact shall however not be significant as free migration of fish between those rivers will be possible in periods beyond the floods (item 45 in Appendix 1 to the EMP). Another adverse impact may be associated with inflow of fish through the channel of pumping station to facilities of the pumping station. To prevent that, grates and deterring electric curtains shall be assembled in front of the pumping station (item 44 in Appendix 1 to the EMP).

Amphibians and reptiles

The planned construction works may pose a danger of trapping amphibians or reptiles in performed excavations. Vehicle and machine traffic is also a hazard as it may deteriorate the conditions of their living and breeding or pose a direct hazard to the life of their specimens. Potential pollution of the aquatic-soil environment may also be a danger to this group of animals. All the above impact is of potential nature and performing the works in accordance with the conditions determined in Appendix 1 to the EMP shall significantly reduce the risk of its occurrence.

Birds

The main forms of the negative impact of the planned Task on the bird fauna include the following:

- destruction of potential breeding grounds (groups of trees and shrubs as well as patches of herb growths) and feeding grounds – this impact shall not cause a significant influence on the populations of individual species due to the availability of other areas of similar nature in the surroundings of the construction site;
- increased penetration of the area by humans as well as intense vehicle and construction machine traffic (scaring and disturbing of specimens) – this impact is local, short-term and limited to the period and time of works performance.

Flightless mammals

In the case of species of small land mammals, the planned construction works pose hazards analogous to those mentioned in the case of amphibians and reptiles (see above); mitigation measures leading to a significant reduction of the unfavorable effects of this impact are analogical.

Bats

The hazards to this group of animals are analogous to those in the case of birds, but the bats living in tree hollows are additionally more vulnerable to death during tree felling. This type of hazards was minimized owing to appropriate mitigation measures described in Appendix 1 to the EMP.

5.8.2. Protected areas and objects

Natura 2000 sites

The implementation of the planned Task (both at the construction and operation stages) does not cause a significant negative impact on Natura 2000 sites (lack of a significant negative influence on Natura 2000 site integrity or network coherence).

In the scope relating to the impact on the integrity of Natura 2000 sites, the implementation of the Task performed in the manner described in this EMP (i.e. taking into account mitigation measures described in Appendix 1 to the EMP):

– does not threaten the occurrence of significant negative impact in relation to any type of natural habitats or any species of protected animals within the boundaries of Natura 2000 sites;
– does not affect significantly the preservation of ecological structures and processes necessary for the durability and proper functioning of natural habitats and species populations constituting objects of protection of Natura 2000 sites.

In the scope relating to the impact on the coherence of the Natura 2000 network, the implementation of the Task performed in the manner described in this EMP:

– does not threaten the occurrence of the decline in the completeness of natural habitat and species resources within the the Natura 2000 network, neither in the country nor the biogeographical region;
– does not cause any changes that may result in a deterioration of functional connectivity between Natura 2000 sites.

Other protected areas and objects

The implementation of the planned Task (both at the construction and operation stages) does not cause a significant negative impact on other protected areas and objects (no significant negative impacts in relation to the objectives and principles of protection of the areas in question established in the regulations applicable to them).

5.9. CULTURAL MONUMENTS

Some elements of the Task shall be implemented within the boundaries or in vicinity of objects of cultural values, as listed in chapter 4.9. Implementation of the planned Task – at the construction and operation stage – shall not adversely affect these objects. Due to the presence of the abovementioned objects, the following obligations were imposed as part of mitigating measures: obtaining a heritage conservator's opinion in advance, ensuring archaeological supervision during the works and observing specific procedures related to possible discoveries of monuments (items 95, 96 and 97 in Appendix 1 to the EMP).

5.10. POPULATION AND MATERIAL GOODS

In connection with implementation of the planned Task, it shall be necessary to introduce i.a. the following changes to the existing infrastructural objects: demolition of the existing traffic structures over Czarna Struga (reinforced-concrete bridge at chainage km 3+586, steel footbridge at chainage km 3+612, wooden and steel footbridge at chainage km 5+612), demolition of the destroyed water barrage at chainage km 3+429, demolition of an outbuilding on the right bank of the river in vicinity of km 3+710, demolition of a part of bricked wall in vicinity of km 3+400, redevelopment of the existing land development colliding with designed objects, including sanitation, rainfall and piping canalizations, and redevelopment of power and telecommunication cables, redevelopment of existing fences, and removal of parts of garden allotments, liquidation of two sections of existing flood embankment on the left bank of the Odra river and in the estuary reach of Czarna Struga (these embankments shall be replaced by the new constructed flood embankment, located at a greater distance from the river).

The issues related to land purchase or changing land use, as well as possible problems connected with the influence of implementation of the Task on temporary occupation areas and their surroundings, are discussed in detail in the *Land Acquisition and Resettlement Action Plan* (LA&RAP) for the Task in question.

The potential negative influence on material goods at the construction stage is related to using the existing road network as access roads to the construction site. Introduction of mitigation measures in this scope shall enable limiting this impact category.

5.11. HUMAN HEALTH AND SAFETY

The implementation of the planned Task may be related to the following impact on human health and safety:

- Increase of air pollution emission

  At the construction stage, the pollution level of atmospheric air may locally and periodically increase in connection with using vehicles and construction machinery (emission of exhaust fumes). Since this impact is dispersed, local and not very intense, and owing to the distance between the construction site and the nearest buildings, the impact should not cause significant effects in relation to the health of the Contractor's staff or residents from the vicinity (see also chapter 5.3).

- Increased noise emission

  At the construction stage, the noise level related to performing the works and using vehicles and construction machinery may locally and periodically increase. Taking into account the circumstances discussed in chapter 5.7, this phenomenon should not cause significant effects in relation to the health of the Contractor's staff or residents from the vicinity.

- Petroleum derivative pollution hazard

  Bad organization of works or failure to observe appropriate standards could lead to water and soil pollution with fuels at the construction stage, which could constitute a direct or indirect hazard to the health of the Contractor's staff or residents from the vicinity. To prevent such hazards, Appendix 1 to the EMP introduces a number of conditions aimed at limiting the risk of petroleum derivative pollution at the construction stage (see also chapter 6.11).

- The possibility of a flood embankment breakdown or catastrophe at the operation stage

  The issues related to the potential influence of a flood embankment breakdown or catastrophe on the health and safety of the residents of towns and villages located outside the embanked area are discussed in chapter 5.12.

5.12. SPECIAL HAZARDS (CRITICAL AND EMERGENCY SITUATIONS)

The implementation of the planned Task is related to the possibility of occurrence of the following critical or emergency situations which could cause special environmental hazards:

- Uncontrolled emission (leak) of petroleum derivatives

  An emergency situation may take place at the construction stage, resulting in a leak of petroleum derivatives from vehicles, construction machinery, tanks etc. polluting surface waters or the earth surface (including soil). The risk and effects of this type of events are limited by appropriate organization of the construction site backyard, care for the appropriate technical condition of vehicles, machines and equipment used on the construction site as well as, if those events do occur, strict observance of procedures concerning emergency and critical situations, described in Appendix 1 to the EMP.

- Fire or explosion of flammable substances

  An emergency situation may take place at the construction stage in relation to a fire (e.g. as a result of an equipment breakdown, staff negligence, an explosion of flammable substances, a lightning strike etc.). The risk and effects of this type of events are limited by strict observance of OSH provisions, appropriate organization of the construction site

backyard, care for the appropriate technical condition of vehicles, machines and equipment used on the construction site as well as, if those events do occur, strict observance of procedures concerning emergency and critical situations, described in Appendix 1 to the EMP.

- Finding unexploded bombs or unfired rounds

  Hazardous materials of military origin, such as unexploded bombs or unfired rounds, may be found at the construction stage. Potential hazards related to this type of situations are limited by pre-emptive sapper examination of the construction site before commencing the works, ensuring sapper supervision over the works on a running basis as well as, if such materials are found, strict observance of procedures concerning situations related to the presence of unexploded bombs or unfired rounds, described in Appendix 1 to the EMP.

- Sudden freshets, flood

  A sudden water level increase in the river on the construction site or a flood may take place at the construction stage, threatening the staff's health and life and causing material losses on the construction site. In order to minimize the possible effects of this type of events, the Contractor shall take into account the flooding risk when organizing the construction site backyard and the remaining part of the works area as well as develop a *Construction site flood management plan* and strictly observe the conditions contained in it.

- The possibility of a flood embankment breakdown at the operation stage

  The operation of a flood embankment is related to a potential risk of water spillway above the embankment crest or an embankment break, as a result of occurrence of a strong and long-term freshet of the river water causing long-term flooding of terrains within the embanked area or an exceptional increase of water level on terrains within the embanked area. The occurrence risk of this type of catastrophes is limited by specific design and technical solutions applied in the planned embankments, in accordance with applicable guidelines for the designed hydraulic structures (i.a. specified dimensions of a flood embankments, proper selection of material for the embankments construction, application of required membranes, works technology considering the requirement of satisfactory compaction of the embankments, etc.). Given the abovementioned protections and the fact that the embankments design takes into account the hydrological data characterizing the scale of flows in the rivers in this area during calculation periods, one can state that the discussed hazard is very much of a potential nature and its probability of occurrence is slight.

6. DESCRIPTION OF MITIGATION MEASURES

In order to limit the negative environmental impact of the planned Task, Appendix 1 to the EMP defines a set of mitigation measures binding on the Task Contractor. Those measures were developed on the basis of the conditions contained in the binding administrative decisions in the scope of environmental protection issued for the Task, which were supplemented with additional conditions determined at the EMP preparation stage. A list of main categories of the mitigation measures is presented below, dividing them into the environment components discussed in chapters 4 and 5 of the EMP.

6.1. EARTH SURFACE AND LANDSCAPE

The primary forms of the negative impact of the planned Task on earth surface and landscape are presented in chapter 5.1.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

– limiting the influence related to land occupations on the status of earth surface and landscape (item 3, 4, 6, 7, 8, 52, 61 in Appendix 1 to the EMP);
– limiting the landscape value losses related to tree and shrub felling (item 15, 55).

6.2. CLIMATE

Due to lack of a negative impact on the climate (see the description in chapter 5.2), it was considered as unnecessary to introduce mitigation measures.

6.3. ATMOSPHERIC AIR

The primary forms of the negative impact of the planned Task on atmospheric air are presented in chapter 5.3.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

– limiting the electrical energy consumption at the works stage (item 76);
– limiting air pollution with exhaust fumes, dusts etc. (item 77, 78, 79, 80).

6.4. SOILS AND GROUNDS

The primary forms of the negative impact of the planned Task on soils and grounds are presented in chapter 5.4.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

– limiting the soil resource losses related to land occupations (item 3, 4, 5, 8, 52, 59, 61);
– limiting the topsoil layer loss (item 12, 52);
– ensuring an appropriate chemical quality of grounds in the area of works (item 9, 11);
– limiting the ground pollution risk at the works stage (item 5, 6, 7, 58, 59, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 81, 82, 83, 84).

6.5. SURFACE WATERS

The primary forms of the negative impact of the planned Task on surface waters are presented in chapter 5.5.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the water pollution risk at the works stage (item 5, 6, 7, 42, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 81, 82, 83, 84);
- ensuring an appropriate chemical quality of grounds in the area of works (item 9, 11);
- limiting the negative influence on the biological elements of water quality (item 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51).

6.6. GROUNDWATER

Due to lack of a significant negative impact on groundwater (see the description in chapter 5.6), it was considered as unnecessary to introduce mitigation measures. Groundwater protection is indirectly related to a part of the mitigation measures listed in chapter 6.5 concerning protection of surface waters against pollution.

6.7. ACOUSTIC CLIMATE

The primary forms of the negative impact of the planned Task on atmospheric air are presented in chapter 5.7.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed at:

- limiting the noise generated at the works stage (item 72, 73, 74, 75, 76).

6.8. BIOTIC NATURE

The primary forms of the negative impact of the planned Task on biotic nature resources are presented in chapter 5.8.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the natural resource losses related to land occupations (item 4, 5, 6, 7, 8, 12, 24, 28, 29, 42, 52, 59, 61);
- limiting the natural resource losses related to the felling of trees and shrubs (item 13, 14, 15, 16, 17);
- eliminating or limiting the natural resource losses related to accidental deaths of specimens of protected species on the land (item 30, 31, 32, 33, 34, 36);
- eliminating or limiting the natural resource losses related to accidental deaths of specimens of protected species in the aquatic environment (item 39, 42, 44);
- eliminating or limiting the influence of works implementation on the breeding results of protected animal species (item 13, 14, 16, 19, 24, 36, 37, 38, 39, 40, 41, 42, 43);
- eliminating or limiting the influence of works implementation on the migration conditions of protected animal species (item 33, 34, 41, 42, 44, 45);
- limiting the influence of works implementation on the status of natural habitats and habitats of protected species (item 24, 25, 28, 29, 36, 37, 38, 41, 42, 54, 55, 56);
- limiting the influence of works implementation on the status of trees and shrubs not anticipated for felling (item 15, 18, 19, 20, 21, 22, 23, 28, 36);

– eliminating or limiting the influence of works implementation on the spreading of invasive plant species of foreign origin (item 35).

6.9. CULTURAL MONUMENTS

In order to prevent a negative influence of Task implementation on cultural resources, (see the description in chapter 5.9), Appendix 1 to the EMP introduces three mitigation measures aimed at ensuring the arrangement of works performance conditions with a relevant heritage conservator and implementing appropriate procedures in the case of discovering movable monuments or archaeological sites at the works stage (item 95, 96, 97).

6.10. POPULATION AND MATERIAL GOODS

In accordance with the information provided in chapter 5.10, the issues related to land purchase or changing land use, as well as possible problems connected with the influence of the implementation of Task on temporary occupation areas and their surroundings, are discussed in detail in the *Land Acquisition and Resettlement Action Plan* (LA&RAP) for the Task in question. The impact related to using the existing road network as access roads to the construction site shall be limited by implementing the conditions of access road use, described in item 3 and 4 of Appendix 1 to the EMP.

6.11. HUMAN HEALTH AND SAFETY

The primary forms of the negative impact of the planned Task on human health and safety are presented in chapters 5.11 and 5.12.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

– limiting the influence of the planned Task on the sanitary status of atmospheric air (listed in chapter 6.3);
– limiting the influence of the planned Task on the acoustic climate (listed in chapter 6.7);
– eliminating or limiting the risk of chemical pollution of water and ground at the works stage (listed in chapters 6.4 and 6.5);
– ensuring safety on the construction site and in its surroundings (item 86, 87, 88, 89, 90, 91);
– ensuring appropriate response in situations of special hazards (item 92, 93, 94).

6.12. SPECIAL HAZARDS (CRITICAL AND EMERGENCY SITUATIONS)

The primary types of special hazards (with characteristics of a critical situation) that may potentially occur in connection with Task implementation are presented in chapter 5.12.

To limit the possible effects of this type of events, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

– eliminating or limiting the risk of chemical pollution of water and ground at the works stage (listed in chapters 6.4 and 6.5);
– ensuring safety on the construction site and in its surroundings (item 86, 87, 89, 90);

– ensuring appropriate response in situations of special hazards
(item 92, 93, 94).

6.13. REQUIREMENTS IN THE SCOPE OF DEVELOPMENT AND IMPLEMENTATION OF THE CONTRACTOR'S SELECTED DOCUMENTS

In order to ensure appropriate organization of works performance and implement correctly the conditions determined in Appendix 1 and 2 to the Environmental Management Plan, the Contractor is obliged to develop the following documents, obtain the Engineer's approval for them and then implement them:

1) A construction site organization design, which should include i.a. the following elements:
   - backyard location;
   - backyard management;
   - backyard protection;
   - access roads;
   - environmental protection in the backyard.
2) A waste management plan, which should include i.a. the following elements:
   - found and anticipated types and quantities of waste;
   - manners of preventing the negative environmental impact of the waste;
   - the waste management manner taking into account collection, transportation, recovery and treatment;
   - the type of generated waste and the manner of its storage.
3) Quality assurance plans for individual categories of works and other types of the Contractor's measures (as needed, including as required by the Engineer), which should contain i.a.:
   - information about the planned organization of performing a given category of works or measures;
   - information about the conditions of implementing a given category of works or measures contained in the EMP;
   - information about other possible manners of preventing the negative environmental impact of a given category of works.
4) A construction site flood management plan, which should include i.a. the following elements:
   - monitoring of the hydrological-meteorological situation;
   - conditions of passing freshet flows in the works performance period;
   - rules of the Contractor's staff work during the flooding risk period;
   - primary obligations of key members of the company flood management team;
   - a list of officers during the flooding risk period;
   - a list of equipment and means of transport needed to conduct rescue actions.
5) A Safety and Health Protection Plan, which should include i.a. the following elements:
   - indication of plot/site development elements which could pose a hazard to human safety and health;

- information about the hazards anticipated during the implementation of construction works, specifying the scale, types, place and time of the hazards, including the relation to the natural environment;
- information about designating and marking the construction works implementation location in a manner appropriate for the hazard type;
- information about the manner of instructing the employees before commencing the implementation of particularly dangerous works;
- specification of the manner of storing and moving hazardous materials, products, substances and preparations on the construction site;
- indication of technical and organizational means preventing the dangers stemming from the performance of construction works in zones of special hazard to health or in their neighborhood, including means ensuring safe and effective communication enabling quick evacuation in case of a fire, breakdown or another hazard;
- indication of the storage location of construction documentation and documents necessary for correct operation of machines and other technical devices.

When developing the abovementioned documents, the Contractor shall take into account relevant Operational Policies and Bank Procedures of the World Bank concerning health protection, environmental protection and safety rules.

6.14. MEASURES AT THE OPERATION STAGE

A part of the mitigation measures specified in the EMP goes beyond the construction stage and shall also be implemented during operation of constructed structures.
Those measures include i.a.:

– ongoing curing of flood embankment and other flood defenses (item 53 in Appendix 1 to the EMP);
– ensuring appropriate rules for use of terrains within the embanked area (item 54, 55, 56 in Appendix 1 to the EMP).

In the Defect Notification Period, the Contractor is the party responsible for implementation of the abovementioned measures. After Contract completion, the Investor is responsible for implementation of all of the abovementioned measures.

7. DESCRIPTION OF MONITORING MEASURES

Appendix 2 to the EMP defines a set of monitoring measures binding on the Task Contractor. Those measures were developed on the basis of the conditions contained in the binding administrative decisions issued for the Task, which were supplemented with additional conditions determined at the EMP preparation stage.

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

- monitoring of implementation of the mitigation measures listed in Appendix 1 to the EMP (item 1-105 in Appendix 2 to the EMP).

8. PUBLIC CONSULTATIONS

8.1. PUBLIC CONSULTATIONS FOR THE *ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK* FOR THE OVFMP (2015)

The draft of the document entitled *Environmental and Social Management Framework* (*ESMF*) for the OVFM Project (including Component 2, which covers the present Task) was subject to the procedure of public consultations conducted in accordance with *OP 4.01* Operational Policy of the World Bank. Their aim was to enable the public to familiarize itself with the content of that document and ensure the possibility of submitting remarks, questions and motions concerning the content.

The documentation of the public consultation process for the abovementioned document is available on the website of the Odra-Vistula Flood Management Project Coordination Unit[1].

8.2. PUBLIC CONSULTATIONS AT THE STAGE OF ENVIRONMENTAL PROCEDURES FOR THE TASK (2011-2013)

A) Public consultations for the stage I

At the stage of issuing the decision on the environmental conditions for the undertaking falling within the scope of stage I (see chapter 3.5), the consultations with the public's participation were conducted by a relevant local body issuing the decision, i.e. the Regional Director for Environmental Protection in Gorzów Wielkopolski.

In an announcement of January 18th, 2011, the Regional Director for Environmental Protection in Gorzów Wielkopolski published the required information concerning the planned undertaking. That announcement was placed on the notice board and the website of the Regional Directorate for Environmental Protection in Gorzów Wielkopolski, on the notice board and the website of the Office of Otyń Municipality, on the notice board of the Town Hall of Nowa Sól and on the notice board in Modrzyca.

Within the deadline provided by the law, the conducting body received no remarks or motions related to the undertaking in question.

On February 16th 2011, the Regional Director for Environmental Protection in Gorzów Wielkopolski issued a decision on the environmental conditions for the undertaking falling within the scope of stage I (ref. No.: WOOŚ-II.4233.2.2011.TK – Appendix 4a to the EMP). That decision was published via an announcement.

B) Public consultations for the stage II

At the stage of issuing the decision on the environmental conditions for the undertaking falling within the scope of stage II (see chapter 3.5), the consultations with the public's participation were conducted by a relevant local body issuing the decision, i.e. the Regional Director for Environmental Protection in Gorzów Wielkopolski.

In an announcement of December 14th, 2012, the Regional Director for Environmental Protection in Gorzów Wielkopolski published the required information concerning the planned undertaking. That announcement was placed on the notice board and the website of the Regional Directorate for Environmental Protection in Gorzów Wielkopolski and on the notice board of

[1] On the website: *http://www.odrapcu.pl/popdow_dokumenty_RPZSiSS.html*.

the Town Hall of Nowa Sól, Office of Nowa Sól Municipality and Office of Otyń Municipality.

Within the deadline provided by the law, the conducting body received no remarks or motions related to the undertaking in question.

On January 31st 2013, the Regional Director for Environmental Protection in Gorzów Wielkopolski issued a decision on the environmental conditions for the undertaking falling within the scope of stage II (ref. No.: WOOŚ-II.4233.3.2012.AN – Appendix 4c to the EMP). That decision was published via an announcement.

8.3. PUBLIC CONSULTATIONS FOR THE EMP (2018)

The draft of the present document is subject to the public consultation procedure conducted in accordance with the Operational Policies of the World Bank (*OP 4.01*).

After developing the draft of the EMP document, its electronic version is placed on publicly accessible websites and its printed version is made available for browsing by interested persons. Detailed information about the possibility of familiarizing oneself with this document and submitting motions and remarks, together with the indication of detailed contact data (e-mail address, address of the place where one can familiarize oneself with the draft, opening hours, telephone number), is published in local press and on the websites of the entity implementing the Task being the EMP subject. After the document publication period (10 business days), a meeting for interested persons is organized to present the EMP draft and then conduct a discussion concerning all environmental issues related to Task implementation. All previously reported (by e-mail and phone) questions, remarks and answers are also read aloud at that meeting. The participants' questions and remarks are collected during the meeting as well. If providing an answer requires time, the person's contact data are written down and the answer is sent by e-mail or by post within 7 days. A protocol of the meeting is prepared and sent to the World Bank. Remarks from the society that have to be taken into account are introduced into the EMP document and its final version is prepared. The EMP in this form is also sent to the World Bank to obtain a "no objection" approval.

9. ORGANIZATIONAL STRUCTURE OF EMP IMPLEMENTATION

The Task being the subject of this EMP is implemented within the Odra-Vistula Flood Management Project (see chapter 1.1), co-financed using the World Bank's funds. Therefore, the EMP implementation supervision structure has to comply with both the provisions of Polish law and the requirements of the World Bank.

9.1. ODRA-VISTULA FLOOD MANAGEMENT PROJECT COORDINATION UNIT (OVFM PCU)

The entity responsible for overall coordination of implementing the individual parts of the EMP within the OVFM Project is the Project Coordination Unit (PCU), which is currently a state budgetary unit responsible to the minister relevant for water management.

OVFM PCU tasks include i.a.:

- cooperation with the relevant ministers, State Water Holding Polish Waters and other government and local government administration bodies related to OVFM Project implementation;
- coordination of activities of individual Project Implementation Units and supporting those units in the scope of EMP implementation;
- monitoring and assessment of EMP implementation progress;
- cooperation with the World Bank on a running basis, including development of quarterly reports on OVFM Project implementation.

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

The entity directly responsible for implementing the EMP for the Task and monitoring EMP implementation progress is the Project Implementation Unit (PIU), i.e. State Water Holding Polish Waters, Regional Water Management Authority in Wrocław.

In relation to OVFM Project implementation, the Project Implementation Office (PIO) was established as a separate organizational unit, supervised by the President of State Water Holding Polish Waters. Such a structure is transparent and its decision-making level is situated very high, which increases Project implementation efficiency.

As part of EMP implementation supervision, the PIO performs the following tasks:

- monitoring of EMP implementation progress;
- financial management and account management;
- preparation of the necessary reports for the purposes of EMP implementation monitoring and for the purposes of coordination of EMP implementation by all the involved services.

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

- management and coordination of as well as supervision over EMP monitoring implemented by the Consultant/Engineer and the Contractor;
- direct supervision over correct Task implementation;
- cooperation with the PIU;
- administrative and legal supervision over EMP implementation;

- verification of EMP implementation reports and accounts prepared by the Consultant/Engineer and the Contractor;
- financial supervision over EMP implementation;
- supervision over the correctness of applying formal procedures concerning EMP implementation which stem i.a. from the requirements of the Contract for works, *the Construction Law*, *the Environmental Protection Law* and other documents.

9.4. CONSULTANT/ENGINEER

The role of the Consultant/Engineer is supporting the PIU (PGWWP, RZGW in Wrocław) in effective implementation of the entire investment process, from undertaking preparation to its settlement.

The Consultant/Engineer shall be selected using the QCBS (Quality- and Cost-Based Selection) method, in accordance with *Guidelines: Selection and Employment of Consultants by World Bank Borrowers*. The Consultant/Engineer shall be obliged to supervise EMP implementation, in accordance with the scope defined in the Consultant/Engineer's contract, which shall include i.a.:

- monitoring of EMP implementation by the Contractor;
- monitoring the Contractor's actions;
- checking the quality of the construction works performed and the construction products used to build by the Contractor, in particular preventing the use of construction products which are defective or are not allowed for use in civil engineering;
- representing of the Investor on the construction site by controlling the compliance of construction implementation with the project, the building permit, the provisions in the scope of environmental protection and the principles of technical knowledge;
- supervising all issues related to environmental protection by experienced specialists in the scope of environmental protection and by the Engineer's remaining staff;
- constant monitoring of the correctness of implementing the measures mitigating the negative environmental impact;
- performance of additional examinations if it becomes necessary to verify the Contractor's accounts;
- identification of problems stemming from the adverse environmental impact of construction works implementation and submitting proposed solutions to those problems;
- checking and accepting the construction works to be covered up and temporary construction works, participation in tests and technical acceptance of technical devices and systems as well as preparation of and participation in acceptance activities of ready structures and commissioning them;
- confirmation of actually performed works and removed defects as well as, on the Investor's request, inspection of construction settlement.

9.5. CONTRACTOR

A Contractor shall be selected to implement the construction works. The Contractor shall be responsible i.a. for EMP implementation. The Contractor's duties in this scope include:

- performance of construction works in accordance with the rules defined in the EMP, Contract conditions, design documentation, binding provisions of law and requirements of administrative decisions issued for the Task;
- implementation of the Engineer's recommendations (including those of the environmental supervision specialists and the Investor's supervision inspector) concerning EMP implementation;
- ensuring the preparation of i.a. the following documents before construction commencement: a safety and health protection plan, a waste management plan, a quality assurance plan, a construction site flood management plan for the works implementation period and a construction site organization design;
- maintenance of construction documentation;
- preparation of monthly accounts and reports on inspections;
- preparation of accounts concerning environmental protection;
- applying to the Investor for changes in design solutions if this is justified by the necessity of increasing the implementation safety of construction works or streamlining the construction process in the scope concerning EMP implementation.

10. EMP IMPLEMENTATION SCHEDULE AND REPORTING PROCEDURES

EMP implementation enables the parties involved in the preparation, implementation and supervision of the Contract for works to do the following:

- identify various environmental aspects which significantly influence the environment status so that they can be controlled, corrected and reduced but, consequently, produce economic effects;
- correct unfavorable consequences of conducted works during their implementation, which is beneficial to the environment and the financial results;
- define the objectives and tasks implemented within the adopted environmental policy, which are included in the EMP, require outlays and yield measurable effects;
- identify and eliminate potential hazards and breakdowns as well as prevent and remove environmental effects which may be related to them and cause losses disproportionate to prevention costs;
- use natural goods rationally with minimal environmental losses and optimal generation of costs.

Moreover, implementation of the recommendations and measures stemming from the EMP may reduce or even eliminate contractual risks, in particular:

- the risk of the Contractor skipping the environmental protection issues in the task implementation process;
- the risk of escalation of protests by the local community as a result of the Contractor's failure to observe the works implementation technologies and the environmental procedures approved by the Engineer;
- the risk of additional environmental penalties;
- the risk of bearing additional environmental losses.

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

a) before selecting the Contractor of works, the Employer shall submit the draft of this EMP to the World Bank in order to receive an opinion;

b) after receiving a positive opinion from the Bank, the EMP shall undergo public consultations;

c) after conducting the public consultations (and supplementing the document with consultation results), the EMP shall be supplemented and its final version shall be submitted to the World Bank for approval;

d) after EMP approval by the World Bank, the final document shall be included in the bidding documents concerning Contractor selection;

e) all actions of the Contractor of works shall be reported regularly (once a month) in terms of the obligations stemming from the EMP and other contract documents. They shall be reported in Polish and English, both in a printed version and in an electronic version. Those reports shall require the Engineer's and the Employer's approval.

Moreover, appropriate units involved in Task implementation are obliged to meet additional obligations in the scope of monitoring and reporting the issues related to environmental pro-

tection, which are defined in the administrative decisions issued for the Task in question (see chapter 3.5) and presented in Appendix 1 and Appendix 2 to the EMP.

It is planned that the Contractor shall prepare collective reports on environmental monitoring at the works implementation stage. The reports shall be confirmed by environmental supervision specialists from the Contractor's team, approved by the Engineer's nature supervision staff and submitted to the RDOŚ via the PIU. A detailed scope of the report shall be determined by the Engineer (the commencement report, the periodic (monthly) report, the quarterly report, the ad hoc report, the closure report). The Engineer shall also define their preparation deadlines.

The OVFM Project reporting system shall be based on monthly reports submitted by Contractors to the PIO via the Engineer and on the Engineer's monthly reports. Monthly reports on EMP implementation shall also be prepared (by the Contractor and the Engineer) – as part of the monthly reports or as separate documents. Collective quarterly reports shall also be developed on this basis.

The PIU shall submit quarterly reports concerning its implemented tasks to the PCU. They shall contain the required set of information and descriptions enabling the PCU to prepare the OVFM Project quarterly report. Moreover, especially in the case of problems with implementation of the Contract for works, the PCU shall expect the PIO to submit information sets and data every month.

The following reporting procedures were defined:

1) Reporting:
   a) reports (the commencement, monthly, quarterly and final ones) prepared by the Contractor of works;
   b) report overview by the Engineer;
   c) submitting the report to the Employer (for information purposes);
   d) submitting the report to the RDOŚ (only in the scope stemming from the issued administrative decisions);
   e) submission of a quarterly report by the PIU to the PCU.
2) Archiving:
   a) Contractor: 1 copy of each report in the electronic version, for 5 years after the Contract completion date;
   b) Engineer: 1 copy of each report in the electronic version, for 5 years after Contract completion;
   c) Employer: 1 copy of each report in the electronic version, for 5 years after the Contract completion date.
3) Evaluation:
   a) assessment (on a running basis) of implementation results of the planned actions stemming from the EMP;
   b) analysis (on a running basis) of documentation (the Contractor's reports) by the Engineer;
   c) submission of reliable information on the course of the construction process to the Employer, with special consideration for the implementation of the measures limiting

the negative environmental impact and the recommendations stemming from the environmental decisions;

d) preparation and submission of quarterly reports by the PCU to the World Bank.

The following are planned:

- *ex-ante* evaluation: a report before commencing Contract implementation (the Engineer's report);
- evaluation on a running basis: the Engineer's quarterly reports;
- *ex-post* evaluation:
  - a report after completing Contract implementation (final reports on EMP implementation prepared by the Contractor and the Engineer);
  - a report on EMP implementation after the Defect Notification Period, prepared by the Engineer.

11. LIST OF SOURCE MATERIALS

1) *Project Operations Manual (POM) for the Odra-Vistula Flood Management Project.* OVFM Project Coordination Unit. Wrocław, October 2015.

2) *Environmental and Social Management Framework for the Odra-Vistula Flood Management Project – a final document.* RZGW in Szczecin, RZGW in Wrocław, RZGW in Kraków, ZMiUW of the Lubuskie Province in Zielona Góra, West-Pomeranian ZMiUW in Szczecin, ZMiUW of the Świętokrzyskie Province in Kielce, Lower-Silesian ZMiUW in Wrocław, ZMiUW of the Małopolskie Province in Kraków, ZMiUW of the Podkarpackie Province in Rzeszów, IMGW – National Research Institute. April 2015.

3) *The environmental impact report for the undertaking entitled: "Nowa Sól – Pleszówek – stage I – construction of the left-bank embankment of the Odra river at chainage km 429,85÷432,40 and embankments of the Czarna Struga river at chainage km 0+000÷3+330"*. EKOPROJEKT Zielona Góra. 2009.

4) *The environmental impact report for the undertaking entitled: "Nowa Sól – Pleszówek – stage I – construction of the left-bank embankment of the Odra river at chainage km 429,85÷432,40 and embankments of the Czarna Struga river at chainage km 0+000÷3+330" – a supplement*. EKOPROJEKT Zielona Góra. 2010.

5) *The environmental impact report for the undertaking entitled: "Nowa Sól – Pleszówek – stage II – construction of draining pumping station with improvements to existing flood embankments of the Czarna Struga river, municipalities Nowa Sól and Otyń"*. EKOPROJEKT Zielona Góra. 2012.

6) *Expertise within the scope of impact of the undertaking on the water protection purposes within the meaning of Article 4.1. in connection with Article 4.7 of the Framework Water Directive for the undertakings entitled: "Nowa Sól – Pleszówek – stage I – construction of the left-bank embankment of the Odra river at chainage km 429,85÷432,40 and embankments of the Czarna Struga river at chainage km 0+000÷3+330" and "Nowa Sól – Pleszówek – stage II – construction of draining pumping station with improvements to existing flood embankments of the Czarna Struga river, municipalities Nowa Sól and Otyń"*. AECOM, Wrocław. 2017.

12. LIST OF APPENDICES

Appendix 1. Plan of mitigation measures

Appendix 2. Plan of monitoring measures

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

Appendix 4. Copies of administrative decisions in the scope of environmental protection issued for the Task:

a. Decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of February 16th, 2011
on the environmental conditions for the investment entitled:
"Nowa Sól – Pleszówek – stage I – construction of the left-bank embankment of the Odra river at chainage km 429,85÷432,40 and embankments of the Czarna Struga river at chainage km 0+000÷3+330"
(ref. No.: WOOŚ-II.4233.2.2011.TK)

b. Decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of June 29th, 2012
transferring the decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of February 16th, 2011 from the Lubuskie Board of Amelioration and Hydraulic Structures in Zielona Góra in favour of the Lubuskie Province (ref. No.: WOOŚ-II.4233.4.2012.AN)

c. Decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of January 31th, 2013
on the environmental conditions for the investment entitled:
"Nowa Sól – Pleszówek – stage II – construction of draining pumping station with improvements to existing flood embankments of the Czarna Struga river, municipalities Nowa Sól and Otyń"
(ref. No.: WOOŚ-II.4233.3.2012.AN)

d. Decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of November 14th, 2014
transferring the decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of February 16th, 2011 and the decision of the Regional Director for Environmental Protection in Gorzów Wielkopolski of June 29th, 2012 from the Lubuskie Province in favour of the Marshal of the Lubuskie Province (ref. No.: WOOŚ-II.4233.10.2014.NC)

Appendix 5. Tables presenting the information about the resources of protected species of plants, fungi and animals in the surroundings of the Task

Appendix 6. Map presenting the location of main elements of the Task

Appendix 7. Map presenting Task location in relation to protected areas

Appendix 8. Map presenting the location of natural habitats in the area of Task

Appendix 9. Map presenting the location of objects of cultural value in the surroundings of the Task