

ENVIRONMENTAL MANAGEMENT PLAN

FINAL

for

ODRA RIVER BASIN FLOOD PROTECTION PROJECT

Component B

Modernization of Wroclaw Floodway System

WORKS CONTRACT

***Section: The Widawa River from the railway bridge
(Krzywoustego Street) to the Odra River estuary***

B3-2

**ENVIRONMENTAL CATEGORY A - ACCORDING TO
OP 4.01 WB**

ODRA RIVER BASIN FLOOD PROTECTION PROJECT

Co-financed by:

World Bank, Loan No. 7436-POL

Council of Europe Development Bank, Framework Loan Agreement F/P 1535 (2005)

Grant from the EU Cohesion Fund

Project Coordination Unit
Odra River Basin
Flood Protection Project

Regional Authorities
for Water Management
in Wroclaw

Regional Authorities
for Water Management
in Gliwice

Lower Silesia Board of Amelioration
and Water Structures
in Wroclaw

Wroclaw - January 2013

ODRA RIVER BASIN FLOOD PROTECTION PROJECT

Co-financed by:

World Bank, Loan No. 7436-POL

Council of Europe Development Bank, Framework Loan Agreement F/P 1535 (2005)

Grant from the EU Cohesion Fund

ENVIRONMENTAL MANAGEMENT PLAN

Component B

Modernization of Wroclaw Floodway System

Works Contract: B3-2 Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary

Environmental Management Plan is prepared for Works Contract B3-2 implemented by Lower Silesia Board of Amelioration and Water Structures in Wroclaw. EMP is prepared by the Technical Support Consultant Joint Venture Grontmij Polska Sp z o.o./Grontmij Nederland B.V./Sogreah Consultants SAS/Sogreah Polska Sp. z o.o./Ekocentrum Sp. z o.o. It concerns the activities related to the modernization of Wroclaw Floodway System in scope of flood relief through the Widawa Transfer (Component B3).

Prepared by:

Joint Venture: Grontmij Polska Sp z o.o./Grontmij Nederland B.V./Sogreah Consultants SAS/Sogreah Polska Sp. z o.o./ Ekocentrum Sp. z o.o.

Project Implementation Unit of Odra River Flood Protection Project in Lower Silesia Board of Amelioration and Water Structures in Wroclaw

Wroclaw - January 2013.

Project Coordination Unit
Odra River Basin
Flood Protection Project

Regional Authorities
for Water Management
in Wroclaw

Regional Authorities
for Water Management
in Gliwice

Lower Silesia Board of
Amelioration
and Water Structures
in Wroclaw

Contents

SUMMARY	VI
1. INTRODUCTION	1-1
2. PROJECT DESCRIPTION	2-1
2.1. LOCATION AND AREA	2-1
2.2. PROJECT CHARACTERIZATION	2-2
3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK	3-7
3.1. RELEVANT INSTITUTIONS ENGAGED IN PROJECT REALIZATION	3-7
3.2. EXISTING POLISH LEGISLATION IN SCOPE OF ENVIRONMENTAL PROTECTION	3-7
3.3. MAIN STEPS OF NATIONAL PROCEDURE ON EIA IN POLAND	3-8
3.4. RELEVANT WORLD BANK POLICY	3-14
3.5. ACTUAL STATUS OF EIA PROCEDURE FOR CONTRACT	3-14
4. BASELINE CONDITIONS ASSESSED DURING ALIGNMENT SURVEY	4-17
4.1. SOILS AND GEOLOGICAL CONDITIONS	4-17
4.2. SURFACE WATERS	4-17
4.3. UNDERGROUND WATERS	4-18
4.4. METEOROLOGICAL CONDITIONS	4-18
4.5. AIR QUALITY	4-19
4.6. ACOUSTIC CLIMATE	4-20
4.7. NATURAL CONDITIONS (FLORA AND FAUNA)	4-21
4.7.1. NATURA 2000 AREAS	4-28
4.8. POPULATION	4-29
4.9. CULTURAL MONUMENTS	4-29
4.10. LAND SURFACE AND LANDSCAPE	4-30
5. SUMMARY OF ENVIRONMENTAL IMPACTS ASSESMENT	5-31
5.1. IMPACT ON SOIL	5-31
5.2. IMPACT ONTO AIR QUALITY	5-32
5.3. ACOUSTIC CLIMATE	5-33
5.4. WILDLIFE	5-34
5.4.1. PROTECTED NATURAL HABITATS AND PROTECTED SPECIES OF PLANTS, FUNGI AND ANIMALS	5-35
5.4.2. IMPACT ONTO THE HABITATS AND PROTECTED SPECIES AND THE NATURA 2000 AREAS	5-35
5.5. IMPACT ON SURFACE AND UNDERGROUND WATERS	5-36
5.6. SOCIAL AND CULTURAL MONUMENTS IMPACTS	5-44
5.6.1. SOCIAL IMPACT	5-44
5.6.2. LAND AREA FOR THE INVESTMENT	5-45
5.6.3. IMPACT ONTO CULTURAL HERITAGE	5-45
5.6.4. IMPACT ON NATURAL RESOURCES	5-45
5.7. BACKGROUND FACILITIES OF THE CONSTRUCTION SITE	5-45
5.8. CUMULATIVE IMPACTS	5-47
5.9. IMPACT ONTO LOCAL CLIMATE	5-48
6. DESCRIPTION OF MITIGATION MEASURES	6-49
6.1. DESCRIPTION OF MITIGATION MEASURES	6-49
6.1.1. SOIL	6-49
6.1.2. SURFACE AND GROUND WATER	6-50
6.1.3. AIR QUALITY	6-51

6.1.4. NOISE.....	6-51
6.1.5. CULTURAL HERITAGE.....	6-52
6.1.6. FLORA AND FAUNA.....	6-55
6.2. COMPENSATION MEASURES OF THE ENVIRONMENTAL NEGATIVE IMPACT.....	6-57
6.3. REQUIREMENTS OF SITE SPECIFIC IMPLEMENTATION PLANS DURING CONSTRUCTION PHASE.....	6-59
6.4. MITIGATION MEASURES PLAN - CHECK LIST.....	6-60
7. DESCRIPTION OF MONITORING PROGRAM.....	7-1
7.1. MONITORING OF IMPACT ON THE ENVIRONMENT DURING CONSTRUCTION STAGE.....	7-1
7.2. MONITORING OF ENVIRONMENTAL IMPACT DURING OPERATION STAGE.....	7-4
7.3. ENVIRONMENTAL MONITORING PLAN - CHECK LIST.....	7-4
8. PUBLIC CONSULTATION.....	8-1
8.1. PUBLIC CONSULTATION OF GENERAL EIA FOR ORFPP (2005).....	8-1
8.2. PUBLIC CONSULTATION OF EIA REPORT (2010-2011).....	8-2
8.3. PUBLIC CONSULTATION OF EMP (2012).....	8-5
8.4. DOCUMENTATION.....	8-6
9. INSTITUTIONAL ARRANGEMENTS OF EMP IMPLEMENTATION.....	9-1
9.1. OFFICE FOR THE COORDINATION OF Odra RIVER BASIN FLOOD PROTECTION PROJECT.....	9-1
9.2. M&E CONSULTANT.....	9-1
9.3. PROJECT IMPLEMENTATION UNIT.....	9-2
9.4. ENGINEER.....	9-4
9.5. CONTRACTORS.....	9-5
10. IMPLEMENTATION SCHEDULE AND REPORTING PROCEDURES.....	10-1
11. REFERENCE.....	11-1
APPENDICES.....	11-1
APPENDIX 1. CHECK LIST - MITIGATION MEASURES PLAN.....	1
APPENDIX 2. CHECK LIST - MONITORING PLAN.....	1
APPENDIX 3. MAIN POLISH LEGISLATION.....	11-1
APPENDIX 4. ENVIRONMENTAL DECISION.....	1
APPENDIX 5. LOCALITY MAP.....	11-1
APPENDIX 6 - DESCRIPTION, LOCATION AND SIGNIFICANCE OF NATURAL OBJECTS.....	1
APPENDIX 7 - LIST AND DESCRIPTION OF HABITATS' AND SPECIES' RESOURCES IN AREA OF WORKS CONTRACT IMPACT.....	11-1
APPENDIX 8 - SUMMARY OF MITIGATION AND COMPENSATION MEASURES.....	1

Definitions and abbreviations used in EMP

Abbreviation	Full name
Beneficiary/Investor / Employer	Lower Silesia Board of Amelioration and Water Structures in Wroclaw
World Bank (WB)	International Bank for Reconstruction and Development (IBRD)
PCU	ORFP Project Coordination Unit
Environmental Decision	Environmental Decision
DZMiUW	Lower Silesia Board of Amelioration and Water Structures in Wroclaw
GDOS	General Director for Environmental Protection
Contractor	Person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s)
Engineer	see <i>Consultant</i>
PIU	Project Implementation Unit
JV	Joint Venture
Consultant or Consultant DZMiUW Wroclaw/Engineer	Joint Venture consisting of: Grontmij Polska Sp. z o. o., Grontmij Nederland B. V., Sogreah Polska Sp. z o. o., Sogreah Consultants SAS, Ekocentrum Sp. z o. o.
EIA	Environmental Impact Assessment
OP	Operational Policy of World Bank
SAC	Special Area of Conservation (within Natura 2000 network)
PAD	Project Appraisal Document of World Bank
ORFPP	Odra River Basin Flood Protection Project
Project	Odra River Basin Flood Protection Project (ORFPP)
EIA Report for subcomponent B3	Construction of flood protection objects/structures for City of Wroclaw as part of activities related to Modernization of Wroclaw Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges
Works contract	Works Contract B3-2 Section: The Widawa River from the railway bridge (Krzywoustego Street) to the estuary to the Odra River
EMP	Environmental Management Plan
RAP	Resettlement Action Plan
RDOS	Regional Director for Environmental Protection in Wroclaw
RZGW	Regional Authorities for Water Management in Wroclaw
SPA	Special Protection Area (within Natura 2000 network)
EU	European Union
WFS	Wroclaw Floodway System

List of abbreviated names of the acts used in EMP

The

names of acts cited in this EMP are given in the abbreviated version.

Name used in text	Full name (including publication address)
EIA Directive	Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (EU Official Journal L 175 of 05.07.1985, Page 40, as amended)
Flood Risk Directive	Directive 2007/60/WE of the European Parliament and the Council of 23 October 2007 on the assessment and management of flood risks (EU Official Journal L 288 of 06.11.2007, Page 27)
Birds Directive	Directive of the European Parliament and the Council 2009/147/WE of 30 November 2009 on the conservation of wild birds (EU Official Journal L 20 of 26.01.2010, Page 7)
Habitats Directive	Directive of the Council 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (EU Official Journal L 206 of 22.07.1992, Page 7, as amended)
SEIA Directive	Directive 2001/42/WE of the European Parliament and the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (EU Official Journal L 197 of 21.07.2001, Page 30)
Damage Directive	Directive 2004/35/CE of the European Parliament and the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (EU Official Journal L 143 of 30.04.2004, Page 56, as amended)
Waste Framework Directive	Directive 2008/98/WE of the European Parliament and the Council of 19 November 2008 on waste (EU Official Journal L 312 of 22.11.2008, Page 3)
Water Framework Directive	Directive 2000/60/WE of the European Parliament and the Council of 23 October 2000 establishing a framework for the Community action in the field of water policy (EU Official Journal L 327 of 22.12.2000, Page 1, as amended)
Construction Law	Act of 7 July 1994 - Construction Law (Consolidated text: Journal of Laws of 2010, No.243, Item 1623, as amended)
Environmental Protection Law	Act of 27 April 2001 - Environmental Protection Law (Consolidated text: Journal of Laws of 2008, No. 25, Item 150, as amended)
Water Law	Act of 18 July 2001 - Water Law (Consolidated text: Journal of Laws of 2012, No. 0, Item 145, as amended)
Special Flood Protection Act	Act of 8 July, 2010 on special rules concerning the preparation for realization of investments pertaining to flood structures (Journal of Laws of 2010, No. 143, item 963)
Nature Conservation Act	Act of 16 April 2004 on the conservation of nature (Consolidation act: Journal of Laws of 2009, No. 151, Item 1220, as amended)
Regulation on the projects likely to significantly affect the environment	Regulation of the Council of Ministers of 9 November 2004 on the types of projects that are likely to significantly affect the environment and specific conditions for qualifying projects to prepare the report on the environmental impact (Journal of Laws of 2004, No. 257, Item 2573, as amended)

Name used in text	Full name (including publication address)
	On 15 November 2010, a Regulation of the Council of Ministers of 9 November 2010 entered into force on projects likely to significantly affect the environment (Journal of Laws No. 213/2010, Item 1397). Therefore the Regulation of 3 December 2004 expired, Journal of Laws 257 Item 2573 as amended
Monument Protection Act	Act of 23 July 2003 on historic monument protection and care (Journal of Laws of 2010, No. 130, Item 871, as amended)
Waste Act	Act of 27 April 2001 on waste (Consolidation act: Journal of Laws of 2010, No. 185, Item 1243, as amended)
EIA Act	Act of 3 October 2008 on provision of information on environment and its protection, public participation in environmental protection and the environmental impact assessment (Journal of Laws of 2012, No. 36, Item 908, as amended)

SUMMARY

This document presents the Environmental Management Plan (EMP) for the Works Contract B3-2 Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary which is realized in the frame of the Odra River Basin Flood Protection Project (ORFPP), co-financed by the International Bank for Reconstruction and Development (World Bank), Council of Europe Development Bank (CEB) as well as State.

This EMP included the following elements:

- Policy, legal and administrative framework with listed national (Polish) legislation, main steps of EIA procedure, World Bank policies and requirements as well as description of EIA procedure for this works contract,
- Baseline conditions assessed during alignment survey in scope of landscape, climate, air quality, soil, surface and ground water, noise, ecosystems (flora and fauna) and immovable cultural assets,
- Summary of environmental impacts included in EIA Report for all above mentioned environmental elements,
- Description of mitigation measures for realization by the Contractor and Beneficiary on stage of construction and operation of this works contract with reference to soil, surface and ground water, air, noise, flora and fauna. Compensation measures of negative impact on the ecosystems (flora and fauna) have also been presented. Mitigation measures plan in form of a checklist is attached in Appendix 1 hereto,
- Description of monitoring program during phase of construction and operations of works contract for individual environmental elements. Monitoring program in form of checklist is attached in Appendix 2 hereto,
- Course and results of public consultation on stage of general EIA (initial phase), EIA of works contract and on stage of preparation this EMP,
- Institutional arrangements of EMP implementation, implementation schedule and reporting procedures.

The appendices to EMP are the checklists of mitigation measures plan and monitoring program, the Environmental Decision as well as a graphic appendix - location map of the planned Works Contract. The main ground for this EMP for Works Contract B3-2 "Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary" is the EIA Report named: *"Construction of flood protection objects/structures for City of Wroclaw as part of activities related to Modernization of Wroclaw Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges (3/3)"* and the Environmental Decision issued by RDOS in Wroclaw.

Need of implementation of the Works Contract

The Works Contract, which is a part of Wrocław Floodway System Project (WFS), is aimed at the provision of flood protection for a densely populated area of Wrocław in the valley of the middle Odra River. As a result of the project, reduction of the frequency and extent of floods in the area is expected.

Localization and scope of the Works Contract

Works Contract B3-2 will be realized in the Lower Silesian Province within the administrative boundaries of Wrocław, within the district of Wrocław and Trzebnica. The area covered by the Works Contract (the B3-2 contract) together with the impact area is equal around 1668 ha and covers 20 WFS structures / structures with the following numbers: 42.2; 42.3; 42.3.1; 43; 44.4; 44.5; 44.6; 44.7; 44.8; 44.9; 44.10; 44.14; 44.15; 44.16; 44.17; 44.18; 45.3; 45.4; 46.2 and 19 which are further described and shown at map (App. No. 5). The planned for modernization existing flood-protection embankments as well as the new ones will play the role of the shafts of the Widawa River at km 0+000 - 16+900. The Works Contract will involve the construction of new embankments as well as local reconstruction and modernization consisting in strengthening the embankment body, widening, local raising and leveling as well as locally demolition of existing embankments and the modernization of the bridges located at this section of the Widawa River.

Current state of the environment

At the stage of EIA Report¹ preparation the valorization of the natural environment in the area of planned works was done. At the valorization of the natural environment and the threats caused by the planned Works Contract onto the fauna and flora, both direct area mapping as well as existing archived materials and available publications were used. The method of "further steps" derived among others from the above literature was used in the valorization proceedings of particular environmental elements which are required for projecting the potential impact:

- Identification of valuable (including protected) objects and natural sites on the basis of in-house works and existing research and planning materials;
- Field inspections to perform the verification and inventory of the quantity and coverage of selected objects and areas as well as specific natural-landscape characteristics.

¹ Environmental Impact Assessment Report "*Construction of flood protection objects/structures for City of Wrocław as part of activities related to Modernization of Wrocław Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges (3/3)*" - prepared by the team of specialist hired by the Consultant.

- Assessment of the scope of preservation and conversion of individual components of natural environment, i.e. assessment of the scope of compatibility or incompatibility with natural character of the environment (valuation);
- Projecting the risk for particular fragments of land and natural components / elements within the investment as well as its immediate vicinity is conditioned by the value of previously inventoried environmental features.

As a result of the works related to the identification of values of the natural environment and the cultural heritage, in immediate surroundings of the existing embankment, it has been found (by the team of environmental specialists during the EIA procedure) that this area is characterized by the following local and supra-local conditions:

- The area in the immediate surroundings of the Works Contract is an area of special natural values and of great importance for the formation of high biodiversity. The field research and review of related national technical and legal documentation performed by the independent team of experts as a part of EIA Report preparation confirmed presence of protected and rare species of plants and rare species of animals was recorded. The team of experts also noted presence of protected natural habitats and locally and regionally valuable plant communities. The planned Works Contract in the period of implementation is likely to affect the existing natural habitats which have a relatively high potential for flora and fauna.
- Within the planned project, i.e. within the scope of their potential direct impacts, there are areas under a special form of nature conservation (Natura 2000) as well as valuable conservation objects. The five structures / structures of the B3-2 contract are located (or partially situated) at the SAC "Dolina Widawy" ("Valley of the Widawa River") (PLH020036). The other 15 structures / structures of the contract are located beyond the Natura 2000 areas SAC "Dolina Widawy". The "Valley of the Widawa River" (PLH020036) is a projected Special Area of Conservation of the Natura 2000 habitats - the area was confirmed by the European Commission - the Decision of the Commission dated 12 December 2008 on the grounds of the Council Directive 92/43/EEC on adoption of the fourth updated list of sites of importance for the Community composing the continental bio-geographical region (normative act no. K(2010) 9669).

For this reason, according to the operational policy OP 4.01 of the World Bank, the EMP has been prepared. The EMP includes the plan for implementation of mitigation measures that reduce negative impacts on the environment which may arise in the process of contract implementation. The EMP also includes the monitoring plan. Mitigation and monitoring plans are presented in Appendices No 1 and 2 hereto.

Summary of the main negative impacts in the course of implementation of the Works Contract

- *Impact on soil*

In the course of implementation, the negative impacts shall be related to the transformation of land as a result of the conducted earth works and cleaning works within the area. A potential threat can be imposed by local contamination of land surface with petroleum products in case of leaks from used machinery and equipment. In any case, within the scheduled mitigating activities, these negative impacts shall not be significant.

- *Evaluation of the state of surface waters*

In line with the settlements of the Water Management Plan for the Odra River, the scope of works planned for implementation indicated in the **B 3-2** contract covers the following integrated surface water bodies (ISWB):

Contract for the B3-2 works: WFS structure no. 19 (partially): Surface water bodies: PLRW60002113399 - the Odra River within the boundaries of Wrocław, Integrated surface water bodies: SO 1106;

Contract for the B3-2 works: WFS structures no. 42.2, 42.3, 42.3.1, 43, 44.15, 44.16, 44.17, 46.2, 44.18, 44.4, 44.5, 44.6, 45.4, 44.7, 44.8, 44.9, 44.10, 19 (partially): Surface water bodies: PLRW60001913699 – the Widawa River from the Dobra River up to the Odra River, Integrated surface water bodies: SO 0309:

At recent years there has been diagnostic monitoring conducted at 2 measurement and control points conducted at the basin of the river. In addition, the outlets of the Olesnica and Dobra Rivers have been monitored. At the Widawa River there is a change of water quality along its course. Third (III) class of water quality (i.e. moderate state) has been recorded at one point below Bierutów and fourth (IV) class (i.e. weak state) - at the outlet. The change in classification has been forced by increased levels of the following indicators: phosphate (fifth (V) class – poor state), color, lead, mercury and a number of faecal coli-forms. The change in classification has been influenced by both its tributaries, especially the Dobra River as well as the infiltration of water from irrigated fields at Osobowice in Wrocław. In addition, average annual values which characterize the process of eutrophication have been exceeded, at the profile below Bierutów - for nitrates and at the outlet to the Odra River - for nitrates and general phosphorus. Only concentrations of general nitrogen and nitrates increased significantly. The bacteriological state has been under improvement.

- *Acoustic impact*

The conducted analysis allows a conclusion that the acoustic nuisance shall only occur in a relatively short period of implementation. The performed calculations for selected situations allow a conclusion that the scope of occurrence of noise will remain on acceptable level for

residential buildings and other structures protected against noise. Since no construction works are planned to be conducted at night, acoustic effects from 10 pm to 6 am will not occur at all. The acoustic impact of construction works will have short-term effects, lasting in most cases for several days, depending on particular locations of the works conducted, which was taken into account while designing the mitigation measures.

- *Impact on air quality*

Emissions of air pollutants will be produced by operating equipment and machinery used in construction and transportation works. However, the emissions shall be so low and short-term that they will not lead to significant negative effects, in relation to humans and neither to the quality of the entire local environment.

- *Impact on cultural heritage, archaeological sites*

In the course of implementation of the Works Contract, there will be no occurrences of negative impacts onto protected monuments under the laws and regulations on the conservation of monuments and care as the registered monuments are located a distance of 400 m from building site. In Table 6-1 listed are the identified archaeological sites, all more than 80 m away from the planned works, although their actual boundaries are not known. Therefore, their existence is highlighted in this EMP for special attention vis-à-vis the potential for "chance finds". In addition the works in progress will be discussed with relevant authorities for heritage conservation, and in case of finding historic structures or elements of cultural monuments while conducting these works, archaeological research and rescue works will be carried out.

- *Impact on flora and fauna, protected areas, including Natura 2000 sites*

During the construction works there may occur negative impacts on animal habitats and potential loss of animal specimen, yet - with implementation of the mitigating measures - not large enough to cause significant negative environmental impacts. The adopted mitigation measures, including careful selection of embankment alignment or selection of new routes of embankments in such a way to avoid interfering with protected sites, will allow avoiding the significant negative impacts of the project onto protected species for which the Natura 2000 sites were designated, and thus allowing for the classification of these structures as the project not exerting a significant negative impact on Natura 2000 sites.

Ats places where it was not possible to avoid negative impacts, in line with the Polish law, the mitigating actions shall be executed through compensation and shall be implemented in the course of the project. These have been identified through detailed biodiversity surveys of the project area which were done earlier as required in order to get permits for the works. In these cases protective measures will be carried out in accordance with the detailed procedures set out for each species in the official nature protection handbook (the EMP

summarizes the specified procedures in each case). This can involve moving individuals to new locations, stopping works during the breeding/nesting season, etc.

The evaluation of the natural consequences of the project implementation showed that the inclusion and implementation of mitigation measures will lead to a significant reduction or elimination of all the major and foreseeable risks to the environment associated with the planned project.

- *Impact on landscape*

Construction of the new sections of embankments will permanently change the surrounding landscape. However, it will not violate it in a significant manner. In accordance with the methodology of construction, the new embankments shall be sown with a mixture of grass and such vegetation cover is the most desirable.

The modernization (rehabilitation) of the embankments will not change the surrounding landscape. In accordance with the methodology of construction, the embankments after modernization shall be sown with mixture of grass and such vegetation cover is the most desirable.

Planting trees weakens the structure of the embankment and it poses a threat to its sustainability in the future. This will not be done, and existing trees would be removed.

- *Impact on underground waters*

With regard to underground waters, direct but not significant impacts shall appear primarily in the investment period, when these changes are related to land transformations as a result of the conducted earth and cleaning works or possible land contamination with petroleum products in case of any leaks from used machinery and equipment. In any case, with the application of designed mitigating activities these threats shall not be significant. In case of object-oriented trench drainage works and as a result of pumping, periodic lowering of the level of underground water can occur at the distance up to 3-5 meters from the trench edge. This effect will be of temporary nature and will not cause any significant negative effect.

- *Impact on surface waters*

By choosing the implementation of the so-called “environmental variant”, solutions, solutions which maximally reduce the negative impact onto the state of some waters were applied. In particular:

- the introduced adjustments of new embankments along the new route being more distant from the Widawa River, expand the valley of the Widawa River and thus increase the natural retention and flood-coverage areas in the valley of the river and thus reduce possibility of increased pollution/contamination due to water entering the city, industrial areas, washing roads etc.,

- the location of the embankments at a distance of more than 10 m from the river bed, modernization and reconstruction at the existing routes, introduction of mitigation measures as well as no interference within the beds of these watercourses limit their negative impact onto the objectives of water protection and the objectives of the Natura 2000 areas established within the region,
- actions related to the interference into the river-bed are only linked to the need to increase clear spans of the bridges and improve the safe pass of flood / raised waters (reducing erosion of the bottom and slopes),
- construction of the new embankments is linked only to the protection of built-up areas, the variant which is the least harmful to the environment was selected. The new embankments have been located at the furthest possible distance from the river, with their convenient communication with the existing infrastructure (roads) and the least intrusive alignment within the natural habitat. In this manner the natural retention and flood-plain areas of the valley of the Widawa River have been not reduced.
- *Supervision of implementation of mitigation measures*

Implementation of all the biota- and cultural heritage-related mitigation measures will be supervised and controlled by suitable specialists hired by the Contractor as set out in Section 6.1.6, with regular oversight from the official inspectors and the DZMiUW/investor, via supervising engineer and his team as indicated in Section 6.1.5. Further details of these measures are presented in referenced Mitigation and Monitoring tables.

Impacts in the course of operation of the project

- *Impact on soil*

During the operation there will be no interventions on the surface of the embankment crest and slopes.

- *Acoustic impact*

During the operation of the planned flood protection infrastructure noise emissions will not occur. Minimal changes of the acoustic field distribution in the region of rebuilt sections of the embankments may be expected, yet these changes shall in most cases be completely irrelevant to the protection against noise. During the conducted periodic mowing treatments of the embankments (twice a year) - minor noise emissions from equipment used for these works will occur.

- *Impact on air quality*

During the operational stage there will be no negative impacts on air quality.

During the conducted periodic mowing treatments of the embankments (twice a year) - minor amount of exhaust gasses related to the use of power-driven equipment will be emitted.

However, this shall be very low amount and shall not pose any threat to the air quality within the area.

- *Impact on cultural heritage*

The operation of the embankment is not relevant to historic constructions and structures, or the whole local cultural heritage. Just the opposite, it has got a positive impact (if there have been any undiscovered places located within the works), protecting them against flood waters and any connected damage.

- *Impact on flora and fauna, protected areas, including Natura 2000 sites*

Negative impacts onto habitats and protected areas, including Natura 2000 sites, are not expected to occur in the period of operation. Also, in relation to fauna, these impacts are not likely to occur.

- *Impact on the landscape*

The new and modernized embankments shall neither constitute the dominant landscape in terms of height nor obscure the view of valuable elements of the landscape.

- *Impact on surface and underground waters*

In the operational stage there will be no negative effects on quality of the surface and underground waters. This is further ensured by the design solutions related to in-take and discharge of rain-waters of the transport communication objects / premises.

Cumulative impacts

The implementation of the works contract B3-2 can overlap in time with Works Contracts B1-1, B1-2, B1-3, B1-11 and B3-1 located in the area and its neighbourhood as well as realization of WFS structures, which will be realized by the Regional Authorities for Water Management in Wroclaw within the same project - Modernization of the Wroclaw Floodway System.

In this case, the cumulative impact of the simultaneously ongoing investments onto the environment in the scope of gas emission and noise emission (in case of projects located in the proximity to each other) should be expected. The emission of air pollutants as a result of the operation of equipment and machinery at the same time will increase. The very convenient location of these investments in terms of wind rose causes however that pollution generated at the area (at the time of modernization works) will be largely dispersed and moved outside the city. The increased level of noise - in case of imposition of works - should be also expected. These effects will cease with the completion of the investment. The mitigation measures connected with cumulative impacts are described in App. 1 hereto.

Reducing negative impacts and enhancing favourable impacts

The fundamental environmental impacts shall occur during the project implementation. A series of mitigation measures or activities eliminating its negative impact (App. 1) are planned, aiming at:

- protection of water environment and ground against pollution (use of efficient mechanical equipment, adequate storage and transfer of fuel substances),
- protection against noise: work only during daylight, use of efficient building equipment,
- protection of the natural environment and landscape, through the implementation of the project according to the “environmental variant”, which minimizes interference with the habitats of flora and fauna and points out solutions to minimize impacts on Natura 2000 sites through, inter alia, actions such as: correction of the route of the embankment beyond natural valuable areas; depending on the location of existing trees growing around the embankment change of rebuilt technology; superstructure from the water side slope without moving the existing tree-lined embankment crowns and surfaces of air side slopes or vice versa; modernization of the existing embankment by the front method in order to minimize the impact area,
- in case of cutting down trees with a diameter at breast height above 50 cm - to control the occupancy of these trees with protected species of beetles, such as *Cerambyx cerdo*, hermit beetle *Osmoderma eremite* by entomologist and the presence of bats by chiropterologist,
- transfer the protected plant species under supervision of botanist,
- preservation of the herbaceous vegetation by removing the top layer of soil with herbaceous vegetation growing on before start of the work and storing it in a place protected from destruction - in order to use this layer afterwards, during the reclamation works,
- training and supervising persons performing work related to the elimination of invasive plants,
- using secure solutions for preservation of amphibian breeding places to prevent mortality (as a result of the work and traffic) of animal traveling to and from the breeding grounds. Technical solutions (e.g. fencing of construction sites or use of traps in the form of grooves in the ground) shall be performed along sections of embankments corresponding to the length of amphibians breeding site and on the length not less than 150 meters from the edges of those places. Detailed technology and location, and the rules for handling amphibians are to be agreed with a specialist in the field of herpetology,

- during the implementation phase of the project, within the periods indicated by a specialist - herpetologist, monitor daily barriers or traps and move animals according to directions in which they move,
- protection of the cultural heritage through consulting on the manner of conducting the works with relevant authorities of heritage conservation and archaeological supervision on the building site.

Compensation measures

At the course of the conducted assessment, it was stated for the environmental variant (second (II) variant), the areas of the existing protected natural habitats are permanently occupied by the flood-protection structures (mainly embankments). The losses shall not be large enough to be considered significant, however, they require to be compensated - at least partially - under article 75 of the act - Environmental Protection Act [unified text: Journal of Laws dated 19.07.2006, no. 129, item 902]. The compensation solutions refer to the protected species of invertebrates, amphibians and reptiles. The conduct of the following natural compensations are planned:

1. For the destruction of patches of the natural habitat - low-land and mountain fresh meadows used extensively (code - 6510) with their area of around 14,2 ha - at the land plots no. 2/1, Precinct of Psie Pole AM-16, no. 5, Precinct of Psie Pole, AM-2, no. 1, Precinct of Widawa, AM-1, no. 3, Precinct of Widawa, AM-1, no. 10, Precinct of Zgorzelisko, AM-12, no. 15, Precinct of Zgorzelisko AM-12 - conduct activities consisting in annual, at least once, mowing and removing of mowed biomass, removing foreign species of plants aimed to improve the state of conservation of patches of fresh meadows located in the valley of the Widawa River at the area not lower than 29 ha. Perform the activities for the period of 5 years.
2. For the destruction of patches of the natural habitat - oak, elm, ash riverine forests (code - 91F0) with their area of 1,6 ha - at the land plot no. 3, Precinct of Swiniary, AM-23 - restore riparian forests with their area of 1,5 ha. The compensation should be conducted through forestation of the area taking into account appropriate tree species (for the type of natural habitats). The basic principles of forest cultivation should be maintained. All the detailed solutions should be implemented under the guidance of a specialist - phyto-sociologist.

Required monitoring

Monitoring program is attached in App. 2. The monitoring program includes all requirements from the Environmental decision issued by RDOS, which is shown in App. No. 4. The monitoring program allows constant control on proper realization of all mitigation and compensation measures.

Conclusions from the analysis of possible social conflicts

Such conflicts may arise due to the concern that deterioration of living conditions, environment state will follow, or harm will be caused to owners of land plots on which or within which the works will be carried out. In the analysed case we are dealing with the implementation of a linear investment - for the most part existing for years - which in its course is partly located on valuable lands and partly in the vicinity of human settlements. The linear investment crosses plots belonging to private entities, agricultural lands, NATURA 2000 sites and others. The feelings which this investment may invoke in people living near the implemented project may be mainly on emotional grounds e.g. fears of destruction of the embankment (breach of the embankment), yet informing people living nearby about proper and safe technical and technological solutions should overcome these fears, reassuring at the same that the Works Contract will be protection and not threat.

However on completion of the EIA procedure people are aware of the placement of flood protection structures at the analysed area and fulfilment of social needs and interests by the project. The embankments' modernization and construction will improve flood protection of this area (protection of personal property and people's lives) hence the local community is positively disposed towards it and is awaiting the commencement of works as soon as possible. The aspects of the social impacts of the Works Contract B3-2 are described in detail in document entitled *Resettlement Action Plan (RAP)*.

Legal context of the project

The present works contract is qualified to the so-called group no. II specified in the regulation of the Ministry of Environment. The Regional Director of the Environmental Protection in Wrocław - through the Resolution dated 20.09.2010 issued the resolution on obligation to perform environmental impact assessment for the project and specified the scope of the present report. After submission of EIA Report the Authority (RDOS) carried out EIA procedure with public consultation. For this works contract RDOS issued (31.01.2012) the environmental decision in which determined the conditions of its realization in aspect of environmental protection.

1. INTRODUCTION

This document presents the Environmental Management Plan (EMP) for the Works Contract B3-2 "Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary" realized in the frame of the Odra River Basin Flood Protection Project (ORFPP), co-financed by the International Bank for Reconstruction and Development (World Bank), Council of Europe Development Bank (CEB) as well as State. It should be emphasized that presented document is "site-specific" and is dedicated only and exclusively for Works Contract B3-2, not for all ORFP Project.

The main objective of ORFP Project is to protect the population of the flooded areas of the upper and middle Odra River Valley against the risk of extreme flooding. The Project consists of four components. Two of the most important components (investment components) include Modernization of Wrocław Floodway System (WFS) (Component B) and the Construction of Raciborz Flood Retention Reservoir (Component A). The entities directly responsible for the implementation of these project's components are:

1) Regional Authorities for Water Management Board in Wrocław

- for modernization of WFS, the part related to effort to increase the capacity Odra River basin (Subcomponent B2);

2) Lower Silesia Board of Amelioration and Water Structures in Wrocław

- for modernization of WFS, the part related to modernization of Odra River embankments (Subcomponent B1) and the adaptation of Widawa River Valley to serve as discharge canal for flood waters (Subcomponent B3);

3) Regional Authorities for Water Management Board in Gliwice

- for construction of Raciborz Flood Retention Reservoir (Component A).

According to the information contained in the Project Appraisal Document (PAD), ORFP Project is Category "A"¹ project, (among other Works Contract B3-2) that is likely to have significant negative impact on the environment and requiring an environmental impact assessment² and preparation of Environmental Management Plan³.

¹ According to the classification of indicated in Point 8 of operational policy OP 4.01 of World Bank (version of February 2011 : <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,contentMDK:20064724~menuPK:64701763~pagePK:64709096~piPK:64709108~theSitePK:502184,00.html>).

² According to the contents of Point 8(a) of operational policy OP 4.01 of World Bank.

³ According to the contents of Point 3 in Appendix A and Point 1 in Appendix C of operational policy OP 4.01 of World Bank.

According to the guidelines of the World Bank, the environment management plan is an instrument of determining: (a) a set of measures to eliminate or reduce negative impacts of the project on the environment to be taken at the stage of its implementation and after completion, and (b) the actions necessary for the effective implementation of these measures¹.

Environmental impact assessment for ORFPP has been carried out for the first time in 2003 (as part of a feasibility study for the project), then it was a subject to verification by team of foreign and national consultants. As a result of this work in 2005 a document was prepared *Flood Protection Project for the Odra River Basin - General Environmental Impact Study, Main Report*, containing among other issues Environmental Management Plan for ORFPP (Chapter 8 and 9 of the above document).

In recent years there have been many changes to legal and organizational context of the project in Poland, mainly due to gradual implementation of Community law (including *EIA Directive, Flood Directive, Birds Directive, habitats Directive, SEA Directive, Claim Directive, Waste Framework Directive, Water Framework Directive, etc.*) and to creating national network of Natura 2000. Due to the above mentioned circumstances, in the years 2009-2011, assessment of the impact of each element of the project² was once again prepared, taking into account the current legal and organizational condition of nature and environment protection in Poland.

The main objective of the updated EMP, prepared individually for any Works Contract, is to ensure an effective reduction, compensation and monitoring of adverse environmental impact of the Works Contract, identified at the stage of an environmental impact assessment and during the subsequent administrative procedures necessary for the implementation on stages of realization and exploitation.

It should be stressed that this EMP does not replace the contents of the administrative decisions, and is a separate document to coordinate and systematizes the actions. It also does not exempt from the implementation of specific recommendations contained in the decisions.

¹ According to the contents of Point 3 In Appendix A of operational policy OP 4.01 of World Bank.

² The evaluation ended with the issue of a decision on the environmental conditions for B1, B2 and B3.

2. PROJECT DESCRIPTION

The Works Contract B3-2 is a part of WFS modernization Project, the part related to the construction of flood protection objects/facilities for City of Wrocław as part of activities related to Modernization of Wrocław Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges (Subcomponent B3) falling within the competence of Lower Silesia Board of Amelioration and Water Structures in Wrocław.

Project of the modernization of Wrocław Floodway System (WFS) is the second - apart from the construction of Raciborz flood water retention reservoir - main element of Odra River Basin Flood Protection Project (ORFPP), created to support the implementation of governmental 'Program for the Odra 2006'. The aims of the Odra River Basin Flood Protection Project are: protection of lives and property of community living on the flooded areas of the upper and middle Odra River Valley against the risk of extreme flooding - such as the flood in 1997.

The purpose of WFS modernization Project is especially the improvement of Wrocław flood protection system, including enhancement of the flow capacity of the Odra River and its valley for the flood wave within the city and improvement of flood safety within areas adjacent to the river. At present, a flood wave carrying no more than 2 200m³/s can be safely managed through Wrocław, whereas the maximum flood flow in 1997 (recorded just above Wrocław, in Trestno) was equal to 3 640 m³/s. As the Raciborz reservoir shall provide only partial protection of Wrocław, there is the need for a wide range of modernization works and reconstruction of flood protection system and an increase of flow capacity of the river beds of the Odra and Widawa Rivers in and around the city of Wrocław. According to statements included in *"Feasibility Study for the Raciborz Flood Reservoir on the Odra River - Modernization of the Wrocław Floodway System (WFS)"* (Jacobs Gibb Ltd., Jacobs Gibb Polska, Hydroprojekt Sp. z o.o., 2004), the construction of Raciborz flood reservoir shall ensure effective reduction of the flood waves on the Odra River in the wide scope of occurrence probability and together with WFS modernization it is to ensure almost entire protection of Wrocław against a flood event comparable to the flood of 1997 (if such flood occurs again after implementation of both investments, the losses can be reduced by approximately 99%).

2.1. LOCATION AND AREA

Planned Works Contract B3-2 will be realized in Lower Silesia Voivodeship, administratively in the district of Wrocław and Trzebnica. Area of the Works Contract B3-2

together with impact area is ca. 1668.07 ha and included the structures indicated in Table 2-1. The structures were presented on the map in Attach. No. 5.

Table 2-1. Structures realized in scope of Works Contract B3-2

Subcomponent B 3	Contract	Name of structure	Area of occupation together with impact area
B 3 Flood relief through the Widawa Transfer	B3 - 2 Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary	Krzywoustego - railway line - new embankment (WFS structure No. 44.14)	18.7722
		Krzywoustego - railway line, embankment modernization (WFS structure No. 45.3)	13.5128
		Psie Pole - new embankment (WFS structure No. 44.4)	41.3709
		Klokoczyce - new embankment (WFS structure No. 44.5)	123.9563
		Soltysowice (embankment along the the city ring road) (WFS structure No. 44.15)	207.6835
		Polanowice - new embankment (WFS structure No. 44.16)	180.3298
		Krzyzanowice - new embankment (WFS structure No. 44.6)	123.1636
		Krzyzanowice - embankment modernization (WFS structure No. 45.4)	42.3825
		Psary - new embankment (WFS structure No. 44.7)	34.3463
		Increasing of capacity of the bridge on the Widawa River in Psary (WFS structure No. 43)	62.9351
		Road Bridge rebuilding in Widawa (WFS structure No. 42.2)	9.3200
		Psary – ring embankment (WFS structure No. 44.8)	14.4567
		Szymanow - new embankment (WFS structure No. 44.9)	37.5102
		Pracze Widawskie - new embankment (WFS structure No. 44.17)	75.5204
		Pracze Widawskie - embankment demolition (WFS structure No. 46.2)	52.4247
		Swiniary - embankment modernization (WFS structure No. 44.18)	53.4549
		Road Bridge rebuilding Pegowski (WFS structure No. 42.3)	107.8686
		Railway Bridge rebuilding Pegowski (WFS structure No. 42.3.1)	14.9880
		Szewce - new embankment (WFS structure No. 44.10)	104.8000
		Paniowice - embankment demolition (WFS structure No. 19)	349.2701
	Total		1668.0666

2.2. PROJECT CHARACTERIZATION

The embankments existing and planned for modernization as well as new will be the embankments of the Widawa River in km 0+000-16+900. Works Contract requires the construction of the new embankments and local reconstruction and modernization on entire length of the existing embankments, consisting of strengthening of the body; widening, local heightening and smoothening of the crest as well as rebuilding of the bridges located on this

section of the Widawa River. Below, in Table 2-2 is presented information connected with localization of the WFS structures and planned scope of works (see map in App. No. 5).

Table 2-2 Localization and scope of works for Contract B3-2 'Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary'

Works contract, location and scope of the works					
Structure (WFS structure)	Location, km of the Odra River/the Widawa River	Structure (WFS structure)	Distance from the riverside/riverbed of the Widawa River [m]		Scope of the works
			min	max	
B3 - 2 Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary	Widawa 16+900 – 17+180	Krzywoustego – railway line – new embankment (WFS structure No. 44.14)	80	100	The structure is located at the left bank of the Widawa River between the railway bridge and road bridge at the course of B. Krzywoustego Street. The scope of the works covers constructing the new embankment body and its sealing it with a bentonite matting together with a service road aimed to maintain the embankment, passing through the embankment and culverts. The length - around 280 m.
	Widawa 16+900 – 17+180	Krzywoustego – railway line, embankment modernization (WFS structure No. 45.3)	40	80	The structure is located at the right bank of the Widawa River between the railway bridge and road bridge at the course of B. Krzywoustego Street. The scope of the works covers an adjustment of the course of the embankment (shifting away from the River), reconstruction of its body in order to seal it and improve its stability together with all the required infrastructure. The modernised embankment at the length of around 290 m.
	Widawa 9+850	Road Bridge rebuilding in Widawa (WFS structure No. 42.2)	The Widawa River bed 50m	The Widawa River bed 50m	The structure is located at the course of Sulowska Street in Wrocław. The projected scope of the works covers increasing the length of the bridge from around 34 m up to 89 m together with the reconstruction of access roads. The width of the roadways at the bridge will remain unchanged. Regulation of the Widawa River-bed at the section of 50 m.
	Widawa 3+950	Road Bridge rebuilding Pegowski (WFS structure No. 42.3)	The Widawa River bed 50m	The Widawa River bed 50m	The structure is located at the course of Pegowska Street in Wrocław. The projected scope of the works will cover re-constructing the bridge in order to increase its length from 50 m up to 120 m with simultaneous widening the roadways up to 7 m. Regulation of the Widawa River-bed at the section of 50 m.
	Widawa 3+900	Railway Bridge rebuilding Pegowski (WFS structure No. 42.3.1)	The Widawa River bed 50m	The Widawa River bed 50m	The structure refers to the railway bridge located parallel to the road bridge within Pegowska Street in Wrocław; the bridge is located at the Wrocław - Poznań railway route. The projected scope of the works will be limited only to securing the bridge abutments and securing the banks of the River-bed within the bridge abutments. It will be not required to expand the bridge. Regulation of the Widawa River-bed at the section of 50 m.

Works contract, location and scope of the works					
Structure (WFS structure)	Location, km of the Odra River/the Widawa River	Structure (WFS structure)	Distance from the riverside/riverbed of the Widawa River [m]		Scope of the works
			min	max	
	Widawa 3+950	Increasing of capacity of the bridge on the Widawa River in Psary (WFS structure No. 43)	100	200	The scope of the works projected at the structure projects re-constructing the road between the bridge over the Old Widawa in Psary and the bridge at the course of Sulowska Street in Widawa through raising a grade-line of the road so that it is raised over the level of flood waters.
	Widawa 13+100 – 16+900	Soltysowice (embankment along the the city ring road) (WFS structure No. 44.15)	140	850	The structure constitutes a left-side embankment of the Widawa River starting from the shaft of the Wrocław - Olesnica railway tracks up to the boundaries of the Polanowice housing estate in Wrocław. The scope of the works covers constructing the new embankment body with its total length of around 3220 m. The projected route of the embankment runs north off the planned Inner-city Ring-road.
	Widawa 9+850 – 13+100	Polanowice – new embankment (WFS structure No. 44.16)	20	600	The structure constitutes a right-side embankment of the Widawa River being an extension of the Soltysowicki embankment up to the flood-protection embankment of the Widawsko-Kłokoczyska Dyke at the Widawa housing estate in Wrocław. At the section of crossing of the embankment with the Wrocław Motorway Ring Road, the embankment is a leader carrying flood waters into the bridge profile of the Wrocław Motorway Ring Road at Kamińskiego Street. The scope of the works covers constructing the new embankment body with its length of around 3260 m.
	Widawa 7+000 – 9+050	Pracze Widawskie – new embankment (WFS structure No. 44.17)	20	600	The structure constitutes a left-side embankment of the Widawa River in Wrocław starting from Fryzjerska Street in Widawa up to Zalpie Street in Swiniary. The projected scope of the works covers constructing the new embankment body with its total length of 1550 m and its sealing.
	Widawa 7+800 – 8+500	Pracze Widawskie – embankment demolition (WFS structure No. 46.2)	20	250	The scope of the planned works within the structure projects demolition of a section of the existing left-bank embankment from a road from Wrocław to Szymanów up to the Widawa River. Moreover, within the structure it is projected to lower a grade-line of the road from Wrocław up to Szymanów, starting from Zalpie Street in Swiniary up to the demolished embankment. The length of the demolished embankment is equal to around 460 m.
	Widawa 4+000 – 7+000	Swiniary – embankment modernization (WFS structure No. 44.18)	20	650	Within the WFS structure no. 44.18 - Swiniary - embankment modernisation, the works will consist in re-construction of the embankment body in order to seal it and improve its stability together with all the required infrastructure. The length of the modernised embankment is equal to around 3000 m.

Works contract, location and scope of the works					
Structure (WFS structure)	Location, km of the Odra River/the Widawa River	Structure (WFS structure)	Distance from the riverside/riverbed of the Widawa River [m]		Scope of the works
			min	max	
	Widawa Ujście Dobrej 16+500 – 16+850	Psie Pole – new embankment (WFS structure No. 44.4)	20	200	The structure is located at the right bank of the Widawa River and is a back-water embankment of the Dobra water course at the section from the Wrocław - Olesnica railway tracks up to the Klokoczycki bridge. The scope of the works covers constructing the new embankment body with its length of around 1110 m and its sealing with a membrane made of bentonite matting.
	Widawa 14+250 – 16+500	Klokoczyce – new embankment (WFS structure No. 44.5)	20	450	The structure is located at the right bank of the Widawa River within the Klokoczyce housing estate at the section from the Klokoczycki bridge up to the "Nad Widawa" garden allotments below the Soltysowicki bridge. The scope of the works includes constructing the new embankment body and its sealing. The total length of the newly-built embankment is around 2270 m.
	Widawa 12+250 – 13+900	Krzyzanowice – new embankment (WFS structure No. 44.6)	10	80	The structure is located at the right bank of the Widawa River at the location of Krzyzanowice at the community of Wisznia Mała. The scope of the works covers constructing the new embankment with its total length of around 600 m with its connection to the Wrocław Motorway Bypass (body), its sealing together with a service road projected for maintenance purposes and - in case of any need - its culverts.
	Widawa 11+950 – 12+250	Krzyzanowice – embankment modernization (WFS structure No. 45.4)	10	20	The structure constitutes a right-side embankment of the Widawa River, starting from the right bank of the Relief Canal of the Widawa River up to the bridge at Mostowa Street in Krzyzanowice. The projected scope of the works covers reconstructing the embankment body in order to raise it, seal it and improve its stability together with all the required infrastructure. The length of the modernised embankment is around 360 m.
	Widawa 9+850 – 11+950	Psary – new embankment (WFS structure No. 44.7)	20	300	The structure is located at the right bank of the Widawa River starting from Mostowa Street in Krzyzanowice up to Główna Street in Psary (the community of Wisznia Mała). The scope of the works covers constructing the new embankment body with its length of 1940 m and its sealing. Moreover, at the places of crossing of the embankment with the Relief Canal in Krzyzanowice as well as with the River-bed of the Old Widawa in Psary, it is projected to build culverts with electrically-driven latches.
	Widawa 8+600 – 9+850	Psary – ring embankment (WFS structure No. 44.8)	150	200	The structure is located at the right bank of the Widawa River from Główna Street in Psary up to the Old Widawa water course together with its over-flowing. At the structure it is projected to build the new embankment body with its total length of 790 m between the national road in Psary and the outlet of the Old Widawa water course (the Psarski channel) down to the Widawa River and its sealing.

Works contract, location and scope of the works					
Structure (WFS structure)	Location, km of the Odra River/the Widawa River	Structure (WFS structure)	Distance from the riverside/riverbed of the Widawa River [m]		Scope of the works
			min	max	
	Widawa 6+050 – 8+600	Szymanow – new embankment (WFS structure No. 44.9)	10	150	The structure is located at the right bank of the Widawa River starting from the Old Widawa water course in Psary up to the outlet of the melioration ditch down to the Widawa River within the airport in Szymanow (the community of Wisznia Mala). The projected scope of the works covers constructing the new embankment body with its length of 2600 m and its sealing.
	Widawa 2+900 – 6+050	Szewce – new embankment (WFS structure No. 44.10)	30	200	The structure constitutes a new right-side flood-protection embankment of the Widawa River starting from the outlet of the melioration ditch down to the Widawa River within the airport in Szymanow (the community of Wisznia Mala) along Kwiatowa Street and its extension at the location of Szewce (the community of Oborniki Slaskie) up to the northern flood-protection embankment in Paniowice (the community of Oborniki Slaskie). The scope of the works includes constructing the new embankment body and its sealing. The total length of the projected embankment is equal to around 3370 m.
	Odra Km 266+950 – 268+100 Widawa 0+000 – 3+000	Paniowice – embankment demolition (WFS structure No. 19)*	40 40	300 350	The structure is located at the right bank of the Widawa river at its outlet down to the Odra river southern-west off the location of Paniowice (the community of Wisznia Mala). The projected scope of the works will cover a partial demolition of the embankment (at several sections) through providing gaps to enable flood waters to pass. The aggregate length of the demolition will be around 2 km

*** BEFORE DEMOLITION OF THE SECTIONS OF STRUCTURE NO. 19, AS A SEPARATE PROJECT, WILL BE MODERNIZED EMBANKMENT LOCATED NEAR PANIOWICE**

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1. RELEVANT INSTITUTIONS ENGAGED IN PROJECT REALIZATION

During the construction, modernization and operation of embankments in Poland the issue of environmental protection is managed by mutual cooperation of the following statutory government institutions:

On central level:

- Ministry of the Environment,
- Ministry of Agriculture and Rural Development,
- Ministry of Administration and Digitization,
- National Water Management Authority,
- Chief Inspector of Environmental Protection,
- General Director for Environmental Protection,
- Chief Sanitary Inspector.

On regional level:

- Regional Director for Environmental Protection in Wrocław,
- Marshal of the Lower Silesia,
- Lower Silesian Sanitary Inspector,
- Lower Silesian Inspector for Environmental Protection.

In scope of monuments protection:

- Ministry of Culture,
- Monuments' Conservator for Lower Silesia.

Moreover, the following entities shall take part in the implementation of the project:

- Governor of the Lower Silesia,
- Lower Silesia Board for Amelioration and Water Structures in Wrocław,
- Regional Authorities for Water Management in Wrocław,
- Regional Authorities for Water Management in Gliwice,
- Project Coordination Unit for Odra River Basin Flood Protection Project (PCU).

3.2. EXISTING POLISH LEGISLATION IN SCOPE OF ENVIRONMENTAL PROTECTION

According to Polish legislation the investment process in scope of environmental protection is regulated by several acts and regulations. The environmental legislation in force in Poland is summarized in Appendix 3.

3.3. MAIN STEPS OF NATIONAL PROCEDURE ON EIA IN POLAND

The EIA procedure for investment projects in Poland has been regulated in art. 59 - 120 of the EIA Act and covers in particular:

- verification of the report on the environmental impact of the project (EIA Report),
- obtaining all the opinions and arrangements required by law,
- providing opportunities for public participation in the proceedings.

Lack of the above elements in the proceedings in the scope of issuing an environmental decision leads to a conclusion that the EIA has not been conducted. The following planned projects likely to have significant effects on the environment, require conducting the EIA:

- planned projects/works contracts always likely to have significant effects on the environment. These are the so-called **group I works contracts (projects)**.
- planned works contracts potentially likely to have significant effects on the environment, if the obligation to conduct the EIA had been indicated through screening. These constitute the so-called **group II works contracts (projects)**.

The EIA is conducted in the first stage of obtaining the development consent, within the scope of the proceedings leading to issuing an environmental decision. An environmental decision specifies the terms of acceptance of the project for implementation in view of the environmental protection requirements. It is issued for projects which are likely to have significant effects on the environment and thus for the works contracts of group I and II. An environmental decision is issued prior to obtaining investment consents, including, among others:

- a construction permit, a decision on approval of the construction project and a permit to renew the construction works;
- a water permit to construct water structures;
- a decision settling the conditions of conducting works consisting in the regulation of waters and the construction of flood protection embankments as well as drainage works, construction drainages and other earth works changing water relations within the areas with specific natural values, especially areas with gatherings of greenery with their specific natural value, areas with landscape and ecological values, areas of mass bird nesting, settlements of protected species and spawning grounds, over-wintering areas, fish ladders and places of mass fish migration and other aquatic organisms.

Competent authorities

The authority competent to issue an environmental decision is as follows:

- 1) Regional Director for Environmental Protection - for the following projects: belonging to the group I, and to the group I and II accomplished within the 'closed areas' and marine areas,

- 2) governor of the region - in case of consolidation, exchange or division of land;
- 3) director of the Regional Directorate of State Forests - in case of change of forests owned by the Treasury into farmland;
- 4) mayor of a village, town or city - for other projects.

Requirements concerning the application for an environmental decision

An environmental decision is issued at the application of a business entity which plans to undertake a project/particular works contract (i.e. investor). It should meet the formal requirements of an application specified in the regulations of the national Administrative Proceedings Code.

The application must be accompanied by:

1. in case of the Group I works contracts - EIA report, and if the applicant applies for the specification of the report scope - Information Data Sheet (IDS) (a document which contains the basic data on the planned works contract);
2. in case of the Group II works contracts - IDS;
3. a copy of the cadastral map certified by the competent authority covering the area in where the works contract will be carried out and the area to be affected;
4. for the works contracts for which the Regional Director for Environmental Protection is the body conducting the proceedings - information and map extract from the local spatial management plan, if such plan has been adopted, or the statement that no such plan is in place;
5. extract from the register of property grounds covering the projected area in which the works contract will be run and the area affected by the project.

Qualification for the EIA proceedings and specification of the report scope**Group I works contracts**

The obligation to conduct the EIA for the projected works contract from Group I derives from legal regulations (Act). By submitting the application for issuing an environmental decision for the works contracts from Group I instead of the report on the environmental impact of the project, the applicant is allowed to submit the IDS together with an application for specification of the report scope. The resolution on the specification of the report scope is adopted upon consulting the Regional Director for Environmental Protection and - where appropriate - the State Sanitary Inspection.

The body of the State Sanitary Inspection which is competent to issue opinions is as follows:

1. state provincial sanitary inspector for the Group I works contracts,
2. state regional sanitary inspector or state border sanitary inspector - with regard to other works contracts likely to have significant effects on the environment,

3. competent body of the Military Sanitary Inspection with regard to the projects likely to have significant effects on the environment implemented in the areas subject to the Minister of National Defense,
4. competent body of the State Sanitary Inspection of the Ministry of the Interior and Administration in case of projects likely to have significant effects on the environment implemented within the areas of organizational units subordinate and supervised by the competent Minister of the Interior.

Group II works contracts

The obligation to conduct the EIA for the projected works contract from Group I is specified - through a resolution - by the authority competent to issue an environmental decision, cumulatively considering the aspects indicated in the EIA regulation. The obligation to conduct the EIA is declared mandatory if the possibility for implementation of the group II works contract is subject to the establishment of an area of limited use. The resolution setting the obligation or no obligation to conduct the EIA is adopted upon consulting the body of sanitary inspection.

Public consultation, consultation with environment authorities and public health authorities

Before issuing an environmental decision, the competent body authorized for its issue, provides an opportunity for public participation in the proceedings in which an EIA is prepared. The competent body to issue an environmental decision prior to issuing or changing the decision in the proceedings in which the EIA Report is drawn up, makes the following information public:

1. entering the EIA and commencement of the proceedings;
2. subject of the decision which is to be delivered on the matter;
3. competent body to issue the decision and competent bodies to issue opinions and make arrangements;
4. procedures on getting acquainted with the documentation on the matter at the place where it is made available for inspection and on submitting comments and claims;
5. manner and place of submission of comments and claims, while pointing out 21-day time limit for their submission;
6. competent body for consideration of comments and claims;
7. time and place of administrative hearing open to the public, if it is to be conducted;
8. proceedings on cross-border impact on the environment if it is to be conducted.

Disclosure of the information to the public is performed by - cumulatively - providing the information on the internet site of the Public Information Bulletin of the competent body, publishing it in a customary manner at the registered office of the competent body, and publishing it through an announcement in a customary manner at the place of the projected

Works Contract. In case the registered office of the competent body is located in the area of other municipality than the locally competent municipality in terms of the subject of the proceedings, disclosure of the information to the public is also performed by an announcement in press or in a customary manner adopted at a particular location which is appropriate in terms of the subject of the proceedings. If the number of parties in the proceedings exceeds 20, the parties can be notified about decisions and other operations of the competent authorities through an announcement or in other customary manner adopted at a particular location.

Issue of an environmental decision

In the environmental decision issued upon conducting the EIA, the competent body:

1. specifies, among others: type and location of the works contract, conditions of making use of the land at the implementation phase and operational phase or making use of the works contract, requirements in the scope of environmental protection necessary to be considered in the documentation required to issue further investment decisions, including in particular the construction project,
2. imposes an obligation to prevent, reduce and to monitor the impact of the works contract onto the environment, or states there is a need to execute natural compensation - if such need derives from the EIA;
3. states there is a need to create an area of limited use - if such need derives from the EIA;
4. demands re-conducting the EIA, together with the justification of the demand;
5. is allowed to impose an obligation onto the applicant to provide post-implementation analysis, specifying its scope and deadline for submission.

In case if the EIA is not conducted within the proceedings, the authority states no need to conduct the EIA in the environmental decision. In this case, the justification of the decision, apart from the requirements under Administrative Proceedings Code, should include the information on the conditions considered along with the demand to conduct the EIA.

Regardless of the fact whether the EIA was conducted or not, the competent body to issue the environmental decision publishes the information on the issued decision and on the procedures of getting acquainted with its content and the documentation in the matter.

Assessment of the impact of the projects/works contracts on the Natura 2000 site network

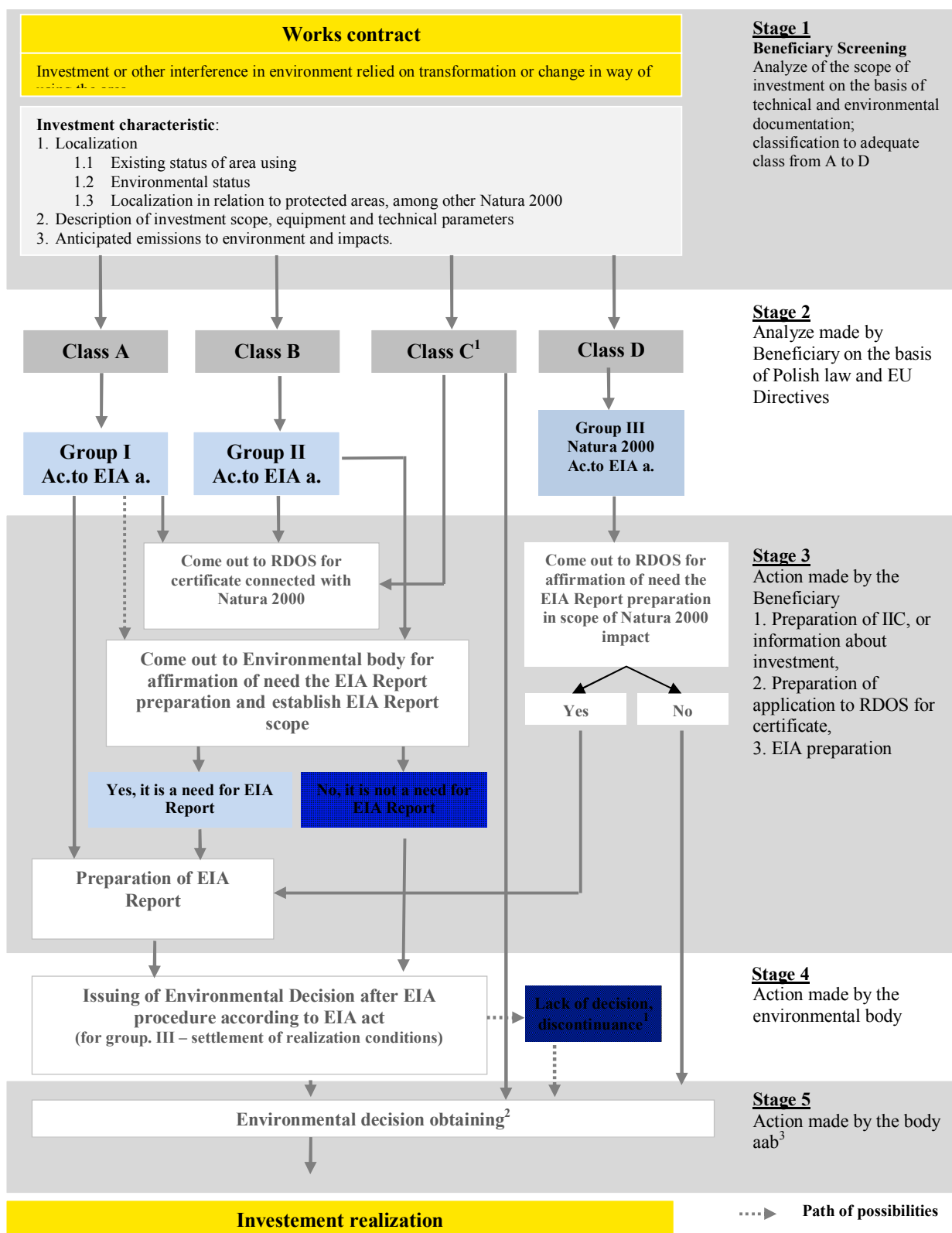
The subject of the impact assessment of the works contracts on the Natura 2000 site network is covered by the provisions of art. 59-112 of the Act on assessment of environmental impact and art. 33 -36 of the Nature Conservation Act.

Prior to launching the works contracts other than these likely to have significant effects on the environment (i.e. group I or II projects), not directly related to the protection of any Natura 2000 site or not requiring such protection, the body issuing the decision authorizing the implementation of the project is obliged to consider - prior to its issue - whether the projected works contract is potentially likely to have significant effects on any Natura 2000 site. These are so-called **works contracts (projects) of group III**. The assessment of the impact of the works contract of group III onto the Natura 2000 site is understood as the EIA limited to assessment of the works contract on Natura 2000 sites.

If the Regional Director for Environmental Protection considers the works contract to be likely to have significant effects on Natura 2000 sites, they issue a resolution on the obligation of conducting the impact assessment on Natura 2000 sites. In such resolution the body requires the applicant to submit a report on the impact of the works contract on the Natura 2000 sites and defines the scope of the report.

After having conducted the assessment of the impact of the works contract on the Natura 2000 sites, the Regional Director for Environmental Protection issues a resolution settling the terms and conditions of the works contract in the scope of the impact onto the Natura 2000 sites.

Below, in figure 3-1, particular stages of the procedure of obtaining the consent for the works contract/project are presented, taking into account environmental procedures.



- 1). At the C class there can be works contracts which - due to its parameters - do not require obtaining the environmental decision, do not belong to the Group II.
- 2). In the Decision on environmental conditions the body conducting the proceedings require re-conduct the EIA proceedings prior to issuing the decision authorizing the implementation of the project on the grounds of the Environmental Impact Report prepared on the basis of the construction project taking into consideration the environmental conditions included in the Environmental Decision.
- 3). AAB Body - Administration, architectural and construction body (Mayor of town or city, district, province) confirming the construction project and issuing the Decision on construction permit or decision authorizing the accomplishment of the works contract.

3.4. RELEVANT WORLD BANK POLICY

This Project is co-financed from the International Bank for Reconstruction and Development (World Bank) and the environmental component of this Project shall be in compliance with the following policies:

- Operational Policy OP 4.01 Environmental Assessment;
- OP 4.04 Natural Habitats,
- OP 4.12 Involuntary Resettlement and
- OP/BP 4.11 Physical Cultural Resources.

3.5. ACTUAL STATUS OF EIA PROCEDURE FOR CONTRACT

Environmental Impact Assessment (EIA) for this Works Contract B3-2 was carried out as part of activities relating to modernization of Wroclaw Floodway System namely *"Construction of flood protection objects/structures for City of Wroclaw as part of activities related to Modernization of Wroclaw Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges"* (3/3).

Abridged EIA procedure was carried out according to the following steps:

1. The Engineer on 11.05.2010, acting on behalf of and for the Lower Silesia Board of Amelioration and Water Structures in Wroclaw, applied to the Regional Director for Environmental Protection in Wroclaw. The Regional Director is the competent authority for the issue of environmental decision. The Engineer attached also the Information Data Sheet (IDS).
2. After supplementing the documentation by the Engineer, RDOS through a letter of 27 August 2010, ref. no.: RDOS-02-WOOS-6613-1/44-5/10/lck addressed the State District Sanitary Inspectors and Military Sanitary Inspector (letter ref. no.: RDOS-02-WOOS-6613-1/44-4/10/lck), asking for an opinion as to the obligation to carry out environmental impact assessment and, and if deemed necessary, to determine the scope of the report on the impact of the project on the environment (*the project has been classified as group II project*). The project will be implemented within the city of Wroclaw and Trzebnica region, in an area where the local jurisdiction has more than one state district sanitary inspector, such as: State District Sanitary Inspector in Wroclaw and State District Sanitary Inspector in Trzebnica.
3. By the notice of 27 August 2010, the Regional Director for Environmental Protection in Wroclaw informed all parties on:

- the commencement of administrative proceedings concerning an environmental decision,
 - the authority competent for issuing this decision,
 - the competent bodies to issue an opinion on the need to assess the environmental impact and opinions before an environmental decision,
 - the rights to participate actively in every stage of the proceedings, under Art. 10 of the Administrative Proceedings Code.
4. In the course of the investigation, the Authority received opinions of:
- Voivodeship District Sanitary Inspector in Wroclaw of 31 August 2010, demanding the need to carry out the environmental impact assessment
 - From others State District Sanitary Inspectors in Wroclaw and Trzebnica, demanding no need to carry out the environmental impact assessment,
 - State District Sanitary Inspector in Wroclaw of 21 May 2010 has no comments. Hence RDOS considered that the authorities did not object.
5. Regional Director of the Environmental Protection Wroclaw after careful examination of the collected documentation, considered that the proposed project may have significant negative effects on the environment and therefore there is a need to carry out the environmental impact assessment,
6. RDOS through the decision of 20 September 2010, ref. no. ROS-02-WOOS-6613-1/44-9/10/lck, imposed the obligation to carry out the environmental impact assessment and defined the scope of the EIA report,
7. During the on-going procedure, the Regional Director for Environmental Protection in Wroclaw, at the request of the Foundation "WWF Poland - World Wide Fund for Nature"; through the decision of 22 September 2010 ref. no. RDOS-02-WOOS-6613-1/44-10/10/lck allowed the organization to participate as a party,
8. On 31 January 2011, the Engineer submitted the EIA Report (ROOS) to RDOS,
9. After supplementing the EIA Report by the Engineer, RDOS by a notice dated 17 June 2011 made public the information about the present project, i.e.:
- entering the procedure of environmental impact assessment
 - commencement of the procedure
 - subject of the decision which is to be given in this case
 - the authority competent to issue the decision, and the bodies competent to issue opinions,
 - an opportunity to scrutinize the case and the documentation and of the place where it is open for inspection,
 - a possibility to submit comments and proposals,

- how and where to submit comments and proposals, indicating the 21-day deadline for their submission,
 - the competent authority to consider comments and proposals.
10. RDOS has requested opinions of the State Sanitary Inspectors before issuing the decision. Required opinions were issued by:
 - the State District Sanitary Inspector in Wroclaw issued positive opinion of 4 August 2011. This opinion was issued after the deadline set by the RDOS.
 - the State District Sanitary Inspector in Trzebnica did not give his opinion.
 11. RDOS applied for an opinion prior to issuing the decision to the Commandant of the Military Medical Centre (KWOM). KWOM expressed a positive opinion on implementation of the project (the opinion dated 22.06.2011).
 12. In the course of the proceedings, 4 motions were submitted: Mayor of the village of Paniowice, "My Paniowce" - Association for the Development of Paniowce, Mayor of the village of Kotowice, Mayor of the Municipality of Oborniki Slaskie. The applicant (the Lower Silesia Board of Amelioration and Water Structures in Wroclaw) responded to the submitted motions and remarks supplementing the Environmental Impact Report and organized a meeting with inhabitants of the villages of Paniowice and Kotowice.
 13. The Regional Director of the Environmental Protection Wroclaw through a notice of 30 December 2011 informed the parties to the proceedings about having collected all the material evidence necessary to issue a decision on the environmental conditions for this project. The parties were informed of the opportunity to become acquainted with all the material gathered in this matter and the possibility to make comments and conclusions as to the collected evidence. Before issuing this decision on the environmental conditions, none of the 4 motion authors as specified in point 12 above party filed any comments or requests in the procedure.
 14. On 31 January 2012 RDOS issued the Environmental Decision (ref. no.: WOOS.4233.1.2011.LCK) for this Works Contract. Information about issuing the decision was announced through a notice.
 15. On 23.02.2012 "My Paniowce" - Association for the Development of Paniowce brought an appeal against the above-specified Decision to the General Director of Environmental Protection.
 16. The General Director of Environmental Protection, after examining the EIA procedure, issued a resolution on 17.04.2012 stating a lapse of the term to submit an appeal from the above-specified environmental decision. The resolution issued by the General Director of Environmental Protection is final, thus the decision has become final.

4. BASELINE CONDITIONS ASSESSED DURING ALIGNMENT SURVEY

4.1. SOILS AND GEOLOGICAL CONDITIONS

At the analyzed area located north off the city of Wrocław there are soils made of unevenly-aged alluvial forms (river accumulation) classified to be alluvial river mud. These soils occur in the form of dusty clays and clayey sands underlain with coarse sand. Medium and heavy alluvial soils consisting over 20% of float-able particles dominate here. At their soil profile there are variously-thick layers with different color and granulometric composition corresponding to subsequent raised waters which - while flooding the valley bottoms - deposited carried suspensions at them. Alluvial river mud within the above area has got their diverse composition of humus (1 - 8%).

At the area of the projected Works Contract the ground base is made of sediments derived from quaternary Holocene and Pleistocene layers. In the course of the glaciation period the present-day valley of the Odra River together with its over-floodplain terraces got eventually formed. The Holocene complex is made of sand- and gravel-based floodplain terraces sediments. Medium and coarse sands with admixtures of organic particles dominate here (occasionally layered with silt, fine or clayey sands). Minor hollows or patches of dusty clays can be found here subordinately. Their largest spread occurs at places where at the surface rests a layer of dusty, alluvial mud-based clays with its thickness of around 0.5 m. The thickness of Holocene layers within the area is equal to 4.6 up to 5.6 m. Pleistocene is represented by sandy sediments, river or glaciofluvial facies as well as morainic clays of the Central Polish glaciation. Medium and coarse sands (always with an admixture of gravel) prevail at sand layers. Occasionally, fine sands occur at deeper levels. Moraine-based sediments form a unified complex of ground moraine shaped in the form of sandy clays (often concise clays with additives of gravel). The deeper ground base is made of Tertiary forms represented by a series of clayey - sandy sediments (limnic or marshy) lying in the valley of the Odra River at the depth of several up to over 100 m.

4.2. SURFACE WATERS

Widawa is a right-hand tributary of the Odra River. The length of the river is equal to 103.2 km and its area - 1716 km². It flows out at the level of around 200 m above sea level within the area of the Twardogorskie Hills at Droltowice close to Miedzybórz. It flows into the Odra River at the level of around 100 m above sea level. Along the entire length of the river, the river-bed bottom is padded with alluvial deposits at clays which - at minor declines - causes swamping. At recent years there has been diagnostic monitoring conducted at 2 measurement and control points conducted at the basin of the river. In addition, the outlets of

the Olesnica and Dobra Rivers have been monitored. At the Widawa River there is a change of water quality along its course. Third (III) class¹ of water quality has been recorded at one point below Bierutow and fourth (IV) class - at the outlet. The change in classification has been forced by increased levels of the following indicators: phosphate (fifth (V) class), color, lead, mercury and a number of faecal coli-forms. The change in classification has been influenced by both its tributaries, especially the Dobra River as well as the infiltration of water from irrigated fields at Osobowice in Wroclaw. In addition, average annual values which characterize the process of eutrophication have been exceeded, at the profile below Bierutow - for nitrates and at the outlet to the Odra River - for nitrates and general phosphorus. In 2004, only concentrations of general nitrogen and nitrates increased significantly. The bacteriological state has been under improvement.

4.3. UNDERGROUND WATERS

At the section of the Widawa River at km 0+000 – 16+880 (the section within which the analyzed structures of works contract are located) there is Quaternary aquifer which is formed by fluvio-glacial and river sediments, with very good permeability, with their thickness ranging from 5.0 to 10.0 m, even to 30.0 m at some places. These are composed of sands, clayey sand-mix gravels and gravels which are characterized by a high filtration ratio (from 10.0 up to 60 m / 24 hours). Locally there are also compositions with medium permeability - silt sands, clay sands, sandy dusts and dusts. The surface of water with its free character is located at the depth of 0.7-5.0 m above terrain level. Supply of underground waters goes through infiltration of precipitation and inflow of underground waters from high lands. In the embankments base there is only one aquifer the surface of which was drilled locally in non-coherent forms - gravels, sandy gravels, coarse and medium sands. It appears in the middle of the embankment below its direct base being impermeable for most of its length. The water table is free character. Only locally the table of water is little under pressure confined by clays, clay sands and aggregate clays. The natural barrier protecting under-ground waters against pollutions coming from land surfaces and surface waters is formed by cohesive forms such as clayey sands, clays and silt. The above-specified forms compose river mud occurring in the valley of the Widawa River.

4.4. METEOROLOGICAL CONDITIONS

The area covered by the planned Works Contract is located on the terrain above the city of Wroclaw and its adjacent terrain along the valley of the Odra River and its tributary the

¹ Water quality classes are described in Regulation of the Ministry of the Environment dated 9th November 2011 on the classification of the status of surface waters and environmental quality standards for priority substances

Widawa River. The climate in the region is marked by the characteristics typical to intermediate climate of temperate latitudes. Mixing oceanic and continental air masses cause great climate variability, characterized by frequent changes of weather conditions. Moreover, there occur climatic phenomena such as urban heat and precipitation islands as well as bioclimatic diversification, typical for large urban and industrial agglomerations. These generate from physical alterations resulting from the manner of management and use of urban lands.

Temperature. The average annual air temperature in Wrocław is 9.0 °C. The average monthly temperature of the coldest month (January) is - 4.0°C, the warmest month (July) - 18.8°C. The growing season lasts 226 days on the average and it is among the longest in Poland.

Atmospheric precipitation. Wrocław is characterized by low atmospheric precipitation. Atmospheric precipitation occurs on 167 days a year, while its average annual precipitation of the period of 1901-2000 is 583 mm. Similar levels of average long-term precipitation have also been recorded in the vicinity of Wrocław (Jelcz-Laskowice 568 mm, Olawa 594 mm).

4.5. AIR QUALITY

On the grounds of the air quality measurements conducted within the territory of Wrocław in 2008, the following was found:

- low level of air pollution with sulphur dioxide, carbon monoxide, benzene and heavy metals (lead, arsenic, cadmium, nickel),
- exceeded average annual standards of nitrogen dioxide - within the area of the cross-roads of Powstancow Slaskich Street, Wisniowa Alley and Hallera Street,
- high levels of dust the air - occurrence of abnormally high average daily values of suspended dust (PM10) throughout the year, with an increased frequency of recorded exceeded values in the heating season,
- high levels of benzo(a)pyrene which is used as a marker of carcinogenic risk related to the presence of polycyclic aromatic hydrocarbons in the air.

While within the municipality of Siechnice, measurements of concentrations of sulphur dioxide and nitrogen dioxide in the period of 2003-2007 showed a low level of air pollution with sulphur dioxide and no exceeded average annual standards of nitrogen dioxide. The maximum average annual concentration occurred in 2006, characterized by very low temperatures in winter (below the standard, based on the long-term period). Average concentration of SO₂ occurred at low levels, and in 2007 it oscillated between the values of 4.3 µg/m³ to 9.1 µg/m³.

The classification of zones performed in 2008 classifies the Sredzko-Wroclawska Zone with the district of Wroclaw to class A, a zone not requiring corrective actions and preparation of air quality protection program.

4.6. ACOUSTIC CLIMATE

All the works related to the modernization of the Wroclaw Floodway System (WFS) will go through very diversified areas in terms of the level of noise. Mostly they will be terrains which are remote from any built-up areas at which the level of noise is made mainly by traffic sounds coming from road networks as well as natural sounds originating from rustling of plants, animal sounds and accidental noises made by human operation.

The most burdensome scale of **communication noise** within the area of the Wroclaw Floodway System is related to Wroclaw and - in particular - with main trough-routes as well as with main communication routes burden with traffic at the most. There are 3 national roads (no. 8, 5 and 94), 15 provincial roads and a dense network of municipal (local) roads running through the city. Intensive transit traffic running through Wroclaw also goes by the following municipalities (communities): Siechnice (the national road no. 94), Dlugoleka (the national road no. 8), Czernica (the provincial road no. 455), Wisznia Mala (the national road no. 5) and Oborniki Slaskie (the provincial road no. 342). All the above-specified communication (traffic) routes as well as the provincial (the provincial road no. 320 and 336), district and municipal (local) roads running in the proximity of the Wroclaw Floodway System have an impact on the level of noise within the areas of the planned investments.

The acoustic climate is also influenced by **railway traffic**. The main railway junction is located in Wroclaw from which railway lines spread out in all directions, including through the area of the Wroclaw and Trzebnica districts. The busiest routes running in the vicinity of the Wroclaw Floodway System are as follows: Wroclaw - Olawa (through the municipality of Siechnice), Wroclaw - Olesnica (through the municipality of Dlugoleka), Wroclaw - Poznan through the municipality of Oborniki Slaskie), Wroclaw - Glogow.

Noise generated by **industrial plants** is of local range concerning inhabitants living nearby, then a relatively minor group of people. But this is a significant problem for people directly exposed to this type of impact, especially at night.

Summing up, all the works related to the construction and modernization of the embankments at the area of the planned works contract will go through diversified areas in terms of the level of noise. Mostly these are regions which are remote from any built-up areas at which the level of noise is made mainly by traffic sounds coming from road network as well as natural sounds originating from plant rustling, animal sounds and accidental noises made by people.

4.7. NATURAL CONDITIONS (FLORA AND FAUNA)

The planned works (5 structures) within the B3-2 contract are partially located at the protected area - SAC "Dolina Widawy". Others 15 structures of this Contract are located beyond this Natura 200 area. The location of the structures in respect to the protected areas is presented in the table 4-1.

Table 4-1: Location of the WFS structures realized in the frame of Works Contract B3-2 in respect to the protected areas Natura 2000.

No.	Natura 2000 area	Location of project
1	SAC "Las Pilczycki" (PLH020069)	Beyond the boundaries of the Natura 2000 area. At a distance of over 4.0 km in the southern-west.
2	SAC "Dolina Widawy" (PLH020036)	<p>WFS structures: 42.3, 42.3.1, 44.18, 44.10 and 19 located at the protected area.</p> <p>The other WFS structures are located beyond the boundaries of the Natura 2000 area:</p> <ul style="list-style-type: none"> • the WFS structure 44.9 - in the southern-east, at a distance of over 200 m and the WFS structure 44.17 - at a distance of over 500 m, • the other WFS structures located over 1.2 km from the protected area.
3	SAC "Grady w Dolinie Odry" (PLH020017)	Beyond the boundaries of the Natura 2000. At a distance of over 0.9 km in the south.
4	SPA "Grady Odrzańskie" (PLB020002)	Beyond the boundaries of the Natura 2000 area. At a distance of over 0.8 km in the south.

The detailed description of the structures together with their location, specification and determination of their significance is provided in the Appendix no. 6. Maps with graphic presentation of the location of particular natural objects at their corresponding mileage of the embankments are provided below (Fig. 4-1 to 4-6).

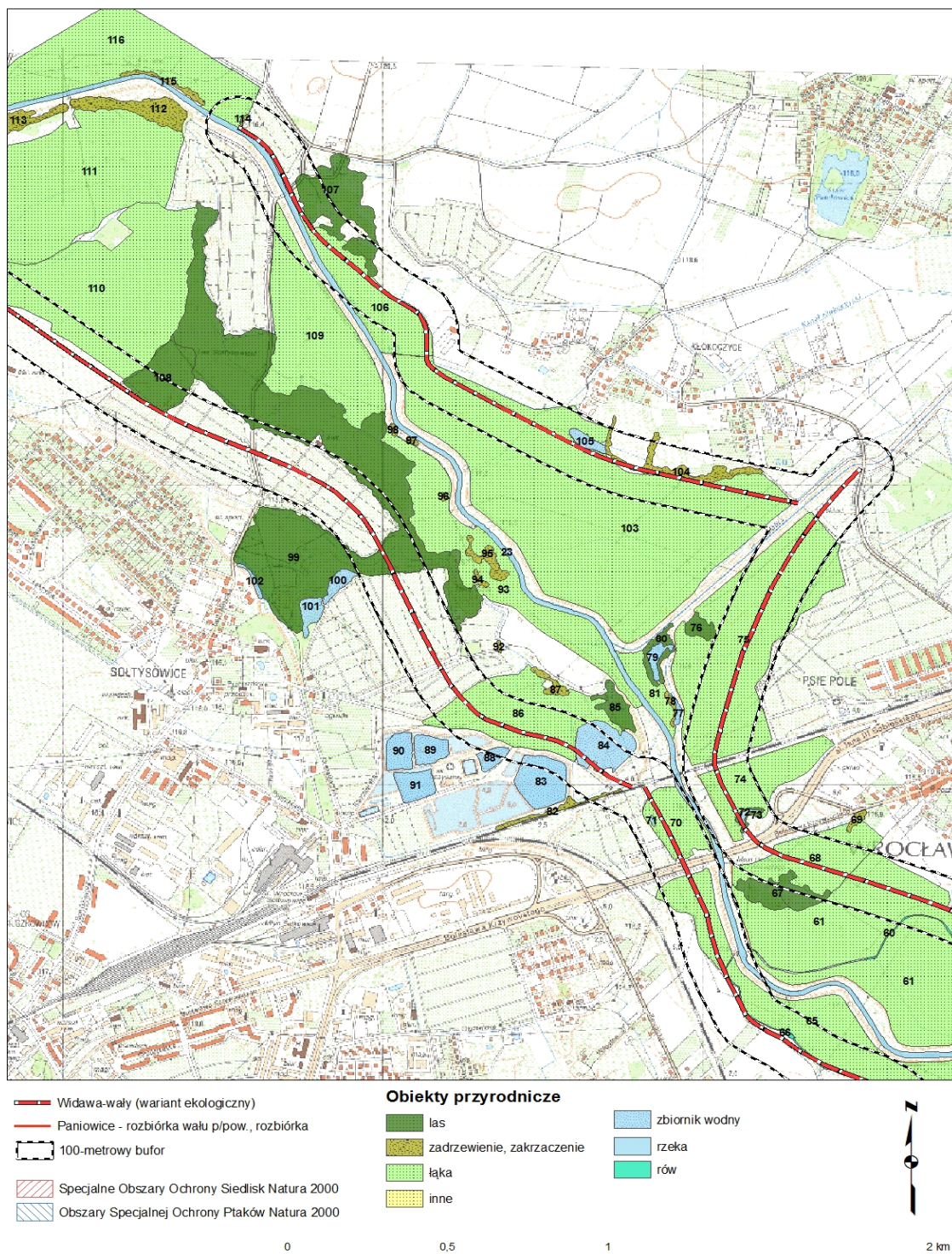


Fig. 4-1. The Widawa valley, area of the Raod Bridge along Krzywoustego Street.

Legend on the map:

Las – forest

Zadrzewienie, zakrzaczenie -

Trees, shrubs

Zadrzewienia - trees

Laka - meadow

Inne - others

Zbiornik Wodny – water tank

Rzeka – river

Row - ditch

Widawa waly (variant ekologiczny)- Widawa embankments (ecological variant)

100-metrowy bufor - 100 meters buffer

Paniowice – rozbiórka – Paniowice - demolition

Specjalny Obszar Ochrony Siedlisk Natura 2000 - Special Area for Habitat Protection Natura 2000 network

Obszar Specjalnej Ochrony Ptaków Natura 2000 - Bird Special Protection Area Natura 2000 network

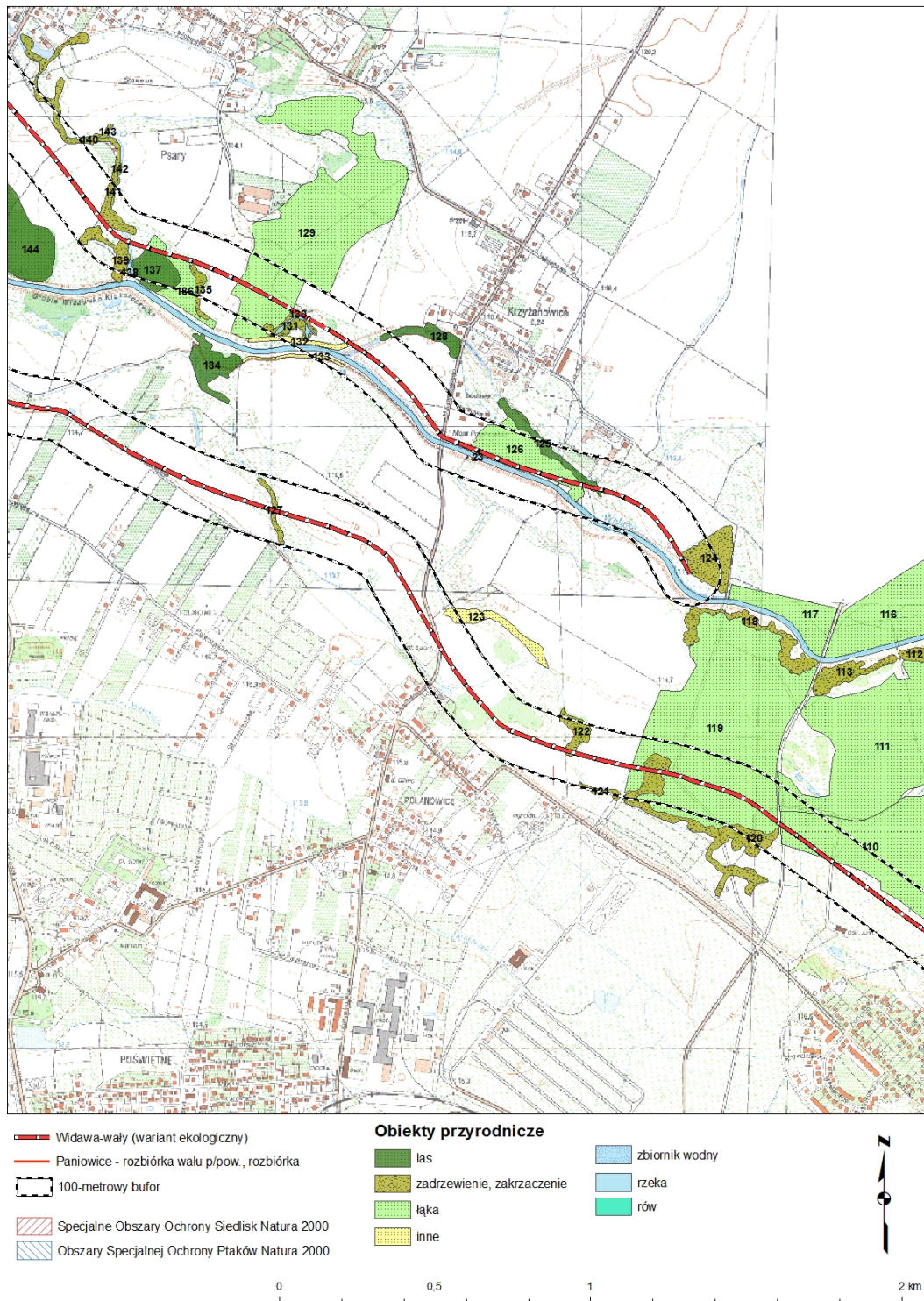


Fig. 4-2. The Widawa valley.

Legend on the map:

Las – forest

Zadrzewienie, zakrzaczenie -

Trees, shrubs

Zadrzewienia - trees

Laka - meadow

Inne - others

Zbiornik Wodny – water tank

Rzeka – river

Row - ditch

Widawa waly (variant ekologiczny)- Widawa embankments (ecological variant)

100-metrowy bufor - 100 meters buffer

Paniowice – rozbiórka – Paniowice - demolition

Specjalny Obszar Ochrony Siedlisk Natura 2000 - Special Area for Habitat Protection Natura 2000 network

Obszar Specjalnej Ochrony Ptaków Natura 2000 - Bird Special Protection Area Natura 2000 network

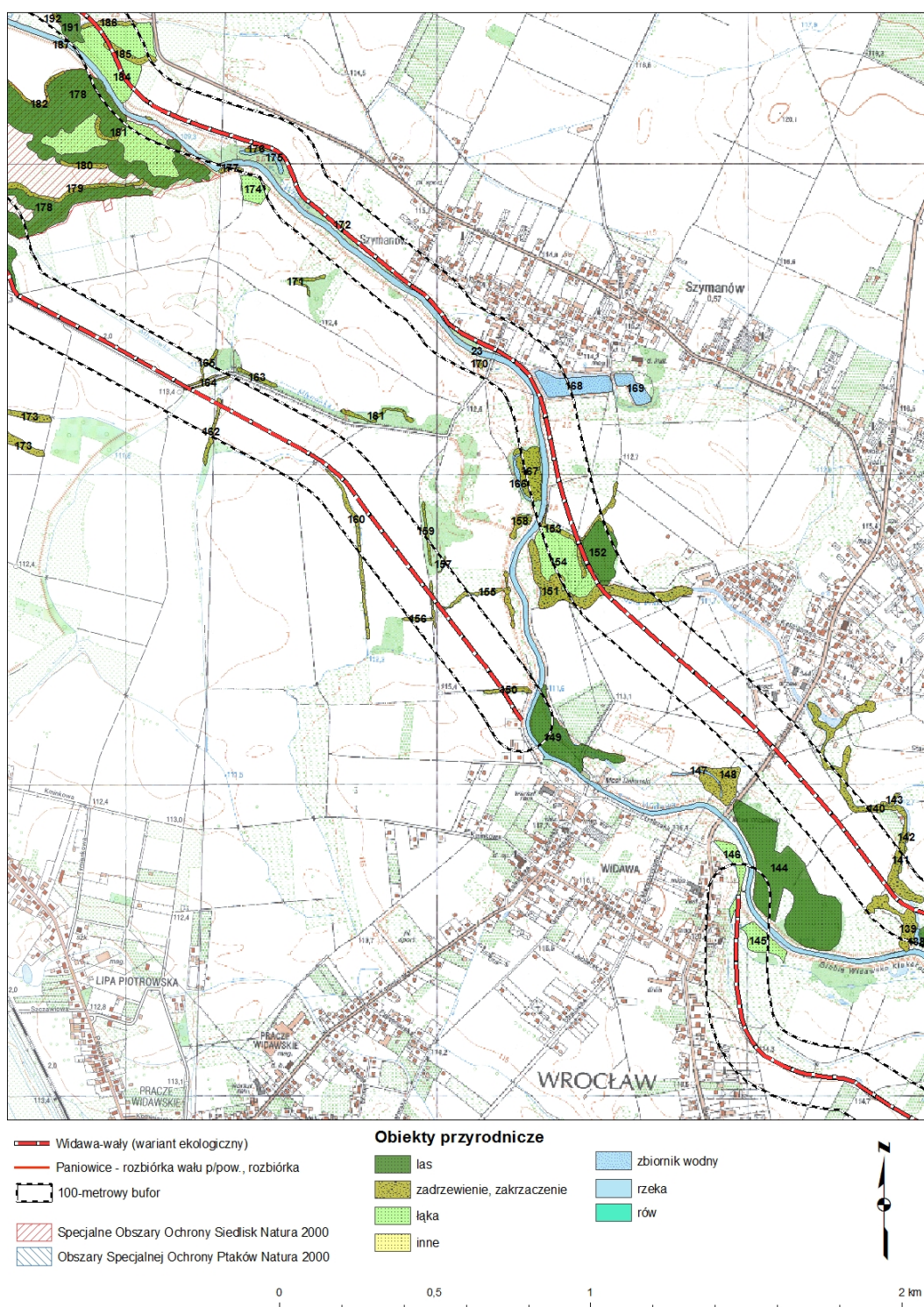


Fig. 4-3. The Widawa valley, area of Szymanow and Wiadawa.

Legend on the map:

Las – forest

Zadrzewienie, zakrzaczenie -
Trees, shrubs

Zadrzewienia - trees

Laka - meadow

Inne - others

Zbiornik Wodny – water tank

Rzeka – river

Row - ditch

Widawa waly (variant ekologiczny)- Widawa embankments (ecological variant)

100-metrowy bufor - 100 meters buffer

Paniowice – rozbiórka – Paniowice - demolition

Specjalny Obszar Ochrony Siedlisk Natura 2000 - Special Area for Habitat Protection Natura 2000 network

Obszar Specjalnej Ochrony Ptaków Natura 2000 - Bird Special Protection Area Natura 2000 network



Fig. 4-4. The Widawa valley, area of Swiniary.

Legend on the map:

Las – forest

Zadrzewienie, zakrzaczenie -
Trees, shrubs

Zadrzewienia - trees

Łąka - meadow

Inne - others

Zbiornik Wodny – water tank

Rzeka – river

Row - ditch

Widawa wały (wariant ekologiczny)- Widawa embankments
(ecological variant)

100-metrowy bufor - 100 meters buffer

Paniowice – rozbiórka – Paniowice - demolition

Specjalny Obszar Ochrony Siedlisk Natura 2000 - Special Area for
Habitat Protection Natura 2000 network

Obszar Specjalnej Ochrony Ptaków Natura 2000 - Bird Special
Protection Area Natura 2000 network

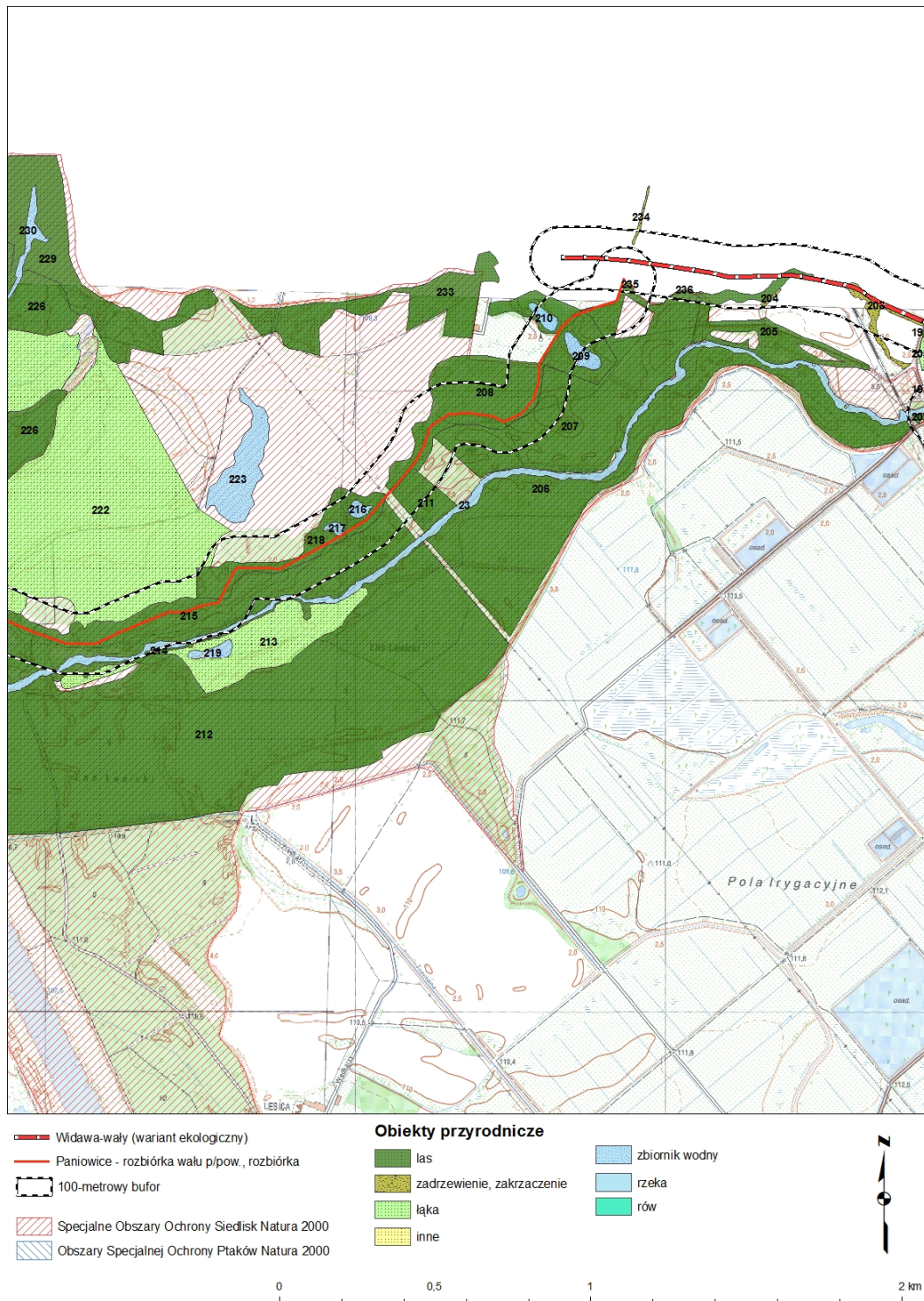


Fig. 4-5. The Widawa valley, area Pola Irygacyjne.

Legend on the map:

Las – forest

Zadrzewienie, zakrzaczenie -
Trees, shrubs

Zadrzewienia - trees

Łąka - meadow

Inne - others

Zbiornik Wodny – water tank

Rzeka – river

Rów - ditch

Widawa waly (variant ekologiczny)- Widawa embankments
(ecological variant)

100-metrowy bufor - 100 meters buffer

Paniowice – rozbiórka – Paniowice - demolition

Specjalny Obszar Ochrony Siedlisk Natura 2000 - Special Area for
Habitat Protection Natura 2000 networkObszar Specjalnej Ochrony Ptaków Natura 2000 - Bird Special
Protection Area Natura 2000 network

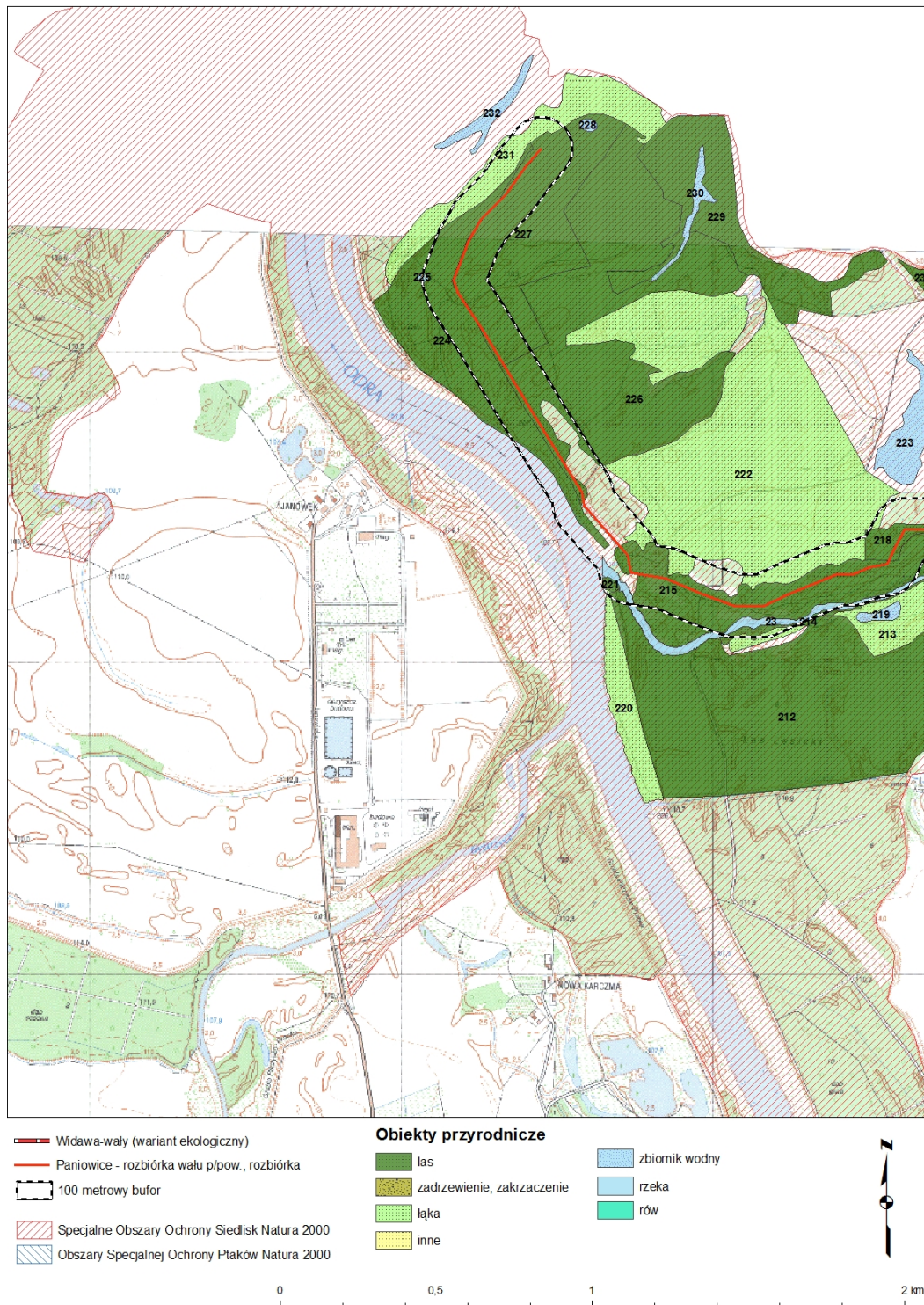


Fig. 4-6. The Widawa valley, estuary to the Odra River.

Legend on the map:

Las – forest

Zadrzewienie, zakrzaczenie -
Trees, shrubs

Zadrzewienia - trees

Łąka - meadow

Inne - others

Zbiornik Wodny – water tank

Rzeka – river

Row - ditch

Widawa wały (variant ekologiczny)- Widawa embankments
(ecological variant)

100-metrowy bufor - 100 meters buffer

Paniowice – rozbiórka – Paniowice - demolition

Specjalny Obszar Ochrony Siedlisk Natura 2000 - Special Area for
Habitat Protection Natura 2000 network

Obszar Specjalnej Ochrony Ptaków Natura 2000 - Bird Special
Protection Area Natura 2000 network

4.7.1. Natura 2000 Areas

SPA Special Protection Area, "Dolina Widawy", PHL020036 covers currently an area of 1310.14 ha (according to the draft plan proposed to the EC). The area extends along the Widawa River until its mouth (estuary) and along the valley of the Odra River (km 261-269), along Las Redzinski (in administrative borders of Wrocław). It also crosses the Odra River Valley, covering the section of the Bystrzyca River valley at its estuary with riparian forest in Nowa Karczma. It encompasses mainly flood plains within the embankments, and in some places beyond the embankment (to 1.5 km away from the Odra River Valley). The terrain is covered predominantly with coastal plant communities, including riparian and alluvial forests – partly dry and with some oak-hornbeam trees at the area outside of the embankment area. The river has relatively natural character within the embankments. The object of protection in the area are 10 types of natural habitats listed in Annex I of the Habitats Directive and 16 animal species listed in Annex II of the Habitats Directive. In case of natural habitats in the area, of the greatest value are the well-preserved riparian oak-elm-ash forests,, occupying nearly 30% of the area; a large part in the area coverage have also *Galio-Carpinetum* oak-hornbeam forests. There are small patches of priority riverine willow and poplar forests in various stages of succession, as well as oxbow lakes, tall riverine, alluvial meadows (*Cnidion dubii*) and molinia meadows (*Molinion caeruleae*).

In case of fauna species, the most important is the occurrence of species-rich group of invertebrates with very numerous populations of *Eriogaster catax* and *Hypodryas maturna* that have been noted at as many as 23 stands. Significant value in case of this group is also the numerous occurrence of great capricorn beetle *Cerambyx cerdo* (16 stands) and the presence of priority species – hermit beetle *Osmoderma ermita* (5 stands).

The Widawa River valley is at the same time of great importance as a part of ecological corridor of the Odra River; it allows to bypass the barrier being the city of Wrocław.

Natural values of the area are threatened by too intensive recreational use (Las Redzinski), and fishing (treading of coastal vegetation and crushing it at stopping and camping places, which may cause the encroachment of invasive synanthropic vegetation). Threat is also posed by the plans to transform the valleys of the Odra and the Widawa, among others the planned construction of a reservoir in the upper part of the Widawa catchment.

The site (at present of smaller borders and an area of 1049.611 ha) was approved by the European Commission by Decision of 12 December 2008.

The Works Contract B3-2 does not require the EU endorsement according to the legal authority' s opinion (RDOS) - see Environmental Decision (31st January 2012), which is presented as Appendix No. 4.

4.8. POPULATION

The Contract B3-2 is a linear investment which in its course is located partially on valuable areas in environmental terms and partly in the vicinity of small human settlements. However, taking into account the whole project and its influence, it affects the protection of the area where more than 600 000 inhabitants live.

The planned investment crosses the plots of private entities, agricultural lands, Natura 2000 sites and others. In social awareness, there exists the knowledge that the embankments are situated in this area and that this project serves public interest. As already noted, the social issues have been dealt with separately, through the Resettlement Action Plan (RAP).

4.9. CULTURAL MONUMENTS

Most of the works related to the construction and modernization of the embankment are located at the non-urban areas or areas with low density of development. Such manner of management of the land results from specific area conditions which are strictly related to direct impacts of the Odra River and the Olawa River, forming both the topographic profile and ground and water relations. These difficult conditions, having an impact onto the layout and character of settlements of the area, were the reason for scarcity of monument objects under legal protection the immediate vicinity of the new and modernized objects and within minor towns and villages.

The works contract is located north of the city of Wrocław and covers green areas (forests, natural meadows, marshes, agricultural areas), for which there are various types of infrastructure facilities such as energy lines, elements of underground facilities etc. Investment area and its relation to known historical monuments is presented below, in table 4-3.

Table. 4-3. Immovable monuments covered by legal protection and entered in the register of monuments in the area of the planned investment

Locality	Community	Monument	Distance from the monument to closest WFS structure [m]	Monuments Register
WROCLAW	Wrocław	Complex of milling buildings, 2 Zarzecze Street (Swiniary): - Mill - Residential building - Farm (facility) building - Mlynówka	80	443/Wm dated 7.10.88
WROCLAW	Wrocław	Complex of monasteries of the Franciscan Fathers (Franciszkanie), 26, 28, 28a Kasprowicza Street: Monastery and parish church of St. Anthony, Monastery	300	238/472/Wm dated 10.03.92
WROCLAW	Wrocław	Monastery of the Ursuline Sisters	300	478/Wm dated

		(Urszulanki), currently Franciscan Sisters (Franciszkanki) as well as Hospital for Sick Children with a park, 62b, 64-66 Kasprowiczka Street		16/06/1992
WROCLAW	Wroclaw	A complex of tenements at the Karlowice housing estate (1, 3, 5, 7 Pilsudskiego Square / 95 Kasprowiczka Street)	800	582/Wm dated 20/11/1998
WROCLAW	Wroclaw	Parish Church of St. Martin, 4 Koscielna Street	over 2000	735/Wm dated 27/11/1997
WROCLAW	Wroclaw	Manor, no. 42	over 2000	555/Wm dated 30/11/1984

4.10. LAND SURFACE AND LANDSCAPE

The existing embankments are located at parcels owned by the State Treasury which currently remain in the possession of the Lower Silesia Board of Amelioration and Water Structures in Wroclaw.

The works related to the realization of new embankments go beyond the area administered by the Lower Silesia Board of Amelioration and Water Structures and cover lands owned by private individuals and legal entities.

New areas used for the implementation of the above-mentioned investments cover forests, natural meadows, wetlands, agricultural lands, interfere with anthropogenically transformed areas (infrastructure structures such as roads, power lines and other underground infrastructure items). The current manner of using these areas is consistent with their classification. Finally, as a result of the implementation of the investment some of these grounds will require changes in their classification.

5. SUMMARY OF ENVIRONMENTAL IMPACTS ASSESMENT

5.1. IMPACT ON SOIL

Implementation phase

Preparatory works consisting in the following activities are projected in the technology of the works:

- geodetic field elevation measurements and stabilization of all the structural elements of the project which are relevant for its implementation,
- removal of trees and shrubs in accordance with dendrological report, clearing tree logs and transport of wood and tree trunks to the place indicated by the Investor,
- demolition works,
- development and strengthening of the existing access roads,
- removing humus and piling it along the sections projected for construction of the embankment and in places of its incorporation,
- preparation of the construction site.

Prior to commencement of the earth works, it is necessary to take off a layer of fertile soil and to store it beyond the boundary of the works for further use in land management. Removing humus is assumed to take place in all places where it would otherwise be destroyed or buried (back filled).

The predominant part of the route of the planned embankments goes at the path of the existing embankments, the area already anthropogenically changed; thus there will be no interference with natural grounds. At the reconstruction of the existing objects they will be subject to extra compaction and local sealing by means of bento-matting only.

At the time of construction of the embankment body, a lane for transport and assembly works area as well as earth works area with its width up to 50 m at a maximum will be occupied. However, the lane for assembly and construction works area will be much narrower, at numerous naturally valuable sections even only and exclusively up to the embankment base. Earth works conducted in the course of construction of the new embankments will cause interference with shallow layers of ground surface up to 0.5 m above terrain level. Humus as well as soil taken from excavations will be stored at places designated for that purpose, while humus will be stored in piles separately, so as not to be mixed with indigenous rock.

Humus and soil from excavations will be used in construction of the embankments if they have got appropriate geo-technical parameters, or they will be transported and used in another place.

In order to maximize the protection of organic substances in the ground (protection against humidity changes, radical temperature changes or weathering - which secure valuable micro-

organisms and soil structures) - humus layers should be gathered in piles. Removing and storing humus layers at the areas of valuable habitats should be made with particular care and attention.

Distortions of the structure of soils will also follow as a result of mechanical compaction of soils, at the lane of transport and assembly area caused by moving around of heavy mechanical equipment (cars, bulldozers etc.) and as a result of storing equipment and materials (mainly ground). Heavy compaction of deeper ground layers in some places (below arable layers) can be the reason for significant deterioration of soil structure and at the same time degradation of its biological activity. Distortions of the structure of soils which occur during the construction in connection to mechanical or manual soil compaction and through possible storage of equipment and materials can contribute to its degradation to a small extent.

At the transport and assembly area some soil contamination with oil substances (spillages of fuel from the engine) can occur. Potential soil contamination with oil substances should be eliminated immediately through removing contaminated layers of soil and transportation outside the construction site for disposal. Neither repairs of mechanic equipment nor fuel filling should be made at the area of the construction of the embankment. Wastes should be collected at designated places only.

Changes of the structure of humus soil layers are easy to reclaim at agricultural areas thanks to horticultural treatments. Irreversible changes of the level of humus will take place at the line of the land occupied by rocky material (ground parent rock) coming from trenches. The change of the composition of humus will follow there as a result of the increase of contents of rock material from the ground, which will decrease the biological activity of soil and as a result will lead to local periodic drops of productivity of soils within the area.

Operational phase

At the operational phase no negative impact onto the ground environment is projected. Grounds located at the outer embankment will be secured against floods, so at the area rational farming can be conducted.

5.2. IMPACT ONTO AIR QUALITY

Implementation phase

At the duration of construction and assembly works atmospheric pollution will occur - it will be caused by non-organized emission, related mainly to the operation of assembly machinery and means of transport powered by internal combustion engines emitting gaseous pollutants as well as by earth works (transport, storage and incorporation of grounds). The operation of assembly equipment and means of transport as well as power generators powered by

internal combustion engines will cause emissions of carbon monoxide, nitrogen oxides, sulphur oxides, aldehydes and hydrocarbon mixtures. They will be local and periodic in their character. After completion of the construction they shall cease entirely.

In the course of the construction, emissions of pollutants in the form of dusts will be related to the movement of grounds - both during loading and re-loading of grounds and their incorporation. They will be local and periodic in their character. After completion of the construction it will be completely ceased.

During the construction the investment supervisor as well as direct contractor(s) of the works should ensure to minimize pollution of ambient air through proper organization of the construction site, selection of appropriate equipment and vehicles as well as their adequate operation.

Operational phase

The embankments will be regularly mowed during the operation of the investment (twice a year). Organized emissions to the air will not occur in the course of these activities. Potential non-organized emissions will occur during the operation of internal combustion mowers, however they will be limited in terms of area and time, not being subject to any norms or standards included in the legal regulations.

5.3. ACOUSTIC CLIMATE

Implementation phase

Noise emissions at their significant (high) level may occur during the construction only. At this stage, the impact will be conditioned mainly on the intensity of conducted earth works. Ground works are the basic works to be performed in case of construction and development of the flood protection embankments.

At the implementation of the investment, the most significant sources of noise include:

- works related to the preparation of the construction site (e.g. development of temporary access roads storage sites, equipment bases, etc.),
- works related to the disposal of medium and high vegetation (most often in relation to self-seeding plants),
- earth works related to the removal of ground layers at the site which will be occupied by the flood protection embankments, with the use of e.g. caterpillar bulldozers, wheeled loaders or excavators, heavy goods vehicles,
- works related to the temporary storage and formation of ground piles at selected locations,

- works related to the formation of the flood protection embankments including fertilization of raw materials, arranging of geo-synthetic layers compaction, etc.,
- works related to the provision of embankment supports (e.g. through construction of retaining walls made of reinforced concrete),
- works related to the placement of hardened surfaces (e.g. biking paths), they can be connected with - for example - the operation of equipment for cutting concrete cubes,
- works related to the demolition of the existing infrastructure which will involve the usage of pneumatic equipment for the demolition of concrete elements,
- works related to concreting (e.g. culverts, stairs, etc.) connected with the operation of pumps for concrete, vehicles delivering concrete,
- transportation of materials using heavy goods vehicles.

The performed calculations for selected calculation situations allow concluding that the scope of occurrence of noise with the acceptable level for residential buildings and other structures protected against noise will be variable and will vary from tens to hundreds of meters depending on the type of the conducted works. The acoustic impact of construction works will have short-term effects lasting mostly for several days depending on particular locations of the works conducted.

Since construction works are not planned to be conducted at night, acoustic effects from 10:00 pm - 6:00 am will not occur at all.

Operational phase

The Works Contract operation does not cause any deterioration of the acoustic climate in the surrounding environment (without conducting periodic works on maintaining good technical state of the embankments, e.g. mowing considered). Mowers do not generate noise exceeding standard values.

In case of the bridges, the application of "quiet" surfaces will lead to the reduction of the level of noise.

5.4. WILDLIFE

At the valorization of the natural environment and the project of threats caused by the planned Works Contract onto the fauna and flora, both direct area mapping as well as existing archived materials and available publications were used. The method of "further steps" derived among others from the above literature was used in the valorization

proceedings of particular environmental elements, which is required for projecting the potential impact:

- Identification of valuable (including protected) objects and natural sites on the basis of in-house works and existing research and planning materials;
- Field inspections to perform the verification and inventory of the quantity and coverage of selected objects and areas as well as specific natural-landscape characteristics.
- Assessment of the scope of preservation and conversion of individual components natural environment, i.e. assessment of the scope of compatibility or incompatibility with natural character of the environment (valuation);
- Projecting the risk for particular fragments of land and natural components / elements within the investment as well as its immediate vicinity is conditioned by the value of previously inventoried environmental features.

The assessment of the relevance of the impact onto fauna and flora, Natura 2000 site was conducted in line with the concept as set out in the following document: *Reference Guide - Determining Whether A Project is Likely to Cause Significant Adverse Environmental Effects** Canadian Environmental Assessment Agency (1994).

5.4.1. Protected natural habitats and protected species of plants, fungi and animals

The list of natural habitats and the protected plants located in area of building works is presented in App. 7.

In this Appendix described is also the location of the natural habitats' and protected species' resources as well as their number and potential loss in the impact area of works contract. The scale of impacts is indicated in Tables 8.1 and 8.2. In these tables described are the mitigation measures of negative impacts.

5.4.2. Impact onto the habitats and protected species and the Natura 2000 areas

Implementation phase

The conducted analysis showed that the implementation of the Works Contract - in line with the settlements of variant no. 1 - may lead to the occurrence of major adverse effects in respect to 6 types of natural habitats and 11 species of flora and fauna which are protected within Natura 2000 site called "Dolina Widawy". In case of application of recommendations for minimizing, being the element of variant no 2 (which has been adopted for implementation), for natural objects within the area there will be no significant negative impacts.

Operational phase - negative impact is not expected.

5.5. IMPACT ON SURFACE AND UNDERGROUND WATERS

Implementation phase

In line with the settlements of the Water Management Plan in the Basin of the Odra River, the planned-to-be-implemented scope of works indicated in the EIA Report for Works Contract entitled: "Construction of objects/structures in the scope of flood protection of the city of Wrocław within the activities related to modernization of the Wrocław Floodway System for the Odra - Widawa transfer channel and flood protection embankments located in the valley of the Widawa River together with bridges", contract: **B 3-2**, section: The Widawa River – from the railway bridge (Krzywoustego street) to the estuary to the Odra River covers the following surface water bodies¹:

1. Contract for B3-2 works, structure no. WFS 19 (part):

- **Surface water bodies:** PLRW60002113399 - the Odra River within the boundaries of Wrocław,
- **Integrated surface water bodies:** SO 1106,
- **Status:** heavily modified water body,
- **Assessment of their state:** poor,
- **Risk assessment of failure to reach the environmental objectives:** threatened²,
- **Derogations:** New modifications, transforming physical characteristics. Because of the planned activities in the scope of implementation of the investment resulting in changes of the characteristics of surface water bodies aimed at the higher social objectives such as flood protection, environmental objectives assumed for the surface water bodies cannot be reached³⁴.
- **Purpose of water protection:** for waters designated as heavily modified, it is required to fulfil the conditions which correspond to good or more-than-good potential of waters in accordance with Water Framework Directive of EU. Surface water bodies are threatened with failure to achieve the environmental objectives as stated in Water management plan for the Odra River basin (Polish Monitor No. 40/2011 item 451).

¹ As defined in Article 2, item 10 of 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. Official Journal of the European Communities No. L327 / 1 of 22.12.2000.

² This is the real possibility of failure to achieve the environmental objectives

³ In accordance with Article 4, item 5d it was developed the Water management plan for the Odra River basin (Polish Monitor No. 40/2011 item 451), the reader will find detailed description of this topic in this document.

⁴ There are derogations from the the prohibition of the further transformation of physical characteristics the area due to the planned modernization and construction of embankments (WFS Project)

2. Contract for the B3-2 works: WFS structures no. 42.2, 42.3, 42.3.1, 43, 44.15, 44.16, 44.17, 46.2, 44.18, 44.4, 44.5, 44.6, 45.4, 44.7, 44.8, 44.9, 44.10:

- **Surface water bodies:** PLRW60001913699 – Widawa River from Dobra River up to Odra River,
- **Integrated surface water bodies:** SO 0309,
- **Status:** heavily modified water body,
- **Assessment of their state:** poor,
- **Risk assessment of failure to reach the environmental objectives:** not threatened¹,
- **Purpose of water protection:** for waters designated as heavily modified, it is required to fulfil the conditions which correspond to good or more-than-good potential of waters in accordance with Water Framework Directive of EU. Surface water bodies are not threatened with failure to achieve the environmental objectives as stated in Water management plan for the Odra River basin (Polish Monitor No. 40/2011 item 451).

Table 5-1 Characteristics of surface water bodies located within the planned works “Construction of structures / facilities in the scope of flood protection of the city of Wrocław within the activities related to modernization of the Wrocław Floodway System for the Odra - Widawa transfer channel and flood protection embankments located in the valley of the Widawa River together with bridges” according to Water management plan for the Odra River basin (Polish Monitor No. 40/2011 item 451)

Contract		Integrated surface water bodies / Uniform surface water bodies		Distance from the river bank [m]	Statement
Symbol	Structure	Symbol	Description		
B 3 - 2 Section: The Widawa River from the railway bridge (Krzywoustego) to the outlet to the Odra River	Paniowice - demolition of the flood-protection embankment (WFS structure no. 19)	PLRW 60002113399 SO 1106	Odra River within the boundaries of the city of Wrocław, heavily altered waters, threatened with failure to reach the environmental objectives	from 40 m up to 300	It does not affect the environmental objectives. It does not cause the deterioration of the ecological potential of waters.
		PLRW60001913699 SO 0309	Widawa River from Dobra River up to Odra River Heavily modified water body Not threatened	from 40 m to 350 m	It does not affect the environmental objectives. It does not cause the deterioration of the ecological potential of waters.
B 3 - 2 Section: The Widawa River from	Reconstruction of the road bridge in the location of Widawa (the WFS structure no. 42.2)	PLRW60001913699 SO 0309	Widawa River from Dobra River up to Odra River Heavily modified water body	Regulation of the Widawa river-bed at the section of 50 m.	The location and scope of the works covers the river-bed - the actions can cause deterioration of the

¹ Environmental objectives set out in Water Framework Directive will be achieved.

the railway bridge (Krzywoustego) to the outlet to the Odra River	Re-construction of the Pegowski road bridge (WFS structure no. 42.3)		Not threatened	Regulation of the Widawa river-bed at the section of 50 m.	ecological potential of waters.
	Re-construction of the Pegowski railway bridge (WFS structure no. 42.3.1)			Regulation of the Widawa river-bed at the section of 50 m.	
	the WFS structures / structures no. 43, 44.15, 44.16, 44.17, 46.2, 44.18, 44.4, 44.5, 44.6, 45.4, 44.7, 44.8, 44.9, 44.10,	PLRW600019 13699 SO 0309	Widawa River from Dobra River up to Odra River Heavily modified water body Not threatened	from 10m to 850m	It does not affect the environmental objectives. It does not cause the deterioration of the ecological potential of waters.

Within the Works Contract the structures were divided into two groups:

- The structures / structures the scope of works of which does not cover the interference into the Widawa river-bed.
- The structures / structures the location and the scope of works of which cover the interference into the river-bed - the actions can cause deterioration of the potential or ecological state of waters.

In reference to point a)

The structures / structures the scope of works of which does not cover the interference into the Widawa river-bed: the WFS structures / structures no. 19, 44.6, 45.3, 43, 44.15, 44.16, 44.17, 46.2, 44.18, 44.4, 44.5, 44.6, 45.4, 44.7, 44.8, 44.9, 44.10, 44.14. In line with the data provided in the Table 2.1 the embankments projected for construction / reconstruction and modernisation are located at a distance from 10 m to 850 m from the river-bed of the Widawa River or from the other surface water courses. In line with the results of the conducted assessment of the impact onto surface and underground waters, no negative impact was stated under the conditions of application of limiting and mitigation measures.

The mitigation of impacts onto surface waters and underground waters can be achieved by the following actions:

- compliance with the principles for application of construction equipment, efficient regime on fuel management and keeping order at construction back facilities;
- discontinuation of the works during at the periods of intensive precipitation. Execution of grooves preventing direct outflow of contaminated waters to local trenches;
- prevention of the discharge of waters from foundation trenches directly into water courses (the Widawa River). It is recommended to drain it through pits, or make a special sump to sediment suspension solids;

- d) transported earth masses should be directly incorporated into the body of the embankment and compacted to the required indicators levels, without their intermediate unloading and storage;
- e) in case of accidental fuel spillage the area should be secured against further migration of petroleum products, contaminated soils should be selected and directed for disposal beyond the area of the conducted works.

The works will be realized behind the river bed of the Widawa River and in the normal hydrology conditions (flow of water fitting in the riverbed). These works will therefore have no negative influence on the fish stock and other water species in the Widawa River.

Summarizing the analyzed Works Contract, it cannot affect the environmental objectives specified in the Characteristics of bodies of surface waters as shown in Water management plan for the Odra River basin, will not cause the deterioration of potential / state of waters and do not affect the shape of the river-bed, nor the morphological continuity of water courses.

The conducted analysis of their impacts onto the protection objectives of the Natura 2000 areas has indicated that these impacts shall be minimized and limited under the condition of application of mitigation and compensation measures contained in the Environmental Impact Report for the analyzed project.

In reference to point b)

The structures the location and the scope of works of which cover the interference into the river-bed - the actions can cause deterioration of the ecological potential of waters: WFS structures / structures no. 42.2, 42.3, 42.3.1.

The scope of the planned works includes regulation of the river-bed of the Widawa River at 50-m sections within the bridge structures at km of the Widawa River: WFS 42.2 - km 9+850; WFS 42.3 - km 3+950; WFS 42.3.1 - km 3+900.

Regulation of the main channel in the vicinity of the bridge structures: The works are aimed to deepen the river-bed, increase its cross-sectional profile with simultaneous improvement of flow conditions. It will result in the increase of flow at the main river-bed during the time of high water flows. Within the regulation it shall lead to significant deepening and strengthening of the bottom of the river under the road and railway bridges which currently cause adverse elevation of water surface and at flood - – increase the risk of erosion of the river bed and banks.

The EIA covers the variant analysis of the projected solutions of the flood-protection of the agglomeration of the city of Wrocław. The technical variant considered in the EIA has been the result of previous studies / analyses at the time of development of the Feasibility Study of Project of Flood Protection of the Odra River Basin. According to the provisions included in the *"Feasibility Study of the Raciborz flood protection reservoir at the Odra River and modernization of the Wrocław Floodway System"* (prepared in 2004), the construction of the Raciborz reservoir provide effective reduction of flood waters at the Odra River and - together with the modernization of the Wrocław Floodway System, is to provide almost complete protection of Wrocław in case of flooding with its extent being comparable with the flooding which took place in 1997.

The technical variant required adjustments due to changing the manner of land usage within the projected routes of the embankments; the conducted natural inventory identified the need for solutions reducing interference (especially) into naturally valuable areas in the valley of the Odra River. Thus, the second (environmental) variant was proposed for implementation. The positive features of this variant include mainly:

- elimination of material losses within the impact area of the project,
- possibility to conduct "safe" agricultural activities at the area behind the -embankment,
- minimum interference within flora and fauna habitats, adoption of solutions minimizing the impact onto the Natura 2000 areas.

The analysis also included the zero variant at which it was indicated that failure to implement the analyzed Works Contract will lead to:

- deepening public dissatisfaction: lack of security and possibility of occurrence of health and psychological consequences of flooding,
- occurrence of life- and human health-threatening situations (floods which took place within the last years strengthen such a risk),
- occurrence of significant material losses (floods which took place within the last years strengthen such risk).

Moreover, in order to justify the selection of "environmental variant" of the project more precisely, a detailed analysis was made to compare variants of the project using the characteristics of the environment in the vicinity of the planned investment, and to define the fundamental impacts of the project on the environment. The analysis was presented in the form of a check-list within which the following impact characteristics were identified: favorable and adverse, significant and insignificant, long-term and short-term, local, regional, and reversible and irreversible. The analysis was conducted in following environmental categories: ground waters, surface waters, air, land, flora and fauna, people, land use and population – both during the construction and operation phases of this Works Contract.

Based on the above criteria, a cumulative level of the impacts of the planned Works Contract onto particular natural habitats as well as onto particular species of plants and animals for the protection of which a particular Natura 2000 area was assigned were specified. Also the purpose of the planned Works Contract such as securing the valley of the Odra River against flooding was considered. The analysis showed that the solutions according to the second (environmental) variant, taking into account the suggestions of environmentalists, minimize the negative impact onto the environment, thus the cumulative impacts at the construction stage will be the least.

Introducing the implementation of the environmental variant, solutions which maximally reduce the negative impact onto the waters of the Widawa River were applied. In particular:

- the analyzed Works Contract within its scope primarily covers the construction of new embankments as well as the reconstruction of the existing ones as well as the increase of clear span of the existing communication structures at the Widawa - Odra Relief Channel as well as at the Widawa River from km 0+000 up to 2+100 in order to passing flood / raised waters safely.
- the introduced adjustments of new embankments along the new route being more distant from the Widawa River and the Odra - Widawa Relief Channel expand the valley of the Odra River and thus increase the natural retention and flood-plain areas in the valley of the river,
- the location of the embankments at a distance of more than 10 m from the river bed (the bank of the Widawa River and the Odra - Widawa Relief Channel), modernization and reconstruction at the existing routes, introduction of mitigation measures as well as no interference within the beds of these watercourses limit their negative impact onto the objectives of water protection and the objectives of the Natura 2000 areas established within the region,
- actions related to the interference into the river-bed are only linked to the need to increase clear spans of the bridges and improve the safe pass of flood / raised waters (reducing erosion of the bottom and slopes),
- construction of the new embankments is linked only to the protection of built-up areas, the variant which is the least harmful to the environment was selected. The new embankments are to be located at the maximum possible distance from the river, with their convenient communication with the existing infrastructure (roads) and at the alignment which is the least intrusive within the natural habitat. In this manner the natural retention and flood-plain areas of the valley of the Widawa River have been not reduced.

Their mapping and characteristics of surface water bodies within the planned works are presented in the table 5-2.

Table 5-2 Characteristics of surface water bodies located within the planned works

Body of surface water		Location (Regional Authority for Water Management in Wrocław)				Type of the body of surface water	Status	Con diti on ass ess me nt	Risk assessme nt of failure to reach the environm ental objective s	Derogations	
European Code (Body of surface water)	Name of Body of surface water	Integr ated Body of Water	Water region	River basin district							Eco-region according to Kondracki according to Illies
				Code	Name						
A. Surface water bodies within which there are the considered WFS structures located											
PLRW60001913699	Widawa from Dobra to Odra	SO 0309	Water region of the Middle Odra	6000	Catchme nt area of the Odra River	Central Plains (14)	Lowland river sand- loam (19)	Heavily modified water body	Poor	Unthreate ned	None
PLRW60001913679	Widawa from Olesnica to Dobra	SO 0309	Water region of the Middle Odra	6000	Catchme nt area of the Odra River	Central Plains (14)	Lowland river sand - loam (19)	Natural water body	Poor	Unthreate ned	None
PLRW60002113399	Odra within the limits of Wrocław	SO1106	Water region of the Middle Odra	6000	Catchme nt area of the Odra River	Central Plains (14)	Great lowland river (21)	Heavily modified water body	Poor	Threatene d	New modifications, transforming physical characteristics. Because of the planned activities in the scope of implementation of the investment resulting in changes of the characteristics of Surface water bodies aimed at the higher social objectives such as flood protection, environmental objectives assumed for the Surface water bodies cannot be reached.

Operational phase

In the operational stage of the embankments there will be no threat to surface, ground or underground waters.

The new and modernized embankments will be located at a distance of more than 30 m from the Widawa River-bed, hence during maintenance works there will be no impact on fish and other aquatic organisms of the Widawa River.

5.6. SOCIAL AND CULTURAL MONUMENTS IMPACTS**5.6.1. Social impact**

The feelings which the investment may invoke in people living near the implemented project may be mainly on emotional grounds e.g. fears of destruction of the embankment (breach of the embankment), yet securing adequate information for people living near the Works Contract about proper, safe, technical and technological solutions should help them overcome these fears. In addition, people are aware of the poor conditions of existing embankments and that their property is not safe. Hence the Works Contract connected with modernization of embankment that shall increase the flood protection is commonly accepted. Public participation is the only possible way to mitigate conflicts over the location of the planned investment. Enabling the participation of concerned private entities or ecologically-oriented social organizations in making decisions gives the opportunity of making a statement by people who are directly interested in the effects of the projected investment plan. Mutual negotiations can lead to amicable settlement of the conflict. It should be borne in mind that the compliance with the following rules will be required for the effectiveness of negotiations run with local communities:

- all the information contained in EIA Report and the present Environmental Management Plan (EMP) should be made available to all residents and representatives from the organizations concerned;
- people responsible for public consultation must take effective actions, with a view to reaching the broadest possible circle of recipients with the information and enabling to express free opinions by all the concerned people;
- the people concerned should have sufficient time to become acquainted with the information and to submit their opinions.

The implementation of the present Works Contract will not bring so significant social effects as other structures performed within the WFS (with construction of the new embankment section); The contract-related activities will lead to the expropriation of land for the expansion of the existing embankments.

The comprehensive analysis of this issue was made and is described in document named RAP (Resettlement Action Plan, prepared by JV Grontmij, 2011).

5.6.2. Land area for the investment

The area physically covered by the infrastructure together with its direct impact area analyzed during EIA (in borders of impact during works implementation) is equal to approximately 1668 ha.

5.6.3. Impact onto cultural heritage

The planned works are located in non-urban areas or the areas with low density of development.

In view of the nature of the conducted works and their considerable remoteness from the monument under legal protection there will be no adverse effects to known cultural heritage sites (distance exceeding 80 m). However, in case of "chance finds" during the works in progress will be discussed with relevant authorities of heritage conservation, and in case of finding historic structures or elements of cultural monuments while conducting these works, archaeological research will be carried out.

5.6.4. Impact on natural resources

Given the location, spatial extent and type of the works related to the Works Contract B3-2, it was found that its implementation is likely to affect the conservation status of the following habitats and / or species being the subject of the protection within the Natura 2000 sites: SAC "Dolina Widawy" (see App. No. 7), thus minimizing and mitigating measures are required, as shown in App. No. 1.

The planned works contract does not affect other elements of natural resources, including underground waters and surface waters.

5.7. BACKGROUND FACILITIES OF THE CONSTRUCTION SITE

In case of background facilities of construction sites and storage places, the admission on their temporary occupation was preceded by the analysis of the impact onto various elements of the environment. At the selection of territory for background facilities of construction sites the following aspects are taken under consideration:

- recognition of territory in relation to its ground base, vegetation cover and ground water levels: construction sites are located at the areas which are free from trees, shrubs and at places where the level of ground water is at least 1.5 m below the terrain level,

- geological structure of any selected area effectively protects groundwater resources (GZWP 320 area),
- location of construction sites ensures convenient entry / exit and access to energy and water supply for social purposes. The access road does not impede access to any nearby buildings,
- location of construction sites needs to be outside the protected natural habitats.

Moreover, at the stage of the construction project, it is recommended to draw up the organizational draft project of the construction site in which - apart from the location of construction background facilities - the terms and conditions of their use and management are specified, including: location of parking lots for construction equipment and other vehicles, manner of protection against oil contamination of soils and underground waters, manner of discharge of rain waters, location of storage places of building materials and places of storage of municipal waste.

The properties of the State Treasury (Agricultural Property Agency) were selected for the background facilities of the construction.

Additionally, the locations which - due to natural reasons - were not completely excluded and the ones which can be used upon meeting certain conditions were chosen. Traffic made by heavy machines and vehicles as well as storage of construction components, used materials and post-construction waste should be limited only to the areas covered by direct earth works and to the existing roads. Unjustified damage to surface ground layers, e.g. in case of machines and vehicles moving beyond the construction site, should be minimized or prevented. It will enable to avoid physical transformation of soil cover of areas in direct vicinity of the location of the works contract as well as within the investment itself.

In view of environmental and social aspects, background facilities of the construction site generate potential negative impacts (risks) due to: potential earth pollution, storage and use of hazardous materials, fuels and oils, demand for water and wastewater, demand for electricity and waste generation. The proximity of housing development may be a source of potential disturbances of co-operation with local communities as a result of the presence of a considerable number of workers, particularly migrant staff who can be a source of sexually transmitted infections.

The most effective manner of countering potential adverse effects is that the Works Contractor should draw up the Organizational Project at the Construction Site which should also cover manners and procedures on organization and operation of the Construction Site in order to secure local communities. The construction sites must comply with health and safety conditions being in force in Poland and the European Union and be equipped with sanitary equipment for collection of wastes and their disposal. Wastes should be transported to the

wastewater treatment plant in Janowek (or any other place meeting the conditions of environmental protection). The waste management should be run in accordance with the Law on waste (separation and storage in appropriate containers and collection by licensed companies). The Works Contractor should have appropriate financial means guaranteed to ensure proper organization of the construction site and its operation in the course of the investment.

5.8. CUMULATIVE IMPACTS

The implementation of the Works Contract B3-2 can overlap other planned contracts on works to be performed within the area and its vicinity of public works contracts, such as:

B1-1 Modernization of Blizanowice -Trestno embankment

B1-2 Modernization of Kotowice - Siedlce embankment

B1-3 Construction and modernization of other embankments above the city of Wrocław

B1-11 Construction and modernization of other embankments below the city of Wrocław

as well as the works contracts:

1. Construction of structures/facilities of floodway protection of Wrocław city in scope of activities connected with WFS modernization for transfer channel Odra-Widawa and embankments located in the Widawa River valley together with the bridges - **Works contract B3-1** (the part of WFS Project in scope of structures realized by Lower Silesia Board of Amelioration and Water Structures in Wrocław).
2. Wrocław Floodway System Modernization in scope of structures realized by the Regional Authorities for Water Management in Wrocław.

Land surface

At the current state there is a considerable extent of transformations of land surface and - consequently - natural components connected with it, such soil, land shape, geological surface structures within and in the immediate vicinity of the investment area. The planned project will result in further transformations within the considered environmental components, while the positive fact is that the investment will be implemented mainly at the line of the existing embankments, i.e. the area which has been already converted. Routes of transportation of earth masses will have a more considerable impact on the conversion of land. However, the impact will be significantly reduced thanks to minimizing actions to be applied there.

The total effect onto the land surface was assessed as minimal, especially due to no

exceptional or distinctive environmental features in this respect (no soil of high usable value, no soil of organic origin, monotonous flat topographic profile and no locally valuable land elements) covered by the investment, therefore finally there is no significant cumulative impact projected.

Landscape

New and modernized sections of the embankments will be visually distinguished within the local landscape, but will not cause changes in particularly valuable natural vegetable elements. Changes in the landscape will be made by infrastructure objects such as roads, bridges, redeveloped energy lines. They will be the mark of visible urbanization of the land, but when located at such little distance from Wrocław it will not be surprising or unacceptable. Thus it is not stated that there are any significant adverse cumulative risks for landscape from the perspective of the investment in relation to its existing and proposed functions.

Cultural heritage

Since the planned Works Contract is not connected with any negative threat for monuments protected on the grounds of regulations on the protection of the monuments and care, there will be no possibility for cumulative threats to historic heritage.

5.9. IMPACT ONTO LOCAL CLIMATE

The planned works contract due to the specificity of the works carried out as well as lack of any negative emissions at the operational phase will have no effect on climate changes.

6. DESCRIPTION OF MITIGATION MEASURES

6.1. DESCRIPTION OF MITIGATION MEASURES

This chapter presents the mitigation measures described in the following documents:

- EIA Report - "Construction of flood protection objects/structures for City of Wroclaw as part of activities related to Modernization of Wroclaw Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges" (3/3), prepared by Joint Venture GRONTMIJ POLSKA Sp. z o.o./SOGREAH Polska Sp. z o.o./EKOCENTRUM Sp. z o.o (May 2011),
- DECISION which determined environmental conditions for the project namely: "Construction of flood protection objects/facilities for City of Wroclaw as part of activities related to Modernization of Wroclaw Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges" dated 31 January 2012 (Ref. No. WOOS.4233.1.2011.LCK) issued by Regional Director for the Environment Protection in Wroclaw.

The mitigation measures include such elements of environment as: soil, surface and ground waters, air quality, noise, cultural heritage, flora and fauna. They are connected with particular recommendations for the Contractor, Engineer and DZMiUW which must be implemented before, during and after the works contract execution.

6.1.1. Soil

Construction phase

Primarily, in reference to the land surface, including land shape and soil, there will be some direct impacts in the period of the investment when the changes will be associated with land transformations as a result of conducted earth works and land clearing operations, and possible contaminations of land with oil substances in case of any leakages from used machinery and equipment. In any case, within the scheduled mitigating activities, the threats will not be significant.

The most important mitigation measures are the following:

- prior to the essential work of leveling off remove the top soil layer (average depth of 30 cm) and store in the vicinity of the construction area, in separate piles protected from drying and mixing with the native rock;
- after completion of earthworks use removed soil for making flood banks slopes which are to be turfed: on a width of 5-10 m on one side or both sides of the dike spread and align previously removed hummus along the dike and within reconstructed objects, remove any roots. In the technology lane and places for storage of building materials in addition

perform tillage: disking, harrowing and fertilizing and seeding grass mixtures and leguminosae;

- in the event of any occurrence of petroleum products spill, soil contaminated by the accident must be removed immediately and given to the appropriate entities holding authorizations for its further treatment and use.

The mitigation measures and monitoring plan connected with soil protection are described in detail in Appendix 1 and in Appendix 2.

Operation phase

At the operational phase no negative impact onto the ground environment is projected. Grounds located at the outer embankment will be secured against floods, so in the area rational farming can be conducted.

6.1.2. Surface and ground water

Construction phase

During works contract realization due to the distance of embankments from the Odra and Widawa rivers-bed (more than 30 m), there will be no impact on fish and other aquatic organisms of these rivers.

The impact of the planned investment onto underground waters is mainly related to the construction period.

Pollution of the underground water with oil substances caused by accidental leakages of fuels from engines of construction machinery or means of transport moving within the transport and assembly area is a very significant threat (particularly in the areas where there are close correlations of surface water and all quaternary levels of underground waters and there is a phenomenon of infiltration of land pollutants into underground waters and surface aquifers are supplied with infiltrative precipitation).

The most important mitigation measures are the following:

- it should be checked in real working condition of construction machinery and transportation, to eliminate the spillage of petroleum hydrocarbons to the surface;
- any place designated for handling cars and machines must be periodically (until completion) lined with insulating materials. Vehicle parking should not take place: on the area of MGWB 320, the area between the flood banks and immediately by the bank;
- in open areas do not store any hazardous materials that could be a source of contamination of surface and ground waters.

The mitigation measures and monitoring plan connected with surface and underground water protection are described in detail in Appendix 1 and in Appendix 2.

Operational phase

In the operational stage of the embankments there will be no threat to surface, ground or underground waters.

6.1.3. Air quality**Construction phase**

At the duration of construction and assembly works atmospheric pollution will occur - it will be caused by non-organized emission, related mainly to the operation of assembly machinery and means of transport powered by internal combustion engines emitting gaseous pollutants as well as by earth works (transport, storage and incorporation of grounds).

The most important mitigation measures:

- Protect storing space of soil mass to reduce the dusting.
- Do not allow long-term operation of internal combustion engines of machinery and construction vehicles at a standstill (limit emissions of so-called phase of idle speed).
- Organization of works should take into account possibility to perform works synchronously in several locations spaced approximately 300 - 500 m, in a way that minimizes the sum of concentration of pollutants.
- In the immediate vicinity of residential buildings the number of machines working simultaneously on the same section should be limited in order to minimize the direct impact of emission. In these areas, car parks should not be located.

The mitigation measures and monitoring plan connected with air quality protection are described in detail in Appendix 1 and in Appendix 2.

Operational phase

During the operation stage there will be no negative impacts on air quality.

At conducted periodic mowing treatments of the embankments (twice a year) - minor amount of exhaust gasses related to the use of power-driven equipment will occur. However, it is a very low amount and does not impose any threat to the air quality in the area.

6.1.4. Noise**Construction phase**

The distribution of noise level around the projected investments will change together with the movement of construction works. Within the assessment of the impact of the planned works onto the acoustic climate, calculations and measurements were conducted for the case that works are in progress at all sites, within the areas covered by protection against noise. This approach allows assessing the acoustic impact in the least favorable situation from acoustic point of view. In fact it cannot be excluded that the works will be carried out

with less intensity, i.e. they not will take place at the same time at all sites. In case of staging the works, the impact of the investment onto the acoustic climate will be less arduous for local residents. Noise emissions at their significant (high) levels can occur during the construction period only. It will be mainly conditioned by the intensity of the conducted earth works. Earth works are the basic works to be performed in case of construction and development of the flood protection embankments.

The most important mitigation measures:

- Work in areas protected from acoustic nuisance should be performed only in the day, i.e. between 6:00 and 22:00.
- Construction site, access roads and storage of soil mass should be organized and maintained so as to minimize dusting and be located possibly away from residential areas (in case of work in areas near residential development, such works should be limited to daytime).

The mitigation measures and monitoring plan connected with noise protection are described in detail in Appendix 1 and in Appendix 2.

Operational Phase

During the operation of the planned flood protection infrastructure noise emissions will not occur. Minimal changes of the acoustic field distribution in the region of rebuilt sections of the embankments may be expected, but these changes will often be completely irrelevant to the protection against noise.

6.1.5. Cultural heritage

The works will be carried out in the distance of more than 80 m from any monuments. In view of the nature of the conducted works and their considerable remoteness from the monuments covered by legal protection, there will be no adverse effects.

However, at the area of the planned construction works, uncovering still unknown or unrecognized (yet) archaeological sites is possible. The table 6-1 below includes a list of archaeological sites in the distance of more than 300 m from the planned investment.

Table 6-1. A list of archaeological posts related to the implementation of the investment or within it immediate vicinity

No	Place, commune, region	Area no (AZP)	Stand no.	Function	Culture	Chronology	Distance in [m]
1	Krzyzanowice, community of Wisznia Mała, district of Trzebnica	78-28	1/70	Settlement	-	Late Middle Ages	300
2	Krzyzanowice, community of	78-28	2/71	Settlement traces	Luzycka (Lusatian)	Bronze Age - Hallstatt period	400

No	Place, commune, region	Area no (AZP)	Stand no.	Function	Culture	Chronology	Distance in [m]
	Wisznia Mała, district of Trzebnica			Settlement	Luzycka (Lusatian)	Prehistory Early Middle Ages	
3	Paniowice, community of Oborniki Śląskie, district of Trzebnica	78-28	5/1	Settlement traces Settlement traces	-	Prehistory Modern times	300
4	Paniowice, community of Oborniki Śląskie, district of Trzebnica	78-28	6/2	Settlement Settlement Settlement traces	-	Prehistory Early Middle Ages Late Middle Ages	300
5	Paniowice, community of Oborniki Śląskie, district of Trzebnica	78-28	7/3	Settlement Settlement traces	-	Prehistory Late Middle Ages	400
6	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	12/37	Settlement traces Settlement	Luzycka (Lusatian)	Prehistory Early Middle Ages X-XI century	300
7	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	15/40	Settlement traces Settlement Settlement	-	Prehistory Early Middle Ages Late Middle Ages	350
8	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	19/44	Settlement traces	-	Prehistory	350
9	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	21/46	Settlement	Luzycka (Lusatian)		400
10	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	22/47	Settlement traces	-	Prehistory	400
11	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	8/33	Settlement Settlement traces	-	Bronze age? Early Middle Ages	400
12	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	9/34	Settlement Settlement traces	Przeworsk -based period	Roman Period Early Middle Ages	400
13	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	10/35	Settlement traces	-	Prehistory	500
14	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	11/36	Settlement traces	Luzycka (Lusatian)		500
15	Szymanów, community of Wisznia Mała, district of Trzebnica	78-28	13/38	Settlement	Luzycka (Lusatian)	Early Middle Ages Late Middle Ages - modern times	400
16	Wrocław - Karłowice	79-29	2/115	Settlement traces	-	Neolithic period	300
17	Wrocław - Kłokoczyce	79-29	8/37	Settlement	Luzycka (Lusatian)	III-IV period of the Bronze Age Prehistory Early Middle Ages Late Middle Ages	300
18	Wrocław- Soltysowice	79-29	8/113	Settlement traces	-	Late Middle Ages	300
19	Wrocław - Swiniary	78-28	17/108	Settlement Settlement	-	Prehistory Early Middle Ages X-XI century	300
20	Wrocław - Swiniary	78-28	18/109	Settlement traces Settlement	Luzycka (Lusatian)	Early Middle Ages X-XI century	350
21	Wrocław - Swiniary	78-28	16/107	Settlement	-	Early Middle Ages	300

No	Place, commune, region	Area no (AZP)	Stand no.	Function	Culture	Chronology	Distance in [m]
						X-XI century	
22	Wrocław - Swiniary	78-28	20/111	Settlement traces	-	Early Middle Ages	400
23	Wrocław - Swiniary	78-28	19/110	Settlement traces Settlement	-	Prehistory Early Middle Ages	400
24	Wrocław - Swiniary	78-28	2/93	Settlement	-	XV-XVI century	350
25	Wrocław - Swiniary	78-28	4/95	Settlement traces	-	Neolithic period	350
26	Wrocław - Swiniary	78-28	5/96	Settlement	Luzicka (Lusatian)	Bronze Age (Halsztat)	350
27	Wrocław - Swiniary	78-28	32/123	Settlement traces Settlement traces	-	Modern times Prehistory	350
28	Wrocław - Swiniary	78-28	33/124	Settlement	-	Prehistory	400
29	Wrocław - Swiniary	78-28	9/100	Cremation cemetery	Luzicka (Lusatian)	Bronze Age - Hallstatt period (C)	400
30	Wrocław - Swiniary	78-28	30/121	Settlement	-	Prehistory	400
31	Wrocław - Swiniary	78-28	31/122	Settlement	Przeworsk-based period	III-IV century Prehistory Early Middle Ages Late Middle Ages	400
32	Wrocław - Swiniary	78-28	15/106	Settlement traces Settlement	-	Prehistory Late Middle Ages - modern times	500
33	Wrocław - Swiniary	78-28	21/112	Settlement	-	Late Middle Ages - modern times	500
34	Wrocław - Swiniary	78-28	22/113	Settlement traces Settlement	-	Prehistory Late Middle Ages - modern times	500
35	Wrocław - Widawa	78-28	12/86	Settlement Settlement traces Settlement	-	Early Middle Ages Prehistory (AZP) Late Middle Ages - modern times (AZP)	300
36	Wrocław - Widawa	78-28	2/76	Military camp Settlement traces Settlement traces	-	XVII century Early Middle Ages Late Middle Ages	300
37	Wrocław - Widawa	78-28	11/85	Settlement traces Settlement traces Settlement traces	-	Prehistory Early Middle Ages Late Middle Ages	300
38	Wrocław - Widawa	78-28	6/80	Settlement	-	Late Middle Ages XIV-XV century	300
39	Wrocław - Widawa	78-28	13/87	Settlement traces Settlement traces	-	Prehistory Late Middle Ages	300
40	Wrocław - Widawa	78-28	14/88	Settlement Settlement traces	Przeworsk-based period	Roman Period Early Middle Ages	350
41	Wrocław - Widawa	78-28	7/81	Camp Settlement	Luzicka (Lusatian)	Mesolithic period Bronze Age (Halsztat) Period of Roman impact (late) Migration Period Prehistory Early Middle Ages Modern times	350
42	Wrocław - Widawa	78-28	8/82	Settlement traces Settlement	-	Prehistory Early Middle Ages Late Middle Ages	400
43	Wrocław - Widawa	78-28	4/78	Settlement traces	-	Neolithic period Prehistory	400

No	Place, commune, region	Area no (AZP)	Stand no.	Function	Culture	Chronology	Distance in [m]
				Settlement traces Settlement		Late Middle Ages - modern times	
44	Wroclaw - Widawa	78-28	10/84	Settlement traces settlement	-	Prehistory Late Middle Ages - modern times	500
45	Wroclaw - Widawa	78-28	17/91	Settlement Settlement traces	-	Prehistory Late Middle Ages - modern times	500

Therefore, it is highlighted in this EMP for special attention vis-à-vis the potential for “chance finds”. In addition the works in progress will be discussed with relevant authorities for heritage conservation, and in case of finding historic structures or elements of cultural monuments while conducting these works, archaeological research will be carried out.

6.1.6. Flora and fauna

The conducted analysis showed that the implementation of the works contract **may** cause adverse effects in respect of the types of natural habitats and species of animals which are protected within the Natura 2000 site "Dolina Widawy". Thus it was necessary to indicate relevant actions aimed at their minimization. These methods of minimization of such effects are listed in Table 8.1 in Appendix 8. Below we present summary of such measures:

- in some cases the embankment superstructure should be executed from the embankment crest or from the outer embankment side with an absolute prohibition on occupation of the inter embankment area,
- ban on felling of trees and shrubs within the inter embankment at the specific sections,
- on indicated sections of the embankment the year before the commencement of works in the period from June to September every month, regular low mowing of the embankment surface should be performed. The following year (after the commencement) regular mowing should be repeated in front of the works line to prevent the re-population of the already abandoned area,
- minimization of cutting blackthorn and hawthorn shrubs,
- works in some places should be carried out at day, with natural lighting,
- during felling of trees with their perimeter at breast height of more than 50 cm within specified sections of the embankments, the supervision of an entomologist is required to determine whether and which fragments of a particular tree are the place of residence of a particular species. In case of stating the presence of beetles at felling, adequately-cut

tree fragments should be transported - in accordance with the arrangements carried out with a specialist - entomologist (present on the spot) - to the place specified by the specialist in order to enable the species to complete its life-circle and leave the tree.

- in case of some sections of the embankment trees (indicated to be left untouched) should be secured for the duration of the works against accidental damage,
- resignation from back-filling local depressions in the ground at the inter embankment area.

The implementation of the proposed mitigation measures will require engagement of environmental specialists (botanist, entomologist, herpetologist, chiropterologist, etc.) by the Contractor during the works execution. The work load of adequate environmental specialists results from the requirements presented in the Mitigation Plan. The engagement of an entomologist and a chiropterologist will be required if there is the intention of cutting down trees with their perimeter at breast height of above 50 cm resulting from technical reasons. At that time it should be done with the participation of specialists:

- entomologist - to control the occupancy of the trees with protected species of beetles, such as *Cerambyx cerdo*, *Osmoderma eremite*,
- chiropterologist - to control of the presence of bats (see EMP table 1).

If the removal of such trees is not necessary, engagement of specialists shall not be necessary.

In case that trees need to be cut down and species of beetles and bats are present, the recommendations of specialists should be implemented. During the transfer of species, the environmental specialist will control the correctness of realization.

According to planned measures as shown in Table 1 in Appendix 1 before works commencement, additional floristic inventory should be performed in order to determine the current distribution of protected plant species in the areas to be permanently and temporarily occupied for the purposes of implementation of this contract. In case of finding specimens of protected plants (according to Art. 56 of Nature Conservation Act of 16 April 2004), after obtaining an appropriate permit by relevant Nature Conservation Department, they should be transferred to the habitat suitable to this plant.

Additionally, in places designated as places of potential presence of protected plant species, before the works begin, the top layer of soil with herbaceous vegetation should be removed and put in a place protected from destruction - in order to use this layer later, during the reclamation works. Detailed rules for the conduct with the individuals of identified plant species (including choice of technology and target replanting sites), as well as technological

and location details of dealing with a layer of soil should be agreed with a specialist in the field of botany.

Prior to commencement of works, a site visit of the works implementation areas by the Contractor with the assistance of botanist or phytosociologist should be carried out in order to locate places of occurrence and abundance of invasive plants. After location and marking visibly places covered with invasive plants, preventive measures during the implementation of the investment should be taken, which will reduce the spread of those plants, including:

- taking off of humus patch with invasive plants and removal from the investment site to the composting facility or disposal in any other effective manner. It is unacceptable to mix humus with the native vegetated humus,
- people performing the work related to the elimination of invasive plants should be trained and supervised.

The specialist in the field of herpetology will be engaged in connection with mating season of amphibians. The person will not directly do structures such as monitoring daily barriers or traps and moving animals, but will prepare recommendations to follow.

On the sections of flood banks, at which amphibians breeding places were inventoried, security solutions should be used to prevent mortality (as a result of the work and traffic) of animal traveling to and from the breeding grounds. Technical solutions (e.g. fencing of construction sites or use of traps in the form of grooves in the ground) are to be performed along sections corresponding to the length of amphibians breeding places and on the length not less than 150 meters from the edges of those places. Detailed technology and location, and the rules for handling amphibians are to be agreed with a specialist in the field of herpetology. During the implementation phase of the project, within the periods indicated by a specialist-herpetologist, daily barriers or traps shall be monitored and animals should be moved according to directions in which they move.

This scope of work will not be connected with full time engagement of these 4 specialists and their part-time involvement is included in B3-2 Works Contract time-frame. The following specialists are required for EMP implementation for this Works Contract: (i) entomologist, (ii) chiropterologist, (iii) botanist (or phytosociologist), (iv) herpetologist, (v) zoologist. They will be engaged during implementation of the mitigation measures and compensation among others: I.2.1.16, I.2.1.19, I.2.22, I.2.23, I.2.24, I.2.25, I.2.27, I.2.28, I.2.33 and I.2.34.

6.2. COMPENSATION MEASURES OF THE ENVIRONMENTAL NEGATIVE IMPACT

Compensation of the species and protected habitats within the Natura 2000 areas:

Given no significant adverse impact as well as the projected measures to minimize natural losses, there are no prerequisites to propose compensatory measures within the Natura

2000 areas. All the losses within the natural habitats and protected species which are possible to be avoided have been offset by a wide scope of eliminating and minimizing actions, in line with the second (environmental) variant proposed for implementation.

Compensations of the natural habitats beyond the Natura 2000 areas

At the course of the conducted assessment, it was stated for the environmental variant (second (II) variant), the areas of the existing protected natural habitats are permanently occupied by the flood-protection structures (mainly embankments). The losses shall not be large enough to be considered significant, however, they require to be compensated - at least partially - under article 75 of the act - Environmental Protection Act [unified text: Journal of Laws dated 19.07.2006, no. 129, item 902].

Table 8.3 (the appendix no. 8) presents the summary of compensation actions the need of implementation of which has been presented in the course of the conducted assessment of the environmental impact of the investment (the possibility of major negative impacts onto the species has been demonstrated). The compensation solutions refer to the protected species.

In summary, the execution of the following natural compensations are planned:

- 1 For the destruction of patches of the natural habitat - low-land and mountain fresh meadows used extensively (code - 6510) with their area of around 14,2 ha - at the land plots no. 2/1, Precinct of Psie Pole AM-16, no. 5, Precinct of Psie Pole, AM-2, no. 1, Precinct of Widawa, AM-1, no. 3, Precinct of Widawa, AM-1, no. 10, Precinct of Zgorzelisko, AM-12, no. 15, Precinct of Zgorzelisko AM-12 - conduct activities consisting in annual, at least once, mowing and removing of mowed biomass, removing foreign species of plants aimed to improve the state of conservation of patches of fresh meadows located in the valley of the Widawa river at the area not lower than 29 ha. Perform the activities for the period of 5 years.
- 2 For the destruction of patches of the natural habitat - oak, elm, ash riverine forests (code - 91F0) with their area of 1,6 ha - at the land plot no. 3, Precinct of Swiniary, AM-23 - restore riparian forests with their area of 1,5 ha. The compensation should be conducted through forestation of the area taking into account appropriate tree species (for the type of natural habitats). The basic principles of forest cultivation should be maintained. All the detailed solutions should be implemented under the guidance of a specialist - phyto-sociologist.

Start the performance of the activities specified in points: 1, 2, 3 (prepare the surface for the restoration of meadows, mow with a mixture of grasses and dicotyledonous plants, conduct at least one mowing with biomass collection and prepare the surface and plant with tree seedlings) prior to the start of commencement of the considered structures.

Table 6-2. Preliminary Programme of compensation

N o .	Actions	Implementati on period Authority responsible for implementati on	Implementation year/half-year																	
			2011		2012		2013		2014		2015		2016		2017		2018		2019	
			I ¹	II ²	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
1	Determining the scope of expertise (survey) in order to design nature compensation	2 month <hr/> Engineer-Consultant																		
2	Preparing site work's programme	2 month <hr/> Contractor																		
3	Performing nature survey	12 month/ nature specialist Contractor																		
3	Execution of works / structures for the compensation program	12 month <hr/> Contractor																		
4	Monitoring and maintenance works on the objects designated for compensation	Implementatio n period of contracts for works <hr/> Contractor																		
5	Achieving projected outcomes of the compensation	<hr/> Contractor																		
6	Monitoring of effectiveness of compensatory measures implemented	<hr/> Once a year Beneficiary - DZMiUW in Wroclaw																		

¹ First half-year; ² Second half-year;

6.3. REQUIREMENTS OF SITE SPECIFIC IMPLEMENTATION PLANS DURING CONSTRUCTION PHASE

Contractor should build upon the mitigation measures described in the EIA and this EMP and should prepare his own site specific document necessary to construction works realization (these documents will have to be acceptable by the Engineer):

- Site management plan,
- Solid waste plan,
- Quality assurance plan,

- Specific implementation plan, including, inter alia, the measures of habitat protection described in this EMP,
- Safety and health protection plan, including, inter alia, such elements as:
 - *identification of elements of management of land plots or area which can impose threat to safety and health of people,*
 - *information on foreseeable risks occurring in the execution of works, specifying the scale and kinds of threats as well as places and time of their occurrence,*
 - *information about separating and labeling the place of conducting the construction works, in accordance with the type of hazard,*
 - *information on the manner of conducting the training to staff prior to launching the implementation of the works which are particularly dangerous,*
 - *specification of the manner of storage and placement of materials and products, substances and dangerous agents at the construction site,*
 - *indication of technical and organizational measures preventing hazards resulting from the execution of construction works at the zones of specific health risks or in their vicinity, in order to ensure safe and efficient communication, allowing rapid evacuation in the event of fire, accident and other threats,*
 - *indication of the place for keeping construction documents and papers required for the proper operation of machines and technical equipment.*

The abovementioned documents will be accepted and its realization will be monitored by the independent Engineer-Consultant.

NOTE

The Contractor, while preparing his site management plans, including the Operational Health and Safety Plan, will take into account relevant measures as indicated in the World Bank Group's Environmental Health and Safety Guidelines. Site management plans, which will be prepared by the Contractor, shall be reviewed and endorsed by the PIU and PCU.

6.4. MITIGATION MEASURES PLAN - CHECK LIST

Check list of the mitigation measures plan is covered in Appendix 1.

7. DESCRIPTION OF MONITORING PROGRAM

Proposed monitoring has two basic aims:

- monitoring of works of contractors during the implementation of the project in terms of consistency with agreed measures and remedial actions,
- assessment of the actual impact of the project on the environment in the years following project's completion.

7.1. MONITORING OF IMPACT ON THE ENVIRONMENT DURING CONSTRUCTION STAGE

Prior to Works commencement, the Contractor should develop his own monitoring programme, correlated with the monitoring programme of the Engineer and other institutions engaged in Project realization. The program should concentrate on potential soil, air and water contamination as well as noise emission.

Noise

It is considered that the best approach to control noise in the course of the construction is to require the usage of equipment which meets the noise standards and to monitor its status on a regular basis (at the same time to respond to any complaints from local communities).

If noise levels are exceeded, mitigating measures should be implemented through periodic inspection of operational positions. The responsibility is to be borne by the Contractor of the works.

During the construction, noise is emitted from means of transport and machinery. These sources of noise are provisional and will last to the completion of construction works. At this phase, the level of noise must be controlled only if necessary, (e.g. complaints of local community). There should be noise checking measurements done and in case of exceeded standards remedial actions are to be taken.

Within the monitoring of noise during the execution of the construction works, it is required that the Contractor of the works should:

- prior to starting the works - perform the measurement of background noise,
- report the maximum levels of noise in the course of construction works.

The Contractor of the works is responsible for all the consequences, which are the result of excessive noise levels at the construction phase. If the measurements show increased noise levels, the contractor of the works will be obliged to take appropriate mitigation measures (Chapter 6).

Air quality

At the duration of construction and assembly works atmospheric pollution will occur - it will be caused by non-organized emission, related mainly to the operation of assembly machinery and means of transport powered by internal combustion engines emitting gaseous pollutants, dusting at transport, storage and incorporation of soil masses.

Additional monitoring of the impact of the construction onto air quality will be performed in case of complaints from local communities.

The measures to mitigate emissions to air are listed in the mitigation action plan (chapter 6) and the monitoring plan (chapter 7).

Surface and underground waters

Monitoring any threats to underground and surface waters (in local trenches) at the construction phase is to determine the impact onto their quality. Parameters such as: pH, BOD₅, suspension, turbidity and concentration of petroleum compounds should be assessed. It is recommended that the Contractor of the works performs the monitoring of surface waters before the start of construction works. Moreover, in the course of the construction the monitoring of surface water quality should be done directly after long-term rainfall or in case of an emergency situation (e.g. oil spills, grease etc. from construction equipment).

In case the results of measurements and analyses indicate any increase of adverse effects, it is necessary to determine the reasons for such deteriorating situation and take necessary mitigation measures.

In case of underground waters, the measurements of basic indicating parameters of waters should be performed in case of their emergency contamination (e.g. leakage of oils, grease from construction equipment). This is especially vital in case of the works related to dehydration of foundation excavation for embankment culvert (reduction of the surface of ground water).

The mitigating measures related to the protection of waters are listed in the mitigation action plan (chapter 6) and the monitoring plan (chapter 7).

Soils

The area of construction works is located beyond extensive communication traffic. Thus, as shown in the EIA Report, concentrations of heavy metals in soils are at normal levels which are typical to the area. It is not suggested to conduct the monitoring of soils before and at the construction stage.

In case of an emergency situation (e.g. leakages of oils, greases from construction equipment to the ground) take measures to mitigate (to change soil as the last resort).

The mitigating measures related to the protection of soils are listed in the mitigation action plan (chapter 6) and the monitoring plan (chapter 7).

Flora/fauna

The Contractor must assure environmental monitoring of impacts on flora/fauna during the construction (project implementation) stage. Engagement of the following specialists by the Contractor is required for the implementation of site-specific EMP: (i) entomologist (ii) chiropterologist; (iii) botanist (or phytosociologist); (iv) specialist in the field of herpetology, (v) zoologist. They will be engaged in implementation of specific measures which will be monitored: I.2.1.16, I.2.1.19, I.2.22, I.2.23, I.2.24, I.2.25, I.2.27, I.2.28, I.2.33 and I.2.34 (according to the numbers in the Tables - see Appendix 1 and 2 as well as see the extract from Environmental Decision - Appendix 4).

In the scope of the natural environment, the following monitoring has been projected prior to the implementation and at the time of execution of the works:

1. At the performance of the investment - conduct - with the participation of specialists - constant natural supervision considering the proper accomplishment of preventive and minimizing measures in reference to the protected natural habitats as well as the species of fauna and flora. The supervision should include:
 - Pre-implementation monitoring conducted by an entomologist in terms of the location of occurrence of (among others) places and populations of the protected species of insects,
 - Pre-implementation monitoring conducted by a chiropterologist in order to identify the potential living places of bats,
 - Monitoring (by specialists in the field of zoology and botany) of the occupation of the area and the correctness of the executed works within and in the direct vicinity of the protected natural habitats as well as the habitats of the species of plants and animals,
 - Supervision of an ichthyologist at the conduct of works at the section in the proximity of the habitat of occurrence of Ray-finned fish *Sabanejewia aurata* (1146),
 - Supervision of a zoologist or herpetologist covering the monitoring of occurrence of amphibians and reptiles at the area(s) of the conducted building / construction works,
 - In case of statement of low effectiveness of the introduced minimizing measures in the course of such supervision, immediately develop appropriate modifications with the participation of specialists and implement them.
2. Every year at the peaks of growing seasons of the species - within 2 years from the time of moving plants - with the participation of a botanist - examine the state of the protected plants moved from the area of the investment.

7.2. MONITORING OF ENVIRONMENTAL IMPACT DURING OPERATION STAGE

In the scope of **noise, ground water, surface water, air quality and soil**, there is a lack of impact during operation phase - monitoring is not necessary.

However, in the environmental scope (flora & fauna), the following types of monitoring are envisaged:

1. For a period of 5 years at least from the completion of works at particular WFS structures - with the involvement of a specialist - phyto-sociologist - conduct the monitoring of the natural habitats. The monitoring should include: spatial range of these habitats, extent of their structure formation, state of their preservation, forms of degeneration, presence of characteristic species and observed changes of these features.
2. For a period of at least 5 years from the completion of works at particular WFS structures - with the involvement of specialists in the field of botany and zoology - conduct the monitoring of the protected species of plants and animals covering the occurrence of the species and the conservation status of their populations. The monitoring should be conducted at growing seasons.
3. Over a period of at least 5 years after completion of works, on individual WFS Structures within the project area, performing - by trained persons - of annual monitoring of invasive plants, in particular thickets of *Reynoutria spp.* Should invasive plants appear (shoots and seedlings), the appropriate measures are to be taken to eliminate identified positions and to prevent its further spread.
4. Results of the monitoring including the evaluation and analysis carried out by the specialists to be submitted to Regional Director of Environmental Protection in Wrocław by January 31st of each year following the year of observation (by 5 years from Contract completion) - under the responsibility of Lower Silesia Board for Amelioration and Water Structures.

7.3. ENVIRONMENTAL MONITORING PLAN - CHECK LIST

Check list of the monitoring plan is attached in Appendix 2.

8. PUBLIC CONSULTATION

8.1. PUBLIC CONSULTATION OF GENERAL EIA FOR ORFPP (2005)

General environmental impact assessment for ORFPP has been carried out for the first time in 2003 (as part of a feasibility study for the project), then it was a subject to verification by a team of foreign and national consultants. In 2005, as a result of these works a document was prepared *Flood Protection Project for the Odra River Basin - General Environmental Impact Study, Main Report*, containing among other issues the Environmental Management Plan for ORFPP (Chapter 8 and 9 of the document herein).

This document was subject to Public Consultations, described in the Project Appraisal Document (PAD). Please note the quotation from PAD hereunder:

'(...) Public consultations and disclosure

65. During Project Preparation. Polish law requires an elaborate procedure for public consultation and disclosure of any works and construction. This procedure was initiated in a systematic way at the level of a community / municipality through announcements and public hearings during 2002 as part of the preparation of feasibility studies, even though the Project had already been under consideration for a long time and the local population was aware of such plans. The consultations were undertaken on all project issues such as design, environmental impacts and social impacts of various project components. However, since resettlement was the major impact inside the Raciborz reservoir, whereas all people benefiting from flood protection were located on the downstream side, separate discussion and consultations were held with the people to be resettled during preparation of RAP.

66. During the EA study. During the preparation of the **EA** study there were two stages of consultations: (i) during the scoping stage of the study; and (ii) during presentation of the findings. During the scoping stage it was decided not to organize a separate public meeting on environmental issues, in view of earlier public meetings on resettlement. Instead of this the EA team had individual meetings with the various stakeholders, including, the Lubomia Gmina, the Archaeological Conservator in Wodzislaw Slaski, the Archaeological Department University of Wroclaw, the Forestry Department in Rudi, WWF Poland, WWF Auen Institute of Rastatt, Germany and various individual experts in nature conservation, geology, soils, ecology, fisheries, and forestry. In December 2004 the EA team attended a resettlement workshop in Raciborz discussing findings of RAP. Preliminary conclusions of the EA were discussed with RZGWGL, RZGWWL and DZMiUW on March 10 and April 28, 2005.

67. During the Presentation of Findings. After approval of the draft EA version PCU distributed about 40 printed copies of the EA to local authorities and relevant stakeholders in the Project. The draft EA was also published on the websites of RZGWGL, RZGWWL, and DZMiUW on June 15 for a period of 4 weeks. Advertisements in local newspapers in Wroclaw and Raciborz were published with invitations to the public to participate in two public consultation meetings: (i) a Public Consultation meeting organized by RZGWWL, DZMiUW in Wroclaw on 30 June 2005 discussing the impacts of WFS; in this meeting which was held in the Agricultural University 52 persons attended, mainly representing nature conservation organizations and the scientific community. Local authorities and press were not represented. Discussion mainly focused on legal issues, absence of adequate spatial plans and ecological concerns regarding natural habitats in the Widawa valley; (ii) a second Public consultation meeting organized by RZGWGL on July 1, 2005 in the Art Hall in Raciborz, discussing the impacts of the Raciborz dry polder. This meeting was attended by 51 persons, including 7 journalists, a large group of farmers with land in the dry polder, some representatives of the Defenses Committee and a few NGOs.

The discussions in this meeting focused mainly on the social impacts of the project and hardly on environmental issues.

8.2. PUBLIC CONSULTATION OF EIA REPORT (2010-2011)

During the stage of EIA procedure, the public consultation was conducted by the authority issuing the environmental decision, i.e. RDOS in Wroclaw.

In this administrative procedure the number of parties exceeds 20. Pursuant to the provisions of Article 74. 3 of the Law on the provision of information about the environment and its protection, public participation in environmental protection and the environmental impact assessment, the parties were notified by the local authority about all activities of public administrations on the principle laid down in Article. 49 of the Administrative Proceedings Code, by announcements published in the following places:

- notice board in the Regional Directorate for Environmental Protection in Wroclaw,
- Public Information Bulletin of the Regional Directorate for Environmental Protection in Wroclaw (www.wroclaw.rdos.gov.pl),
- notice board in the City Hall in Wroclaw,
- notice board in the Municipal Office Dlugoleka,
- notice board in the Municipal Office Wisznia Mala.

In addition, the announcement was placed on the website and notice board in the Lower Silesia Board of Amelioration and Water Structures in Wroclaw. The above was also sent to be published in the place of the investment: Swojczyce, Strachocin, Wojnow, Psie Pole,

Kowale, Klokoczyce, Soltysowice, Polanowice, Swiniary, Widawa and Zgorzelisko as well as: Krzyzanowice, Paniowice, Psary, Szewce, Szymanow and Wilczyce.

Consultation with sanitary authorities:

RDOS came out to State Sanitary Inspections i.e. State Sanitary Inspector in Trzebnica and in Wroclaw as well as the commander of the Military Sanitary Inspector for opinion on EIA procedure and in case of a demand for carrying out procedure, for determination of the scope of EIA Report. RDOS received opinions of:

- Military Sanitary Inspector of 31 August 2010 demanding no need to carry out the environmental impact assessment,
- From others bodies: State Province Inspector in Wroclaw and State Province Inspector in Trzebnica have no comments. Hence RDOS considered that the authorities did not object.

Taking into account the scope of investment and its location, by decision of 20 September 2010, the RDOS imposed the obligation to assess the impact on the environment and defined the scope of the report. Neither party filed a complaint against the above decision of the Regional Director for Environmental Protection in Wroclaw.

During the procedure RDOS came out the opinions of the State Sanitary Inspectors. State Regional Sanitary Inspector in Wroclaw of 4 August 2011 gave positive opinion. State Regional Sanitary Inspector in Trzebnica - no position. Before the decision, RDOS asked also for opinion to the Commander of the Military Medical Center (KWOM). KWOM opined positively project implementation (opinion, dated 6 June 2011).

Reviews of the State Sanitary Inspectors were incorporated in the content of this decision.

Participation of ecological organizations:

During the ongoing procedure the Regional Director for Environmental Protection in Wroclaw at the request of the Foundation "WWF Poland - World Wide Fund for Nature"; decision of 22 September 2010, allowed the organization to participate as a party.

EIA procedure:

Based on the Article. 33 of the EIA Act, by an announcement dated 17 June 2011, the Authority made public the information about the present project, i.e.:

- entering the procedure of environmental impact assessment
- commencement of the procedure
- subject of the decision which is to be given in this case
- the authority competent to issue the decision, and the bodies competent to issue opinions,
- an opportunity to scrutinize the case and the documentation and of the place where it is open for inspection,

- a possibility to submit comments and proposals,
- how and where to submit comments and proposals, indicating the 21-day deadline for their submission,

for the competent authority to consider comments and proposals.

The announcement stated that Environmental Decision proceeding for this project is conducted for the Lower Silesia Board of Amelioration and Water Structures in Wrocław. The authority informed about the right to issue relevant opinions in accordance with Article 78. 1 point 2 of the EIA Act by: State Regional Inspector in Wrocław and State Regional Sanitary Inspector in Trzebnica. In the announcement the authority pointed out that anyone is invited to read the application and other documentation in this case (including the report on the environmental impact assessment of the project) from the date of public announcement, at the headquarters of the Regional Directorate of Environmental Protection in Wrocław, pl. Powstanców Warszawy 1, Room 3018 hours from 9:00 to 15:00. They also mentioned that anyone can submit comments and proposals regarding the proposed activity in writing at the above address, verbally to the protocol or in electronically to: sekretariat@rdos.wroclaw.pl from 24 June 2010 till July 14, 2011 (inclusive), and the authority competent to examine the comments and proposals is the Regional Director for Environmental Protection in Wrocław. Also, it has been announced that the comments and proposals submitted after the deadline would remain unexamined.

Pursuant to the provisions of the Article 3 paragraph 1, point 11 of the EIA Act, information about the planned operation has been made public through:

- notice board in the Regional Directorate for Environmental Protection in Wrocław,
- Public Information Bulletin of the Regional Directorate for Environmental Protection in Wrocław (www.wroclaw.rdos.gov.pl),
- notice board in the City Hall in Wrocław,
- notice board in the Municipal Office Długoleka,
- notice board and www page of the DZMiUW. Announcement at the place of the planned project by displaying the notice on the notice boards in: Swojczyce, Strachocin, Wojnow, Psie Pole, Kowale, Kłokoczyce, Soltysowice, Polanowice, Swiniary, Widawa and Zgorzelisko as well as: Krzyzanowice, Paniowice, Psary, Szewce, Szymanow and Wilczyce,
- through a notice in the press - in Lower Silesia supplement to *Gazeta Wyborcza* and also on the website and in the notice board in the Lower Silesia Board of Amelioration and Water Structures in Wrocław.

In the course of the proceedings, 4 motions were submitted: Mayor of the village of Paniowice, "My Paniowce" - Association for the Development of Paniowce, Mayor of the

village of Kotowice, Mayor of the Municipality of Oborniki Slaskie. The applicant (the Lower Silesia Board of Amelioration and Water Structures in Wroclaw) responded to the submitted motions and remarks supplementing the Environmental Impact Report and organized a meeting with inhabitants of the villages of Paniowice and Kotowice.

According to the stipulations of art. 10 § 1 of Administrative Proceedings Code, by the announcement on 30 December 2011 the Regional Directorate for Environmental Protection in Wroclaw informed the parties on collection of all the evidence material on issuing the decision on environmental conditions for the project under consideration. The parties were informed on the possibility to become acquainted with all the material gathered in this case and the possibility to make comments and conclusions as to the collected evidence. All the documents were available for inspection at the registered office of the Regional Directorate for Environmental Protection in Wroclaw, 1 Powstancow Warszawy Street, 50-951 Wroclaw. Based on the principle specified in article 36 § 2 of Administrative Proceedings Code, RDOS informed that - due to the need to obtain all the confirmations and information on the dates of placement and removal of notices issued in the present case at notice board, the case would not be processed within the statutory time limit - the decision will be issued immediately but no later than within 21 days from the date of delivery of information on the evidence material gathered in the case to the parties. On 31.02.2012 RDOS issued a decision on the environmental conditions for the Works Contract under consideration (the letter no. WOOS.4233.1.2011.LCK). The decision was also made public through its public announcement. On 23.02.2012 "My Paniowce" - Association for the Development of Paniowce brought an appeal against the above-specified Decision to the General Director of Environmental Protection. The General Director of Environmental Protection, after examining the EIA procedure, issued a resolution on 17.04.2012 stating a lapse of the term to submit an appeal from the above-specified environmental decision. The resolution issued by the General Director of Environmental Protection is final, thus the decision has become final.

8.3. PUBLIC CONSULTATION OF EMP (2012)

In accordance with the of the World Bank (OP 4.01) Operational Policy draft of present document shall be subjected to public consultation.

Electronic version of the draft of Environmental Management Plan should be posted on publicly accessible websites (www.dzmiuw.wroc.pl or www.programodra.pl), while the printed document should be made available to those who are interested.

Detailed information regarding the possibility of reading this document and the possibility of submitting requests and comments [including detailed contact data (e-mail, address of the

place where people can read the draft of EMP, operational hours, phone numbers)] should be published in local press as well as at the Project Implementation Unit's (PIU) website.

After the period of 21 days from EMP draft's publication a meeting is held for those interested (concerned). There is Project presentation and discussion regarding all environmental issues. During the meeting all questions and remarks previously sent via e-mail or asked by phone are to be read out and answered.

During the meeting new questions and comments are collected, and if the answer involves too much time, the answer is to be sent by mail or e-mail in 7 days' time to the contact data provided by the person asking. The minutes from the meeting are sent to the World Bank.

The relevant comments raised by the public, shall be incorporated into in the EMP document and the final version is then to be prepared. The final version of EMP is also sent to the World Bank for the "no objection" clause.

8.4. DOCUMENTATION

In accordance with OP/BP 4.01, the national disclosure of the draft of Environmental Management Plan (EMP) started on November 29th 2012, when public consultations were announced in daily newspaper "Gazeta Wroclawska".

A public announcement invited the public, authorities and relevant institutions to have an insight into the draft of EMP for the Works Contract B3-2. EMP was made public for 35 days (29.11.2012 - 03.01.2013) on web site the ODRA PROGRAMME - 2006 (www.programodra.pl) and also placed on DZMiUW web site (www.dzmiuw.wroc.pl). In addition, information about the EMP was sent to the Commons and the Council of Settlements located in the area of Project realization. Printed version of the EMP Draft was available for examination in the premises of Project Office Podwale 62 room 103, on working days from 8.30 a.m. to 3.30 p.m.

On the 4th January 2013 at 4:00 p.m. in the conference room of Lower Silesia Medical Association in Wrocław open public meeting was held on the public consultation on the Draft of Environmental Management Plan (EMP) for the Contract Works B3-2 "Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary" implemented within the Wrocław Floodway System Modernization as a part of the Odra River Basin Flood Protection Project.

The public debate was opened by Mrs. Edyta Krutysz-Hus V-ce Director of WFS Project Department, who is representing the Employer - Lower Silesia Board of Amelioration and Water Structures in Wrocław. After a brief greeting, Mrs. Edyta Krutysz-Hus presented the purpose and plan of the meeting. Furthermore Mrs. Edyta Krutysz-Hus gave voice to Mrs. Marta Rak V-ce Project Manager. She presented briefly procedure of EMP preparation and

consultation and encouraged to ask questions after the presentations and informed to take prepared forms for possible questions.

Presentation of the Draft of Environmental Management Plan (EMP) for the Contract Works B3-2 "Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary" was delivered by the Consultants representative - Mr. Adam Rak - Environmental expert. Mr. Adam Rak brought the audience the purpose and contents of the Environmental Management Plan prepared in accordance with the guidelines of the World Bank, as well as information on implemented Contract B3-1 i. e. among others its location, the project alternatives, environmental impact both during the implementation, as well as in exploitation time. During the presentation, Mr. Adam Rak paid special attention to the mitigation measures, the scope of monitoring and obligations arising from them during the execution of works contract to the Contractor, the Engineer (the Consultant of Technical Assistance) and the Beneficiary (also in the period after investment implementation). It was stressed that in the whole period from the publication of the notice of publicity of the Draft Environmental Management Plan (EMP) there was the opportunity to familiarize with this document. This document was opened for an inspection at the office of the Consultant from 29.11.2012 to 03.01.2013.

After the presentation, Mrs. Marta Rak (V-ce Project Manager), informed that within 35 days period which allows for the questions to the publicized Draft of Environmental Management Plan one e-mail have been received (e-mail attached below). There were also a great public interest in this document. Several people appeared in person at Consultant office to review displayed printed EMP. The attention of those people was focused primarily on obtaining the information regarding the scope of the projects proposed for implementation.

At the same time Mrs. Marta Rak asked the audience for questions, concern and comments that need to be clarified, by writing them down on the prepared forms.

In response to this request one of the participants in the debate relied on previously sent an e-mail and asked if a record that brings the Association will be found in the EMP. He has not formulated the question in writing (m/a e-mail dated 03.01.2013).

In reply to this question it was confirmed that the requested record will be entered into the EMP.

This record was introduced in the EMP in Chapter 2, Section 2.2 Project characterization - under Table 2.2.

From: Stowarzyszenie Moje Paniowice [<mailto:mojepaniowice@gmail.com>]

Sent: Thursday, January 03, 2013 9:59 PM

To: dzmiuw@dzmiuw.wroc.pl

Cc: andrzej.silczak@wro.mosnet.gov.pl; piotrplowski@wp.pl

Subject: Note to Draft of Environmental Management Plan for Contract B3-1 "Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary"

Dear Sirs,

With reference to the public notice issued by DZMiUW on 29.11.2012 and the meeting which took place on 02.03.2012 at Stowarzyszenie na Rzecz Rozwoju Paniowic "Moje Paniowice" (The Association) we hereby submit a comment to the Design of Environment Management Plan for the Contract B3-1 "Section: The Widawa River from the railway bridge (Krzywoustego Street) to the Odra River estuary". During the above mentioned meeting The Association was verbally assured by the representatives of DZMiUW and POPDO (Mr. Witold Krochmal) that EMP will include a provision establishing order of the execution of the two following tasks: in the first place a modernization of the flood bank around the village of Paniowice will take place (which is a separate contract to the Task "B3-1 WFS structure No. 19") and only then a partial demolition of the embankment along Widawa River will be executed under Task B3-1 WFS structure No. 19. This declaration was made in order to protect residents of Paniowice village and withdrawal by "Moje Paniowice" Association of the appeal from the Environmental Decision with regard to B3-1 Contract, which they have already lodged. The contents of submitted EMP have no trace of the above declaration. Accordingly, we request the introduction of a relevant provision in the Design of the Environment Management Plan taking into account our comments.

Regards

Agata Silczak

Joanna Musiał

Stowarzyszenie na Rzecz Rozwoju Paniowic

"Moje Paniowice"

Paniowice, ul. Główna 48

55-120 Oborniki Śląskie

President: Piotr Płoski, tel. 602 63 43 88

KRS 0000369629, NIP: 9151778877, REGON: 021487690

Public Consultation announcement on the web site of DZMiUW

<http://www.programodra.pl/ramka.htm>

Public Consultation announcement on the web site of 'Program for Odra 2006'

Page 8-10



Picture 2: Public Consultation in Conference Room in 6 Matejki Ave. (office of Lower Silesia Chamber of Physicians) January 4, 2013 (photo by Consultant)

This page intentionally left blank

9. INSTITUTIONAL ARRANGEMENTS OF EMP IMPLEMENTATION

The project comprising the Works Contract B3-2, which is a subject of this EMP, is not only a part of Odra River Basin Flood Protection Project co-financed by the World Bank (as Component B3 ORFPP), but also the subject to of an application made by DZMiUW in Wroclaw to Cohesion Fund under "Infrastructure and Environment" Operational Programme (as a project under the name of "Modernization of Wroclaw Floodway System", for the flood protection structures under management of DZMiUW in Wroclaw). Therefore the structure of the supervision of EMP implementation must comply both with the requirements of the World Bank and the requirements for projects co-financed by the EU Cohesion Fund. This structure is shown in Diagram 9-1.

9.1. OFFICE FOR THE COORDINATION OF ODRA RIVER BASIN FLOOD PROTECTION PROJECT

Project Coordination Unit (PCU) is responsible for the overall coordination of the implementation of the various parts of EMP for ORFPP, and it is currently a unit budgeted and governed by the Head of the National Water Management Authority, and also supervised by the Ministry of the Administration and Digitation (for implementation of the part of Project under the competence of DZMiUW in Wroclaw). PCU is, among other structures, responsible for:

- cooperation with the Ministry of Finance, Ministry of the Interior and Administration, Ministry of the Environment, National Authorities for Water Management and other government agencies and local governments related to the implementation of ORFP Project and operation of the Steering Committee;
- coordination between Project Implementation Units and support for those units in the implementation of EMP;
- monitoring and evaluation of progress in the implementation of EMP;
- ongoing cooperation with the World Bank and Council of Europe Development Bank, including the preparation of quarterly reports on the implementation of ORFP Project to these institutions.

9.2. M&E CONSULTANT

In order to monitor and evaluate the impact of the Project, including implementation and monitoring of environmental management plan and relocation plan, PCU appointed the Consultant for Monitoring and Evaluation (M&E Consultant). Their scope of activities includes:

- supervision over the management of natural environment and social environment protection activities;
- developing of environment management plans monitoring system;
- developing and ongoing support for IT Project Information and Monitoring System available via the Internet;
- monitoring of EMP implementation (taking care of implementation of a full scope of EMP procedures and actions, including the issue of dealing with incidental archaeological finds), Environmental Evaluations, Population Evaluations, Plan of Acquisition of Rights to Dispose of Properties for the Implementation of the Project;
- support for PCU in the implementation of the Components being under the responsibility of PCU.

M&E Consultant shall also evaluate the success in the implementation of the Project in terms of its objectives, as well as estimate physical, hydrological, environmental, social and economic impact of the Project.

9.3. PROJECT IMPLEMENTATION UNIT

Project Implementation Unit (PIU), as a separate organizational division of the entity (DZMiUW in Wroclaw), is directly responsible for implementation of EMP for the works contract and monitoring of progress in the implementation. The work and operation of the PIU are supervised under the authority of the Director of DZMiUW in Wroclaw by Measure Authorizing Officer (MAO).

Project Implementation Unit was established within the structure of DZMiUW in Wroclaw on 20.09.2007, by an Ordinance No. 114/2007 by the Director of DZMiUW in Wroclaw (under the name: Odra River Basin Flood Protection Project Implementation Unit). It is a separate organizational unit under the direct supervision of the Director. Such structure is very clear and has a very high level of decision making, which increases the efficiency of the implementation of the Project.

PIU performs the following structures under the supervision of the EMP implementation:

- monitoring of EMP implementation progress;
- financial management and accounting;
- preparing the necessary reports to control EMP implementation and coordination of the implementation by all services involved in EMP;
- final implementation of EMP.

Under the supervision of EMP implementation, MAO performs the following structures:

- administration, finance, technical and substantial management;
- monitoring of EMP implementation.

Responsibilities of PIU personnel supervising implementation of EMP are as follows:

- management, coordination and supervision of EMP monitoring implemented by the Consultant and the Works Contractors;
- direct supervision of proper execution of structures;
- supervision of EMP reporting;
- cooperation with PCU, RZGW in Gliwice and RZGW in Wroclaw;
- cooperation with departments of DZMiUW in Wroclaw supporting PIU;
- creating the conditions for and general supervision of storage of all documents related to the implementation of EMP;
- risk management of the of Project implementation, in cooperation with the Consultant and the Contractors;
- administrative and legal supervision of EMP implementation;
- collecting and archiving of documents related to the implementation of EMP;
- preparation of legal analysis related to the implementation of EMP;
- review of Reports of implementation of EMP prepared by the Consultant and the Contractors;
- financial oversight of EMP implementation;
- financial monitoring of EMP implementation according to the Financial Schedule for the project and time schedules prepared by the Contractors;
- cooperation with other units of DZMiUW in Wroclaw which are participating in the implementation of EMP;
- technical supervision of EMP implementation;
- preparation and update of Project Implementation Schedule;
- development of Project Financial Schedule;
- supervision of the proper application of formal procedures in implementation of EMP, resulting from the provisions of Construction Law, Contracts for Works, Environmental Protection Law, and others;
- participation in coordination meetings in the course of implementation of EMP and particular projects, and participation in site meetings, including meetings with the designers and the holders of copyright;
- participation in partial and final handovers.

In order to ensure effective supervision of EMP implementation throughout the entire project, PIU will be supported in their actions by other organizational units of DZMiUW in Wroclaw and by the Consultant Engineer.

9.4. ENGINEER

Engineer's role is to support DZMiUW in Wrocław in the successful completion of the entire investment process (from the preparation of the design to settlement of the accounts) of Modernization of Wrocław Floodway System implemented parting the scope of structures to be implemented by DZMiUW in Wrocław.

Engineer was selected by QCBS method (quality and cost based selection), in accordance with "Guidelines for Selection and Employment of Consultants by World Bank Borrowers".

The contract for consulting services shall be implemented from October 2010 until the end of April 2015. It obliges the Engineer to supervise the implementation of EMP. Scope of activities carried out under the supervision includes:

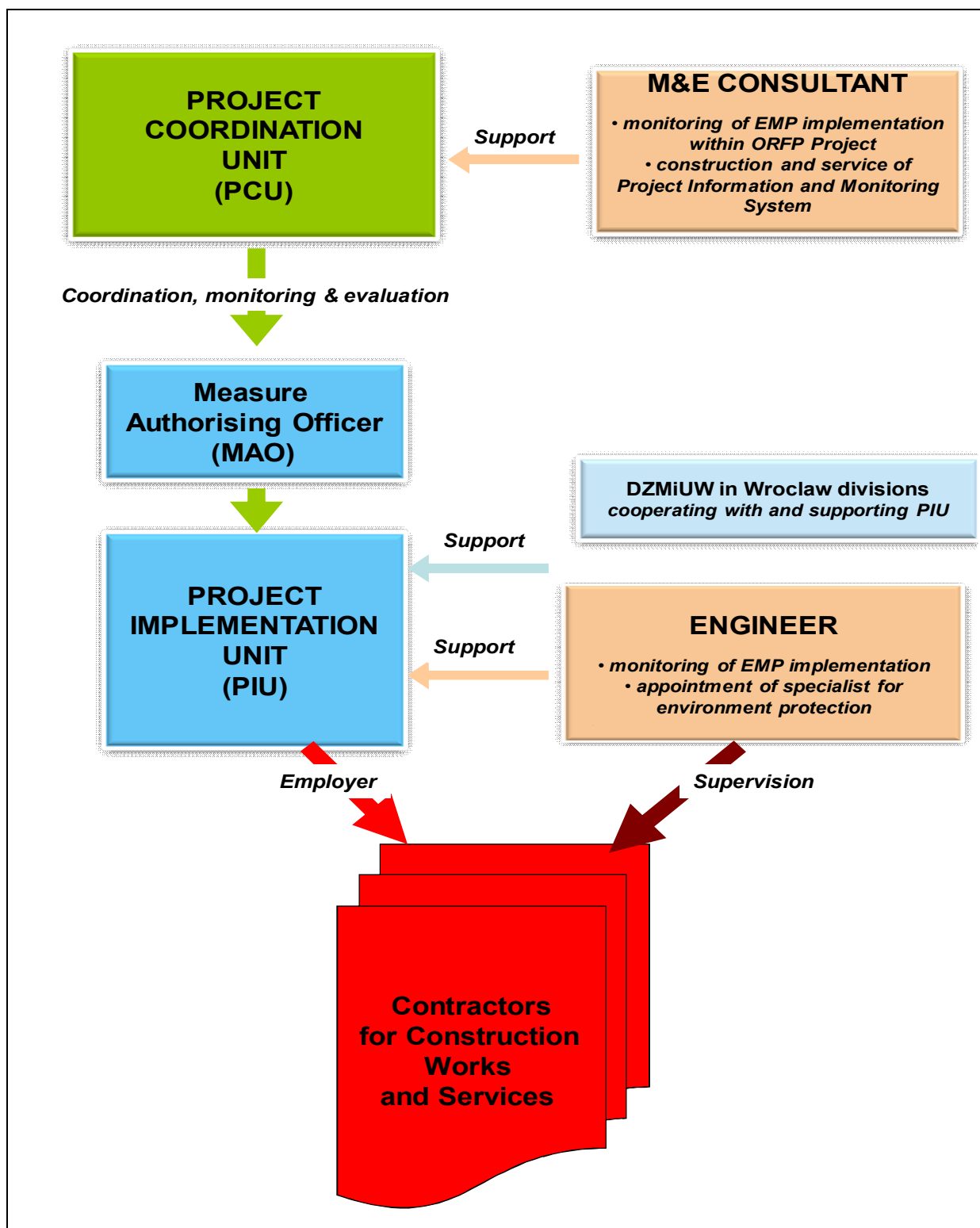
- monitoring of EMP accepted by the Contractor;
- monitoring of actions of the Contractor;
- quality check of the works performed by the Contractor of construction works and built-in construction elements, in particular the preventive action concerning the use of defective construction materials and products which are not authorized for use in the construction process;
- representing DZMiUW in Wrocław at the construction site by exercising control of compliance of the project implementation with the building design and Construction Permit, regulations regarding environmental protection and the principal technical knowledge;
- supervision of all aspects related to environmental protection by experienced specialists in the field of environmental protection;
- continuous monitoring of the proper implementation of measures to minimize and compensate the negative impact on the environment;
- preparation of monitoring reports of the proper implementation of measures to minimize and compensate the negative impact on the environment by the end of each quarter of the year, and submission of the reports to Regional Director for the Environment Protection in Wrocław;
- additional investigations in case of the necessity for verification of the reports of the Contractor;
- identification of the problems resulting from adverse environmental impact of construction works and submission of proposed solutions to these problems;
- checking and handover of construction works subject to covering or temporary works, taking part in testing and technical handovers of installations and technical equipment, and preparation and participation in activities related to handover of complete buildings structures;

- confirmation of works actually carried out and rectification of defects, and control over settlements of the construction works at the request of the Employer.

9.5. CONTRACTORS

In order to carry out construction works it is necessary to appoint the contractors for works. The responsibilities of the contractors in this area include:

- carrying out the construction works in compliance with the principles set out in the EMP, and in accordance with applicable law and requirements of the administrative decisions for the project;
- implementation of the Engineer's recommendations (including those of specialists in environmental protection and inspectors) regarding implementation of EMP;
- ensuring the preparation of Health and Safety Plan prior to commencement of construction works;
- taking over of the site from the Employer and appropriate protection of the construction site, including building structures located on site, technical equipment and site pegs, as well as natural environment and cultural heritage elements under protection;
- keeping records of construction;
- preparing minutes of the site inspections, monthly reports and reports on inspections;
- preparing forms for environmental reports;
- suspension of construction works in case of possible danger and immediate notifying the Engineer and state regional construction inspector;
- application to DZMiUW Wroclaw for changes to the design, if justified by the necessity for increase of safety of construction works or for improvement of the construction process in relation to the implementation of EMP;
- notifying the Employer of testing or handover or works subject to covering up, and ensuring the completion of tests and checking of the services required by regulations and the Contract, prior to reporting the readiness of any building structure for the handover;
- preparation of as-built documents and drawings;
- ensuring completion of rectification work.

Diagram 9-1. Diagram of the structure for EMP implementation (as part of ORFP Project).

10. IMPLEMENTATION SCHEDULE AND REPORTING PROCEDURES

Implementation of Environmental Management Plan will entail a number of benefits both in environmental and social terms. Long-term negative impacts will be significantly reduced thanks to the implementation of its objectives, and in return, a number of long term positive actions will emerge.

Benefits of the Plan implementation will be particularly evident in the improvement of the environment, achieved through the use of process modifications. The result of the action will be the improvement of functioning of ecological corridors connected with the river valley, very important for the functioning of ecological links and Natura 2000 sites. Compensatory measures and monitoring during the execution of the Works Contract and after its completion will encourage formation of diverse habitats typical for a river valley.

The actions taken in the scope of the Plan shall allow the realization of the hydrological objectives whose priority is to lower the levels of water within the range of bank-full stages, which shall enhance the safety of the inhabitants of the flood risk area, including the people who experienced the flood of 1997.

Implementation of the EMP shall enable those involved to prepare, implement and supervise the project:

- identification of various environmental aspects with significant impact on the environment, so that they can be controlled, corrected, decreased and as a result bearing economic impact;
- correction of adverse effects of works during the implementation with beneficial impact on the environment and financial performance;
- definition of objectives and structures implemented as part of adopted environmental policy, subject of EMP, which require input and produce measurable results;
- identification and elimination of potential risks and failures, prevention and elimination of environmental impacts which could be associated with them and could lead to losses disproportionate to the cost of preventive measures;
- rational use of natural resources with minimal losses to the environment and optimum cost generation.

In addition, the implementation of recommendations and actions arising from the EMP can reduce and even eliminate the risk of the project, in particular:

- risk of omitting environmental protection concerns in the process of the implementation of structures by the Contractor,
- risk of escalation of protests by the local residents due to non-compliance with the works technologies and environmental procedures approved by the Engineer,
- risk of additional environmental penalties,

- risk of additional environmental losses.

Having regard to the importance of the issues defining environmental and social conditions, the following procedures for implementation of the Environmental Management Plan (EMP) are provided for:

1. Prior to appointment of the Contractor of the Works, the Engineer-Consultant submits a draft of the present Environmental Management Plan (EMP) to the World Bank for its opinion,
2. Then Environmental Management Plan (EMP) is to be subject to social consultation,
3. After the social consultation (complement of the Environmental Management Plan with the consultation results), Environmental Management Plan is to be completed and passed in its final version for WB's no objection,
4. After the approval by the World Bank, the final document is to be transferred to the Contractor of the works in order to develop their own Environment Management Plan. The plan will be subjected to control and approval by an independent Engineer-Consultant.
5. All the actions of the Contractor of the Works are to be reported in regular intervals (monthly) both in Polish and English in paper and electronic form in respect of their obligations under the Environmental Management Plan (EMP) and other contract documents. These reports are to be approved by the Engineer and the Beneficiary Party.

Moreover the environmental conditions impose additional supervision and reporting:

II.2.1¹ At the performance of the investment - conduct - with the participation of specialists - constant natural supervision considering the proper accomplishment of preventive and minimizing measures in reference to the protected natural habitats as well as the species of fauna and flora. The supervision should include:

- 2.1.1 Pre-implementation monitoring conducted by an entomologist in terms of the location of occurrence of (among others) places and populations of the protected species of insects.
- 2.1.2 Pre-implementation monitoring conducted by a chiropterologist in order to identify the potential living places of bats.
- 2.1.3 Monitoring (by specialists in the field of zoology and botany) of the occupation of the area and the correctness of the executed works within and in the direct vicinity

¹ Number II.2.1 as described in the Environmental Decision WOOS.4233.1.2011.LCK

of the protected natural habitats as well as the habitats of the species of plants and animals.

- 2.1.4 Supervision of an ichthyologist at the conduct of works at the section in the proximity of the habitat of occurrence of Ray-finned fish *Sabanejewia aurata* (1146).
- 2.1.5 Supervision of a zoologist or herpetologist covering the monitoring of occurrence of amphibians and reptiles at the area(s) of the conducted building / construction works.
- 2.1.6 In case of statement of low effectiveness of the introduced minimizing measures in the course of such supervision, immediately develop appropriate modifications with the participation of specialists and implement them.
- 2.2 Every year at the peaks of growing seasons of the species - within 2 years from the time of moving plants - with the participation of a botanist - examine the state of the protected plants moved from the area of the investment.
- 2.3 For a period of 5 years at least from the completion of works at particular WFS structures - with the involvement of a specialist - phyto-sociologist - conduct the monitoring of the natural habitats. The monitoring should include: spatial range of these habitats, extent of their structure formation, state of their preservation, forms of degeneration, presence of characteristic species and observed changes of these features.
- 2.4 For a period of at least 5 years from the completion of works at particular WFS structures - with the involvement of specialists in the field of botany and zoology - conduct the monitoring of the protected species of plants and animals covering the occurrence of the species and the conservation status of their populations. The monitoring should be conducted at growing seasons.
- 2.5 For a period of at least 5 years from the completion of works at particular WFS structures within the investment - conduct - by trained people - annual monitoring of the occurrence of invasive plants, including thickets of knot-weed (*Reynourtia* spp). In case of observing the occurrence of any positions of invasive plants (shoots and seedlings) - take appropriate remedial measures to eliminate the identified positions and to prevent its further spread.
- 2.6 Submit the results of the monitoring with the assessment and analysis carried out by specialists to the Regional Director of the Environmental Protection in Wroclaw till 31 January of every year following the year of observation.

The scope of the report is specified by the Consultant upon positive acceptance of PCU and DZMiUW (the Lower Silesia Board of Amelioration and Water Structures in Wroclaw). The Consultant will specify the types of reports (initial, periodic - monthly and quarterly, ad hoc, closure) and deadlines for their preparation.

The following reporting procedures are established:

1. Reporting:

- 1.1 Reports (initial, monthly and quarterly, closure) drawn up by the Contractor of the works and approved by specialists,
- 1.2 Checking the reports by the Consultant,
- 1.3 Submission of the reports for approval (opinion) of PCU and DZMiUW,
- 1.4 Submission of the reports to the Regional Director for Environmental Protection.

2. Archiving:

- 2.1 Contractor: 1 copy of each report in an electronic version for 5 years from the date of termination of the works,
- 2.2 Consultant: 1 copy of each report in an electronic version for 5 years from the date of termination of the project,
- 2.3 DZMiUW: 1 copy of each report in an electronic version for 5 years from the date of termination of the project.

3. Evaluation: current evaluation of the results of the planned actions arising from the Environmental Management Plan (EMP). Current analysis of documentation (Contractor's Reports) by the Engineer. Delivery (to the Beneficiary Party) of reliable data and information on the course of the building process with particular consideration of the implementation of actions aimed at mitigating negative impacts on the environment and recommendations resulted from Environmental Decisions. The following is planned:

- Ex-ante evaluation: The report prior to the implementation of the contract for works (Engineer's Report)
- Current evaluation: Engineer's Quarterly Reports,
- Ex-post evaluation: The report upon the implementation of the contract for works (Engineer's Report).

11. REFERENCE

1. Environmental Impact Assessment Report for works contracts named: *"Construction of flood protection objects/facilities for City of Wroclaw as part of activities related to Modernization of Wroclaw Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges"* - prepared by the author's team edited by A. Rak, M. Lenartowski, A. Wleklinska,
2. Environmental Conditions Decision dated 31 January 2012 (signature WOOS. 4233.1.2011.LCK) for works contracts *"Construction of flood protection objects/facilities for City of Wroclaw as part of activities related to Modernization of Wroclaw Floodway System for flood relief through the Widawa Transfer as well as embankments located in the Widawa River valley together with bridges"*, issued by RDOS in Wroclaw,
3. Flood Protection Project for the Odra River Basin - General Environmental Impact Study, Main Report, 2005, Summary, Government of the Republic of Poland, RZGW Gliwice, RZGW Wroclaw, DZMiUW. July 2005,
4. Feasibility Study for modernization of the Wroclaw Floodway System in scope of flood protection structures realised by Lower Silesia Board of Amelioration and Water Structures in Wroclaw (DZMiUW): prepared by Joint Venture consists of: Grontmij Polska Sp. z o.o., 35 Ziebicka St., 60-164 Poznan, Poland, Grontmij Nederland B.V., De Holle Bilt 22, 3732 HM De Bilt, P.O. Box 203, 3730 AE De Bilt, Holandia, Sogreah Polska Sp. z o.o., 50 Nowogrodzka Str. Office 137, 00-695 Warszawa, Poland, Sogreah Consultants SAS, 6 rue de Lorraine, 38130 Echirolles, Francja, Ekocentrum Sp. z o.o., 35/1 Budziszynska Str., 54-434 Wroclaw, Poland, 2011.

This page intentionally left blank

APPENDICES

Appendix 1 - Check List - Mitigation Plan

Appendix 2 - Check List - Monitoring Plan

Appendix 3 - Main Polish Legislation

Appendix 4 - Environmental Decision

Appendix 5 - Locality Map

Appendix 6 - Description, location and significance of natural objects

Appendix 7 - List and description of habitats' and species' resources in area of works contract impact

Appendix 8 - Summary of mitigation and compensation measures

- 8.1. Methods for minimizing the impact of the Works Contract on natural habitats and species protected under the Natura 2000 areas “ Grady "Grady w dolinie Odry"**
- 8.2. Summary of impacts on species and habitats located in the region, of Works Contract and methods for minimizing the impact of the Works Contract**
- 8.3. Summary of interactions that require the implementation of compensation and how it is carried out**

**Appendix 1. Check List -
Mitigation Plan**

APPENDIX 1. CHECK LIST - MITIGATION MEASURES PLAN

Table 1. Plan of mitigation measures for Works Contract B 3-2 Section: The Widawa River from to the railway bridge (Krzywoustego Street) do the estuary to the Odra River, WFS structures: 42.2, 42.3, 42.3.1, 43, 44.14, 44.4, 44.5, 44.15, 44.16, 44.6, 44.7, 44.8, 44.9, 44.17, 44.18, 44.10, 45.3, 45.4, 46.2,19.

ATTENTION:

- The Natura 2000 site SAC "**Dolina Widawy**" (PLH020036) is located (or partly located) in the area of the works (5 structures of the B3-2 Contract) which will be carried out: WFS 42.3, 42.3.1, 44.18, 44.10, 19. Others 15 structures of this Contract are located beyond this area.
- The Contractor will ensure the environmental supervision of Works according to the statement in the Technical Specification '0'(General requirements) which is the part of the Bidding Documents. Cost of implementing these activities should be included in the Bidder's overall price calculation.
- The following specialists are required for the implementation of site-specific EMP: (i) entomologist (ii) chiropterologist; (iii) botanist (or phytosociologist); (iv) specialist in the field of herpetology, (v) zoologist. They will be engaged in implementation of specific measures I.2.1.16, I.2.1.19, I.2.22, I.2.23, I.2.24, I.2.25, I.2.27, I.2.28, I.2.33, I.2.34 (according to the numbers in the Mitigation Measures Table - Appendix 1 and the Environmental Decision- Appendix 4). Details of the activities are presented in sections 6.1.6 of EMP.
- The above activities will be undertaken before and during the Works Contract B3-2 execution, with detailed schedule for each particular location to be prepared by the Contractor and approved by the Client, in such a way to ensure their successful completion before the start of the construction/rehabilitation works at each specific location.

Location	Issue	Mitigation measures	Institutional responsibility	Notes
Applies to all contract's structures of whole embankment's sections	Top-soil protection	[I.2.1.1] Prior to works substantial levelling works - take off the top of the humus soil layer (to the depth of 30 cm on average) and store in the vicinity of the area covered by the construction, in separate piles secured against drying and mixing with native rock, subject to the condition set out in point I.2.1.19. [I.2.1.3] Do not occupy lands adjacent to the area of implementation of	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		the Works Contract beyond the existing communication system		
	Soil erosion protection	[1.2.1.2] Upon completion of earth works - use the taken-off over-load for forming slopes of the embankments intended for turf assessment: at the width of 5-10 metres along the embankment and within the reconstructed structures, at one side or both sides of the embankment - spread and level the previously taken-off humus. Within technological lines and places of storage (transport) of building materials - additionally execute all the tillage works: plating with discs, harrowing, fertilising and seeding grass mixtures in accordance with meadow habitats located closest to the site of re-cultivation	Contractor	
	Protection of surrounding environment	<p>[1.2.1.4] Do not locate background facilities of construction sites at areas covered with bushes and trees as well as within protected natural habitats.</p> <p>[1.2.1.5] Prior to starting works at particular structures within the Works Contract, with the participation of specialists in botany, plant sociology, and zoology, fence off valuable patches of natural habitats and positions of protected plants and animals which are adjacent to the set-out sites of works and designated for their preservation. Execute the fencing in such a manner which is visible for people performing building works and which prevents accidental intrusion into fenced-off patches of natural habitats and positions of plants and animals. Remove the fencing upon the completion of building works.</p> <p>[1.2.1.6] Reduce (as far as possible) the area of damage as a result of building works conducted within valuable natural habitats of species.</p> <p>[1.2.1.7] Modify the technology applied for construction / reconstruction of the embankments consisting in conducting works at the opposite side to natural objects, or alternatively - conducting works at the front or crest of the embankment.</p> <p>[1.2.1.8] Determine the location of technological routes and sites in a manner which ensures: preservation of protected natural habitats, positions and habitats of protected species, preservation of all the tree- and shrub-based vegetation occurring beyond the areas required to be occupied in reference to the modernisation of the existing embankments and construction of new ones.</p> <p>[1.2.1.9] At the determination of location of technological routes and sites</p>	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		<p>at the areas located within the zone of implementation of the Works Contract, the following should be done:</p> <p>2.1.1 keep all tree and shrub vegetation growing beyond the places required to be occupied in reference to the modernisation of the existing embankments and construction of new ones,</p> <p>2.1.2 set a precise location of technological routes and sites within the boundaries of the zone of implementation of the Works Contract - in co-operation with specialists in the field of zoology and botany, so as not to worsen the ecological status of natural objects located within the implementation.</p> <p>[I.2.1.10] Reduce (as far as possible) the minimum depth of excavations / trenches and shorten (as far as possible) the duration of works.</p> <p>[I.2.1.11] Within the mid-embankment - not to dig up local depressions with a surplus of ground from excavations / trenches.</p>		
	Flora & fauna protection	<p>[I.2.1.12] Apply time constraints at the execution of works in connection with the requirements of conservation of valuable species of flora and fauna.</p> <p>[I.2.13] Apply the principle of protection of natural environmental elements which are important to maintain a proper state of ecological corridors at each of the WFS structures (coverage with woods and shrubs, water reservoirs, oxbow lakes, etc.).</p> <p>[I.2.1.14] Run the modernisation of bridges in a manner which ensures the ecological functionality for animals moving through the valley of the Widawa River (appropriate lighting, dry land at River-bank areas above average water levels, natural character of River-bank areas under the bridges).</p>	Contractor	
		[I.2.1.15] Limit the felling of trees and shrubs to an absolute minimum and perform it within the period from 15 October to the end of February, subject to point I.2.1.16 and I.2.1.29.	Contractor/ specialist entomologist	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		<p>[1.2.1.16] In case of an intention of felling of trees with their breast height over 50 cm, directly prior to the felling, the following should be performed with the participation of specialists:</p> <ol style="list-style-type: none"> 1. entomologist - a control of the occupancy of these trees by protected species of beetles, such as: Great Capricorn Beetle <i>Cerambyx cerdo</i>, Hermit Beetle <i>Osmoderma eremita</i>, 2. chiropterologist - a control of the presence of bats <p>In case of any collision of the planned works with the positions of the above-specified beetles and the need to cut down trees because of the technical and technological conditions - make a transfer of the above-mentioned animals to another place or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Make the transfer in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.</p> <p>Consult and settle the detailed principles of conduct (on determining places to which appropriately felled fragments of trees will be transferred and a code of conduct with felled trees and particular species individuals) with an entomologist and include the settled solutions in the application (request) for issuing an approval for the destruction of habitats and animals.</p> <p>In cases of statement of the presence of bats in trees to be felled, temporarily suspend felling and implement the chiropterologist's recommendations which are adequate to the current atmospheric situation and identified the species of bats.</p>	Contractor/ specialist entomologist and chiropterologist	
	Flora protection	<p>[1.2.17] Within the whole area of investment, secure all the trees and shrubs designated to be left (including the ones being habitats for Great Capricorn and Hermit Beetle against accidental damage by using the following methods:</p> <ol style="list-style-type: none"> 2.1.17.1 make tree-trunk protection (e.g. made of planks) fully around tree trunks up to the level of 1.5 m at minimum, 	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		<p>2.1.17.2 make shields around shrubs (e.g. made of planks) up to the level of 1.0 m at minimum,</p> <p>2.1.17.3 make dig-outs / trenches at a distance of not less than 2 m from tree trunks,</p> <p>2.1.17.4 do not store construction materials or solid / liquid waste which can alter the chemical characteristics of soil (e.g. salts, oils, fuels), or soil masses within the projection of tree crests,</p> <p>2.1.17.5 execute earth works manually around skeletal roots. It is unacceptable to undercut skeletal roots,</p> <p>2.1.17.6 in the period of hot weather, maximally reduce the time of exposure of roots to desiccation, while in the period of cold weather (frost) - to freezing.</p>		
	Flora protection	<p>[I.2.1.18] Make dig-outs / trenches (conducted within the root systems of trees and shrubs) manually, if necessary, use drilling or jacking methods.</p> <p>[I.2.1.19] At places being designated as spots of potential occurrence of protected plant species, prior to the start of works - remove a top layer of soil with herbaceous vegetation growing on it and put it at a place secured against destruction - in order to make use of the layer during re-cultivation works. Consult and settle the details of dealing with a layer of soil with a specialist in the field of botany.</p> <p>[I.2.20] In case of any collision of the planned works with the positions of protected species of plants - re-plant the above-specified plants - to another place or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Conduct the re-planting in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.</p> <p>[I.2.1.21] Consult and settle the detailed principles of conduct with protected species of plant individuals specified in point I.2.1.20 (including a selection of technology and places of target re-planting) with a specialist in the field of botany and include the settled solutions in the application (request) for issuing an approval for the re-planting.</p>	Contractor/ with the participation of expert naturalist	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
	Flora protection	[1.2.1.22.1] Prior to the start of construction works - conduct field inspection of places of execution of the works with the participation of a botanist or phyto-sociologist to locate places of occurrence and population of invasive plants (with the exception of Small-flowered Touch-me-not). After conspicuously locating and marking of places which are covered with invasive plants - take preventive measures during implementation of the investment, which will reduce the spread of those plants, including: - take off a layer of humus with invasive plants and remove them from the area of the works for composting or dispose in any other effective manner. It is unacceptable to mix the humus with the native vegetated humus,	Contractor/ with the participation of expert of botany or phyto-sociologist Contractor	
	Flora protection	[1.2.1.22.2] train and supervise persons performing works related to the elimination of invasive plants.	Contractor	
	Fauna protection	[1.2.1.23] In case of any collision of the planned works with the habitats of protected species of animals - make a transfer of the above-specified animals to another places or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Make the transfer in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.	Contractor/ with the participation of specialists in the field of zoology	
		[1.2.1.24] Consult and settle the detailed principles of conduct with protected species of animals specified in point 1.2.1.23 (including a selection of technology and places of target transfers) with a specialist in the field of zoology and include the settled solutions in the application (request) for issuing an approval for the animal transfer.	Contractor/ with the participation of specialists in the field of zoology	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		[I.2.1.25] At the breeding sites of amphibians - plan construction works so that they should be conducted beyond the breeding season, namely beyond the period from 1 March up to 31 August. Depending on particular species occurring in water bodies (reservoirs) it is allowed to shorten the period referred to above upon consulting a specialist herpetologist. In case of failure to conduct the works beyond the period specified above, it is allowed to make use of solutions securing against the mortality (as a result of the conducted works and traffic) of animals travelling to and from breeding grounds. Technical solutions (e.g. fencing of construction sites with fences or use of traps in the form of grooves in the ground) to perform at sections with their length corresponding to the length of breeding amphibians places and the length not less than 150 meters from the boundaries of these places. Detailed technological and location solutions and principles of handling amphibians to be agreed with a specialist in the field of herpetology.	Contractor/ with the participation of specialist in the field of herpetology	
		[I.2.1.26] The application of methods securing water chambers, trenches, collectors etc. prior to the confinement of minor mammals, amphibians and reptiles within them. Therefore, these components (elements) should be designed to allow individual animals to get out of these structures. If this is impossible, these structures should be secured against the possibility of falling by animals or - at the stage of implementation - these elements should be monitored daily with trapped animals got out and transported beyond the site of works.	Contractor	
		[I.2.1.27] In the vicinity of especially environmentally valuable areas (within any protected areas, forests) - plan any works with their highest noise level in autumn and winter months (second half of October - end of February). Noise caused in the period from March up to July should not exceed 50 dB at a distance of 100 m from the site of works. Also due to the noise, in the period from April to October, any works should not be conducted at night in the vicinity of feeding of bats (large patches of trees, forests, water reservoir) - Greater Mouse-Eared Bat (<i>Myotis myotis</i>), Bechstein's bat (<i>Myotis bechsteini</i>), Pond Bat (<i>Myotis dasycneme</i>) and Barbastelle Bat (<i>Barbastella barbastellus</i>).	Contractor/ with the participation of specialist in the field of chiropterologist	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
	Fauna protection	[I.2.1.28] In order to protect valuable and rare species of birds (Corn Crane, Lapwing, Eurasian Bittern, Marsh-harrier) - conduct any works with the highest noise levels, planned within and in the close vicinity of their habitats in the period from October to March.	Contractor/with the participation of specialist in the field of ornithology	
		[I.2.1.29] Reduce (as far as possible) felling / cutting down blackthorn brushwood (no grubbing) and perform between 15 July and 15 August under the supervision of specialists: ornithologist and entomologist.	Contractor/with the participation of specialist in the field of ornithology	
		[I.2.1.30] Start works and grubbing bush roots at the positions of cut blackthorn brushwood referred to in point I.2.1.29 at the earliest after 15 September and end by 15 March. Conduct construction / building works at a distance up to 100 m from the blackthorn brushwood - at day-time and with natural lighting only.	Contractor/with the participation of specialist in the field of ornithology	
		[I.2.1.31] In case of no possibility to conduct the activities specified in point 2.1.29 and 2.1.30, perform felling / cutting down under the supervision of a specialist - entomologist. In case of finding eggs of Caterpillar Moth at blackthorn brushwood planned for felling / cutting down, move the felled / cut-down shrubs with eggs (in agreement with an entomologist) to a place ensuring the completion of their development cycle.	Contractor/with the participation of specialist in the field of ornithology	
		[I.2.1.32] Mow the area occupied to construct the embankment - within the found sites and potential habitats of Scarce Large Blue Butterfly <i>Phengaris Teleius</i> and Dusky Large Blue Butterfly <i>Phengaris Nausithous</i> , in particular within their habitats (identified as o-109 and o-119), one year prior starting the works, in the period from early June to late September, once a month. Mow at the height of not more than 10cm. Perform the mowing in the manner specified above (prior to the proceeding works) also in the following year (after starting the works).	Contractor/with the participation of specialist in the field of ornithology	
	Protection of surrounding environment/ reporting	[I.2.1.33] All works relating to execution of activities minimising adverse impact of the investment onto the environment - to be performed under constant environmental supervision run by competent specialists, considering the following principles:	Contractor/ with the participation of specialists	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		[I.2.1.33.1] on the basis of the conducted implementation-based monitoring, summary reports should be prepared, confirmed by specialists and submitted to the present Body (Institution) at least twice a year,	Contractor/ with the participation of specialists	
		[I.2.1.33.2] the last report on implementation monitoring should be prepared within 3 months from the date of completion of the investment.	Engineer	
		[I.2.1.34] Submit all the information about arrangements referring to the manner and scope of the conducted activities specified in I.2.1.5, I.2.1.16, I.2.1.20 - I.2.1.24 as well as documents confirming the participation of specialists (e.g. report on settlements and / or statement of specialists confirming the proper conduct of operations) to the Regional Director of the Environmental Protection in Wroclaw immediately upon making the settlements and / or implementation of these settlements.	Beneficiary (DZMiUW)	
	Protection of surrounding environment	[I.2.1.35] Design and project access roads leading to the construction site along the existing ground and hardened roads.	Contractor	
		[I.2.1.36] Traffic of vehicles should run along technological routes. Shipments of machinery should be made as far as possible along fixed routes.	Contractor	
		[I.2.1.37] Upon termination of the construction works restore the places of temporary works to the previous state.	Contractor	
	Soil protection	[I.2.38] The technical state of working construction and transportation machines should be checked on a regular basis in order to eliminate the spillage of petroleum into the ground.	Contractor	
		[I.2.39] In case of occurrence of any failure in the scope of contamination with petroleum products, the ground contaminated by an accident must be removed immediately and pass to the appropriate bodies holding authorisation for its further development.	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
	Ground & under-ground water protection	[1.2.1.40] Any places designated for handling vehicles and machines must be periodically (until the completion) lined with insulating materials. Places for parking of vehicles should not be located: at the area where the Main Reservoir of Underground Waters GZWP-320 is located, at the area of the mid-embankment and directly by the slope of the flood protection embankment. Locate the background facilities of the construction site beyond the protective zone of under-ground water intakes where the level of ground water is below 1.5 m below terrain level.	Contractor	
		[1.2.1.41] In the vicinity of machine garaging and filling there should a stand with sorbent serving to eliminate any leaks of petroleum substances.	Contractor	
	Noise protection	[1.2.1.42] Works at acoustically-protected areas should be performed at day-time only - namely between 6.00 and 22.00.	Contractor	
	Protection of surrounding environment	[1.2.1.43] The construction site, access roads should be organised and maintained so as to minimise dusting and be located possible away from residential areas (in case of any works at areas near residential development, these works should be performed at daytime).	Contractor	
	Protection of surrounding environment/Air protection	[1.2.1.44] Places of storage of soil masses should be properly secured in order to reduce their dusting. [1.2.1.45] Do not allow long-term operation of internal combustion engines of machinery and construction vehicles at a standstill (limit emissions at the so-called stage of idling speed). [1.2.1.46] The execution of works should be organised taking into consideration the capabilities to conduct works synchronously at several locations spaced around 300 - 500 m from each other (one another), in a manner which minimises the aggregation of pollutant concentrations. [1.2.1.47] In the immediate vicinity of residential buildings limit the number of machines working simultaneously at the given distance, in order to minimise direct impacts of emissions. Car parking lots should not be located in these areas.	Contractor	
	Protection of surrounding environment/Solid waste	[1.2.1.48] Organise all the works in such a manner as to minimise the amount of generated wastes and reduce their negative impact on the environment. All the wastes generated at the implementation of the investment should be categorised and stored separately in containers or	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
	management	at places being enclosed and adapted for this purpose, under conditions which prevent dusting and dispelling light fractions, and their negative effects on the environment and to ensure their gradual delivery and acceptance by operators with appropriate authorisation for their further development. [1.2.1.49] Hazardous waste should be categorised and stored in designated containers placed at hardened and protected areas secured against access of third parties until their transfer to entities having the appropriate permission for their disposal.		
	Protection of surrounding environment /Solid waste management	[1.2.1.50] Ground mass generated during the investment should be exploited in accordance with their intended use under existing legislation, taking into account the possibility of reuse to strengthen the rebuilt and upgraded floor protection embankments.	Contractor	
	Ground & under-ground water protection	[1.2.1.51] Social and domestic sewage must be collected in leak-proof, drain-less tanks and ensure that they are regularly collected by authorised bodies.	Contractor	
	Protection of surrounding environment	[1.2.1.52] The implementation of the investment cannot cause - regardless of the level of water flows - increasing any flood risk of the areas located below the places covered by the application. [1.2.1.53] In the course of conducting the works there can no difficulties occurred in the manner of making use of the areas being adjacent to the projected Works Contract.	Contractor	
	Surface water protection	[1.2.1.54] Rainfall waters from within the areas at the embankments (re-built and under construction) - prior to entering the River - should be treated with sedimentation in ditches or mechanically cleaned. [1.2.1.55] Waters from draining the foundation bottoms for the embankment culverts should be treated with sedimentation in ditches prior to entering the receiver - the River. [1.2.1.56] Any works should not be conducted at the period of intensive precipitation. Grooves preventing direct out-flows of contaminated waters into local trenches should be made.	Contractor	
	Air protection	[1.2.1.57] Embed all the transported masses directly into the embankment body and compact them to the required indicators levels, with no their indirect unloading and storage.	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
	Surface water protection	[1.2.1.58] At the stage of operation - ensure proper operation of machines and equipment for pre-treatment of rainfall waters discharged from communication facilities / structures.	Contractor	
WFS structure no. 42.2 Reconstruction of the road bridge in the location of Widawa				
Bridge	Flora & fauna protection	[1.2.19.1] Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge and possibly within a line not exceeding 10 m from the temporary bridge.	Contractor	
Bridge	Flora & fauna protection/works safety	[1.2.19.2] Do not locate storage sites and parking lots of building / construction machines in the mid-embankment.	Contractor	
Bridge	Ecological design solutions	[1.2.19.3] Execute the strengthening of the channel bottom and slopes with gabions only at the projection of a road lane. Apply stone coverage at other sections.	Contractor	
Bridge	Protection of surrounding environment/reduction of impacts on adjacent land	[1.2.19.4] All the earth works should be conducted within retaining walls. [1.2.19.5] Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.	Contractor	
Bridge	Surface water protection	[1.2.19.6] Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, waters should be pre-cleaned in the settler with its capacity of 3.5 m ³ and lamella separator (clarifier) with its flow from 10 up to 100 dm ³ /s.	Contractor	
WFS structure no. 42.3 Reconstruction of the Pegowski road bridge				
km 3+800 – 4+000 The Widawa River	Flora & fauna protection	[1.2.20.1] At km 3+800 - 4+000 of the Widawa River, within and in the direct vicinity of patches of natural habitats - oak, elm, ash Riverine forests 91F0 (identified as h-34, h-87, h-88), willow, poplar, alder and ash carr *91E0 (identified as h-35) and the positions of Broad-leaved Helleborine (identified as f-21) - design technological routes in such a manner so that not to damage the above-specified patches making use of the existing network of roads to the furthest possible extent. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works at the area of the present mid-embankment (including possible felling / cutting down trees and	Contractor (consultation of environmental specialist)	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		shrubs) at a distance not exceeding 10 m from the reconstructed bridge. All the works should be performed in a manner which do not required to construct temporary bridges.		
km 3+600 – 3+800 The Widawa River	Flora & fauna protection	[1.2.20.2] At the section at km 3+600 - 3+800 of the Widawa River - plan the access to the place of works in such a manner which does not destroy the breeding habitats of Red-backed Shrike. Locate all the storage sites beyond the area of these habitats as well as beyond the area of the current mid-embankment. Conduct all the works (apart from possible felling / cutting down trees and shrubs) within a line with its width not exceeding 10 m from the rebuilt bridge.	Contractor (consultation of environmental specialist)	
Bridge	Protection of surrounding environment/reduction of impacts on adjacent land	[1.2.20.3] At km 3+800 - 4+000 of the Widawa River - conduct earth works within retaining walls. [1.2.20.4] Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.	Contractor	
Bridge	Surface water protection	[1.2.20.5] Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, waters should be pre-cleaned in the settler with its capacity of 3.5 m ³ and lamella separator (clarifier) with its flow from 10 up to 100 dm ³ /s.	Contractor	
WFS structure no. 42.3.1 Reconstruction of the Pegowski railway bridge				
km 3+800 – 4+000 The Widawa River	Flora & fauna protection	[1.2.21.1] At km 3+800 - 4+000 of the Widawa River, within and in the direct vicinity of patches of natural habitats - oak, elm, ash Riverine forests 91F0 (identified as h-88, h-89), willow, poplar, alder and ash carr *91E0 (identified as h-35) - design technological routes in such a manner so that not to damage the above-specified patches making use of the existing network of roads to the furthest possible extent. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works at the area of the present mid-embankment (including possible felling / cutting down trees and shrubs) at a distance not exceeding 10 m from the reconstructed bridge. All the works should be performed in a manner which do not required to construct temporary bridges.	Contractor (consultation of environmental specialist)	
km 3+600 –	Flora & fauna	[1.2.21.2] At the section at km 3+600 - 3+900 of the Widawa River -	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
3+900 The Widawa River	protection	project an access to the construction site in such a manner that not to damage the breeding habitats of Red-backed Shrike and Middle Spotted Woodpecker. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works (including possible felling / cutting down trees and shrubs) within a line with its width not exceeding 10 m from the reconstructed bridge.	(consultation of environmental specialist)	
Bridge	Protection of surrounding environment/reduction of impacts on adjacent land	[1.2.21.3] All the earth works should be conducted within retaining walls.	Contractor	
WFS structure no. 43 Increasing the capacity of the bridge over the Widawa River at the location of Psary				
Bridge	Flora & fauna protection	[1.2.22.1] Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge and possibly within a line not exceeding 10 m from the temporary bridge.	Contractor	
Bridge on the section of 50m upstream and downstream of bridge	Flora & fauna protection / Ecological design solutions	[1.2.22.2] Do not use mattresses and gabions to strengthen the bottom and slopes of the Old Widawa River.	Contractor	
WFS structure no. 44.14 Krzywoustego - the railway lines - the new embankment				
km 16+900 – 17+200 The Widawa River	Flora & fauna protection	[1.2.23.1] At the section at km 16+900 - 17+200 of the Widawa River, within the place of occurrence of reptiles (identified as the habitat no. g-22), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	Contractor (consultation of environmental specialist)	
km 16+900 – 17+100 The Widawa River	Flora & fauna protection	[1.2.23.2] At the section at km 16+900 - 17+100 of the Widawa River, locate storage sites, technological routes and parking lots beyond the area of meadows constituting the breeding habitat of Grasshopper Warbler. Conduct works at the land-side of the projected embankment in order to preserve these meadows at their intact state within the future	Contractor (consultation of environmental specialist)	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		mid-embankment		
WFS structure no.44.15 Soltysowice (the embankment along the Inner-city Ring-road)				
km 15+300 – 15+900 The Widawa River	Flora & fauna protection	[I.2.24.1] At the section at km 15+300 - 15+900 of the Widawa River within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of natural habitats - oak, elm, ash Riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified as h-69) as well as the positions of Broad-leaved Helleborine and Common Snowdrop - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	Contractor (consultation of environmental specialist)	
km 15+300 – 16+300 The Widawa River	Flora & fauna protection/ preserving the environment	[I.2.24.2] At the section at km 15+300 - 16+300 of the Widawa River - execute culverts in the embankment to enable an inflow of water to the areas separated by the embankments so that not to change the existing ground and water conditions at Riverine habitats. All the technological solutions should also allow a free outflow of water so as not to make the habitat swampy.	Contractor	
km 16+300 – 16+500	Flora & fauna protection	[I.2.24.3] At the section of the Widawa River at km 16+300 - 16+500 - conduct works at a distance exceeding 20 m from the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-66).	Contractor	
km 14+500 – 14+700 The Widawa River	Flora & fauna protection	[I.2.24.4] At the section at km 14+500 - 14+700 of the Widawa River, within and in the direct vicinity of the patch of the natural habitat - willow, poplar, alder and ash carr *91E0 (identified as h-70) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the	Contractor (consultation of environmental specialist)	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.		
km 13+400 – 14+100 The Widawa River	Flora & fauna protection	[I.2.24.5] At the section at km 13+400 - 14+100 of the Widawa River within and in the direct vicinity of the patch of a mosaic of natural habitats - low-land and mountain fresh meadows used extensively 6510 and Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 (identified as h-72) as well as the positions of Southern adders-tongue - conduct the construction of the embankment at the land-side of the embankment. Organise technological routes and storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	Contractor (consultation of environmental specialist)	
km 13+000 – 13+400 The Widawa River	Flora & fauna protection	[I.2.24.6] At the section at km 13+000 - 13+400 of the Widawa River within and in the direct vicinity of the patch of a mosaic of natural habitats - low-land and mountain fresh meadows used extensively 6510 and Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 (identified as h-72) - conduct the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	Contractor (consultation of environmental specialist)	
km 14+000 – 14+500 and 16+000 – 16+800 The Widawa River	Flora & fauna protection	[I.2.24.7] At the sections at km 14+000 - 14+500 and 16+000 - 16+800 of the Widawa River, within and in the direct vicinity of the patches of the following natural habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-71 and h-64) - conduct the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified patches at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified patches.	Contractor (consultation of environmental specialist)	
km 15+300 –	Flora & fauna	[I.2.24.8] At the section at km 15+300 - 16+500 of the Widawa River	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
16+500 The Widawa River	protection	within the future mid-embankment (within and in the direct vicinity of the positions of Grass Lily, Common Snowdrop and Scarlet cup) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified positions at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified positions (at a distance exceeding 20 m from the positions).	(consultation of environmental specialist)	
km 15+300 – 16+500 The Widawa River	Flora & fauna protection	[1.2.24.9] At the section at km 15+300 - 16+500 of the Widawa River, within the position of Scarlet cup - apply tolerably efficient protection of tree trunks (e.g. by means of the so-called geo-textile). All the earth works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time (any exposure of trees for drying or freezing of their root system elements should be avoided).	Contractor (consultation of environmental specialist)	
km 14+000 – 14+500 The Widawa River	Flora & fauna protection	[1.2.24.10] At the section at km 14+000 - 14+500 of the Widawa River - conduct works at a distance exceeding 10 m from the position of Giant puffball (identified as m-3).	Contractor (consultation of environmental specialist)	
km ca. 16+500 and km ca. 15+650 The Widawa River	Flora & fauna protection	[1.2.24.11] At the sections at km around 16+500 and at km around 15+650 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-43, o-44). Building / construction works should be performed beyond the projection area of tree crests. Within the boundaries of the area no storage sites and technological routes should be located as well. It is permitted only to make use of the existing roads (even if they are located within the projection area of tree crest). Then it is required to apply protection of tree trunks (execute by-trunk shields made of planks).	Contractor (consultation of environmental specialist)	
The Widawa River according to km in column 3	Fauna protection	[1.2.24.12] Within the places of occurrence of amphibians identified as follows: p-60 (km 16+200 within the River), p-17 (km 16+100 within the River), p-16 (km 16+200 within the River), p-14 (km 16+700 within the	Contractor (consultation of	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		River), p-15 (km 16+500 within the River), p-59 (km 16+700 within the River), p-95 (km 15+300 - 16+900 within the River), p-63 (km 15+300 - 15+500 within the River), p-19 (km 15+700 within the River), p-18 (km 15+700 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	environmental specialist)	
The Widawa River according to km in column 3	Fauna protection	[I.2.24.13] Within the places of occurrence of amphibians identified as follows: p-59 (km 16+700 within the River), p-96 (km 15+000 - 16+100 within the River) and p-99 (km 13+000 - 14+500 within the River), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitats - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	Contractor (consultation of environmental specialist)	
The Widawa River according to km in column 3	Fauna protection	[I.2.24.14] Within the places of occurrence of reptiles identified as follows: g-64 (km 16+200 within the River), g-65 (km 16+100 within the River), g-66 (km 16+200 within the River), g-67 (km 16+600 - 16+800 within the River), g-68 (km 16+500 within the River), g-71 (km 16+500 - 16+700 within the River), g-72 (km 15+300 - 16+900 within the River), g-77 (km 15+600 within the River), g-78 (km 15+800 within the River), g-79 (km 15+800 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor (consultation of environmental specialist)	
The Widawa River according to km in column 3	Fauna protection	[I.2.24.15] Within the places of occurrence of amphibians identified as follows: g-69 (km 16+000 - 16+800 within the River), g-70 (km 16+600 - 16+800 within the River), g-80 (km 15+000 - 16+000 within the River), g-81 (km 12+900 - 14+500 within the River), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the	Contractor (consultation of environmental specialist)	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.		
km 16+700 and km 16+600 The Widawa River	Flora & fauna protection	[I.2.24.16] At the sections at km 16+700 and at km 16+600 of the Widawa River, within the habitats of Blue-throat and Great Reed Warbler, conduct all the works within a line of the embankment base or at the land-side of the future embankment. Locate technological routes, storage sites and parking lots at the land-side of the embankment.	Contractor	
km 16+500 The Widawa River	Flora & fauna protection	[I.2.24.17] At the section at km 16+500 of the Widawa River at the course of the embankment through the habitat of Common Rose-finch - conduct all the works within a line of the embankment base and locate storage sites and technological routes beyond the area of the above-specified habitat.	Contractor	
km 16+500 - 16+600 The Widawa River	Flora & fauna protection	[I.2.24.18] At the section at km 16+500 - 16+600 of the Widawa River, in the proximity of the breeding habitats of Western Marsh Harrier, Little Ringed Plover and Blue-throat, conduct building / construction works of the eastern part of the embankment at the settlers in Soltysowice in the period from 15 October up to the end of February.	Contractor	
Widawa according to km in column 3	Flora & fauna protection	[I.2.24.19] Within the places of occurrence of Red-backed Shrike identified as follows: p-113 (km 13+500 within the River), p-122 (km 14+100 within the River), p-124 (km 13+500 within the River), p-126 (km 13+300 within the River), p-127 (km 13+200 within the River), p-128 (km 13+200 within the River), p-129 (km 13+300 within the River), p-132 (km 12+900 within the River), p-151 (km 14+000 within the River), p-78 (km 16+900 within the River), p-142 (km 11+500 within the River), p-143 (km 11+000 within the River), p-144 (km 10+800 within the River), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front. At the section of the embankment crossing the meadow habitat - conduct felling / cutting off trees and shrubs only within a line of the embankment	Contractor (consultation of environmental specialist)	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.		
km 13+300 – 13+400 The Widawa River	Flora & fauna protection	[I.2.24.20] At the section at km 13+300 - 13+400 of the Widawa River - do not conduct works, do not locate technological routes and parking lots of machines and equipment, do not store materials within meadows and bushes constituting the breeding habitat of Barred Warbler.	Contractor	
WFS structure no.44.16 Polanowice - new embankment				
km 12+500 – 12+600 The Widawa River	Flora & fauna protection	[I.2.25.1] At the section at km 12+500 - 12+600 of the Widawa River, within the patch of the following habitat - oak, elm, ash Riverine forests 91F0 (identified as h-76) - conduct works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the water-side of the embankment and beyond the area of the above-specified habitat.	Contractor	
km 10+300 – 10+400 The Widawa River	Flora protection	[I.2.25.2] At the section at km 10+300 - 10+400 of the Widawa River, within the habitat patch - Cnidium meadows 6440 (identified as h-78) - conduct all the works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified habitat.	Contractor	
km 9+900 – 10+200 The Widawa River	Flora protection	[I.2.25.3] At the section at km 9+900 - 10+200 of the Widawa River, within the patch of the following habitat - low-land and mountain fresh meadows used extensively 6510 (identified as h-79) - conduct all the works at the water-side of the embankment. Locate places of storage of materials and technological routes beyond the area of the above-specified habitat.	Contractor	
km 12+200 – 12+700 km 9+800 – 10+500	Fauna protection	[I.2.25.4] Within the places of occurrence of amphibians identified as the following habitats: p-21 (km 12+200 - 12+700 within the River), p-105 (km 9+700 - 10+500 within the River) and reptiles identified as the following habitats: g-87 (km 12+200 - 12+600 within the River) and g-91 (km 9+800 - 10+500 within the River) - conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 10+300 and 17+200 The Widawa River	Flora & fauna protection	[I.2.25.5] At the section at km 10+300 and 17+200 of the Widawa River, within the breeding habitats of Great Reed Warbler, conduct works at the water-side within a line with its width not exceeding 30 m from the embankment.	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
Widawa according to km in column 3	Flora & fauna protection	[1.2.25.6] Within the places of occurrence of Red-backed Shrike identified as follows: p-113 (km 13+500 within the River), p-122 (km 14+100 within the River), p-124 (km 13+500 within the River), p-126 (km 13+300 within the River), p-127 (km 13+200 within the River), p-128 (km 13+200 within the River), p-129 (km 13+300 within the River), p-132 (km 12+900 within the River), p-151 (km 14+000 within the River), p-78 (km 16+900 within the River), p-142 (km 11+500 within the River), p-143 (km 11+000 within the River), p-144 (km 10+800 within the River), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front. At the section of the embankment crossing the meadow habitat - conduct felling / cutting off trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.	Contractor (consultation of environmental specialist)	
WFS structure no.44.17 Prace Widawskie - new embankment				
km 8+700 and 9+000 – 9+500 The Widawa River	Flora & fauna protection	[1.2.26.1] At the sections at km 8+700 and 9+000 - 9+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-66, o-71 and o-72). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 8+700, 9+000 – 9+500 The Widawa River	Flora & fauna protection	[1.2.26.2] At the sections at km 8+700, 9+000 - 9+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-67, o-68). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	Contractor	
Widawa according to km in column 3	Flora & fauna protection	[1.2.26.3] Within the places of occurrence of Red-backed Shrike and Barred Warbler identified as the following habitats: p-157 (km 8+700 within the River), p-158 (km 8+500 within the River), p-159 (km 7+700	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		within the River), p-161 (km 7+200 within the River), p-162 (km 7+250 within the River), p-156 (km 8+700 within the River) - perform felling / cutting down trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.		
WFS structure no.46.2 Przecze Widawskie embankment demolition				
km: 7+500 – 7+700, 7+200 – 7+300, 7+100, 7+200, 8+300 – 8+600, 8+700 The Widawa River	Flora & fauna protection	[I.2.27.1] At the sections at km 7+500 - 7+700, 7+200 - 7+300, 7+100, 7+200, 8+300 - 8+600, 8+700 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-74, o-75, o-76, o-60, o-61, o-63, o-64). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity. Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
WFS structure no.44.18 Swiniary embankment modernization				
km 3+900 – 4+200 The Widawa River	Flora & fauna protection	[I.2.28.1] At the section at km 3+900 - 4+200 of the Widawa River, within the patch of the following habitat - oak, elm, ash Riverine forests 91F0 (identified as h-87) as well as the positions of Common Snowdrop - conduct all the works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified habitat. Conduct all the works related to temporary occupation of land at the land-side of the embankment. Limit possible felling / cutting down of trees and shrubs to the width of the embankment base.	Contractor	
km 4+600 – 7+000 The Widawa River	Flora protection	[I.2.28.2] At the section at km 4+600 - 7+000 of the Widawa River within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of the following natural habitats - oak, elm, ash Riverine forests 91F0 and oak-hornbeam forests 9170 (identified as h-82) as well as the positions of Common Snowdrop, Lily of the Valley and Broad-leaved Helleborine - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.		
km: 3+900, 4+600, 8+300 – 8+600, 8+700, 7+100 The Widawa River	Flora & fauna protection	[I.2.28.3] At the sections at km: 3+900, 4+600, 8+300 - 8+600, 8+700, 7+100 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-113, o-79, o-63, o-64, o-66, o-60 and o-76). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity. Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 7+100 The Widawa River	Flora & fauna protection	[I.2.28.4] In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions (identified as o-60 and o-76) located at km 7+100 of the Widawa River and transfer to a habitat being appropriate for the species.	Contractor/ Entomologist	
km 5+500 The Widawa River	Flora & fauna protection	[I.2.28.5] At the section at km 5+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-120). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	Contractor	
km 4+000 – 6+100 km 5+300	Fauna protection	[I.2.28.6] Within the places of occurrence of amphibians identified as the following habitats: p-108 (km 4+000 - 6+100 within the River), p-24 (km 5+300 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 4+600 – 6+700 The Widawa River	Fauna protection	[I.2.28.7] At the section at km 4+600 - 6+700 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-107) and reptiles (identified as the habitat no. g-98) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.		
km 4+000 – 6+000, km 5+200	Fauna protection	[I.2.28.8] Within the places of occurrence of reptiles identified as the following habitats: p-97 (km 4+000 - 6+000 within the River), p-99 (km 5+200 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 6+500 The Widawa River	Fauna protection	[I.2.28.9] At the section at km 6+500 of the Widawa, within the breeding habitat of Lapwing - locate access roads and places of storage of materials at the water-side of the embankment.	Contractor	
km 4+600 – 6+100 The Widawa River	Fauna protection	[I.2.28.10] At the section at km 4+600 - 6+100 of the Widawa River - conduct felling / cutting down trees within the habitat of Grey-headed Woodpecker, Black Woodpecker, Middle Spotted Woodpecker only within a line of the embankment base. At the section at which the embankment runs through forest areas (at km 4+600 - 5+600 within the River) - conduct all the modernisation works from the embankment crest, then at the section where the embankment adheres the forest - at the water-side of the embankment (at km 5+600 - 6+100 of the River) - conduct works at the land-side of the embankment.	Contractor	
WFS structure no.45.3 Krzywoustego - the railway lines, modernisation of the embankment				
km 16+900 – 17+200 The Widawa River	Flora & fauna protection	[I.2.29.1] At the section at km 16+900 - 17+200 of the Widawa River, within and in the direct vicinity of the patch of the following habitat - willow, poplar, alder and ash carr *91E0 (identified as h-10) and the patch of a mosaic of the following habitats - low-land and mountain fresh meadows used extensively 6510 and Cnidium meadows 6440 (identified as h-11) - execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitats within a line of the embankment. Organise storage sites beyond the boundaries and beyond the vicinity of the above-specified habitats. Limit felling / cutting down of riparian trees and shrubs to the width of the projected embankment base.	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
km 16+900 – 17+200 The Widawa River	Fauna protection	[I.2.29.2] At the section at km 16+900 - 17+200 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-92) and reptiles (identified as the habitat no. g-22) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	Contractor	
km 16+900 – 17+100 The Widawa River	Fauna protection	[I.2.29.3] At the section at km 16+900 - 17+100 of the Widawa River, within the breeding habitat of Grasshopper Warbler - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front.	Contractor	
WFS structure no.44.4 Psie Pole - new embankment				
km 16+600 – 16+800 The Widawa River	Flora protection	[I.2.30.1] At the section at km 16+600 - 16+800 of the Widawa River - do not perform building / construction works within and in the direct proximity of the patch of the following habitat - Old River beds and natural eutrophic water reservoirs 3150 (identified as h-14).	Contractor	
km 16+500 – 16+900 The Widawa River	Flora protection	[I.2.30.2] At the section at km 16+500 - 16+900 of the Widawa River, within the habitat patch - low-land and mountain fresh meadows used extensively 6510 (identified as h-4) - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the section crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	Contractor	
km 16+500 – 16+900 The Widawa River	Fauna protection	[I.2.30.3] At the section at km 16+500 - 16+900 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-93) and reptiles (identified as the habitat no. g-25) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		transportation purposes.		
km 16+500 - 16+700 The Widawa River	Flora & fauna protection	[I.2.30.4] At the section at km 16+500 - 16+700 of the Widawa River, within the breeding habitat of Grasshopper Warbler - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Within the boundaries of the habitat - do not locate storage sites, parking lots of machines and equipment as well as technological routes.	Contractor	
WFS structure no.44.5 Klokoczyce - new embankment				
km 15+100 - 16+500 The Widawa River	Flora protection	[I.2.31.1] At the section at km 15+100 - 16+500 of the Widawa River, within the patch of the following habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-18) - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the section crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	Contractor	
km 15+500 - 16+500 The Widawa River	Flora protection	[I.2.31.2] At the section at km 20+500 - 21+000 of the Widawa River - do not perform building / construction works within and in the direct proximity of the habitat patch - old River beds and natural eutrophic water reservoirs 3150 (identified as h-3).	Contractor	
km 13+000 - 14+200 The Widawa River	Flora protection	[I.2.31.3] At the section at km 13+000 - 14+200 of the Widawa River, within and in the vicinity of the patch of the following habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-19) - do not locate technological routes and storage sites.	Contractor	
km 14+250 The Widawa River	Flora & fauna protection	[I.2.31.4] At the section at km 14+250 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-89). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 14+600 - 16+500, km 14+500 -	Fauna protection	[I.2.31.5] Within the places of occurrence of amphibians identified as follows: p-97 (km 14+600 - 16+500 within the River), p-101 (km 14+500 - 14+800 within the River), perform building / construction works only	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
14+800		within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological road designated at the route of the embankment should be used for transportation purposes.		
km 16+000 – 16+400 km 16+000 km 15+900 km 13+400 – 14+200	Fauna protection	[I.2.31.6] Within the places of occurrence of amphibians identified as the following habitats: p-98 (km 16+000 - 16+400 within the River) p-61 (km 16+000 within the River) p-62 (km 15+900 within the River), p-102 (km 13+400 - 14+200 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 15+100 – 16+500 (km 14+600 – 15+200 km 14+500 – 14+800	Fauna protection	[I.2.31.7] Within the places of occurrence of reptiles identified as follows: g-76 (km 15+100 - 16+500 within the River), g-82 (km 14+600 - 15+200 within the River), g-83 (km 14+500 - 14+800 within the River), conduct building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	Contractor	
km 14+200 The Widawa River	Flora & fauna protection	[I.2.31.8] At the section at km 14+200 of the Widawa River - do not locate the places of storage of materials, technological routes and parking lots of machines and equipment within shrubs constituting the breeding habitat of Red-backed Shrike. The western end of the embankment should be executed in a manner which does not damage the above-specified habitat.	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
km 15+400 – 16+400 The Widawa River	Flora & fauna protection	[I.2.31.9] At the section at km 15+400 - 16+400 of the Widawa River, within the breeding habitats of Grasshopper Warbler and Corn Crake - conduct all the works within a line of the embankment base. Locate technological routes, storage sites and parking lots at the land-side of the embankment and beyond the above-specified habitats.	Contractor	
km 14+300 – 14+500	Flora & fauna protection	[I.2.31.10] At the construction of the western end of the projected embankment - do not allow to damage the River banks and the existing water and rush vegetation being the breeding habitat of Great Reed Warbler (at km 14+300 - 14+500 within the River).	Contractor	
km 16+300 The Widawa River	Flora & fauna protection	[I.2.31.11] At the section at km 16+300 of the Widawa River, within the boundaries of a forest being the breeding habitat of Grey-headed Woodpecker - do not locate the places of storage of materials and parking lots of machines and equipment. Execute felling / cutting down of riparian trees and shrubs only within a line of the embankment base.	Contractor	
WFS structure no. 44.6 Krzyzanowice - new embankment				
km 12+200 – 12+500 The Widawa River	Flora protection	[I.2.32.1] At the section at km 12+200 - 12+500 of the Widawa River, within and in the direct vicinity of the patch of the following natural habitat - willow, poplar, alder and ash carr *91E0 (identified as h-20) - execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat. Limit felling / cutting down of riparian trees and shrubs to the width of the projected embankment base.	Contractor	
km 13+100 The Widawa River	Fauna protection	[I.2.32.2] At the section at km 13+100 of the Widawa River, within the habitat of Blue-throat - do not locate technological routes and parking lots of machines and equipment, do not store materials.	Contractor	
km 12+900 The Widawa River	Flora & fauna protection	[I.2.32.3] At the section at km 12+900 of the Widawa River, within the habitat of Red-backed Shrike - do not locate technological routes and parking lots of machines and equipment, do not store materials. Execute felling / cutting down of trees and shrubs only within a line of the embankment base.	Contractor	
WFS structure no. 45.4 Krzyzanowice - embankment modernization				

Location	Issue	Mitigation measures	Institutional responsibility	Notes
km 12+200 The Widawa River	Flora & fauna protection	[I.2.33.1] At the section at km 12+200 of the Widawa River, within the habitat of Red-backed Shrike (identified as p-133), conduct all the modernisation works at the land-side within a line with its width not exceeding 20 m from the embankment. Locate places of storage of materials and technological routes beyond the habitat.	Contractor	
WFS structure no. 44.7 Psary - new embankment				
km 11+300 – 11+400 The Widawa River	Flora protection	[I.2.34.1] At the section at km 11+300 - 11+400 of the Widawa River, within the future mid-embankment - do not conduct building and construction works within and in the direct vicinity of the patch of a mosaic of the following habitats - Old River beds and natural eutrophic water reservoirs 3150 and willow, poplar, alder and ash carr *91E0 (identified as h-22) as well as the positions of Common Snowdrop, Broad-leaved Helleborine, Yellow Water-lily and White Water-lily. Organise technological routes and storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified patch. For the duration of the construction it is required to secure shrubs and trees within banks of the above-specified old River-bed against damage.	Contractor	
w km 10+700 – 10+800 The Widawa River	Flora protection	[I.2.34.2] At the section at km 10+700 - 10+800 of the Widawa River, within the patch of the following habitat - oak, elm, ash Riverine forests 91F0 (identified as h-25) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat	Contractor	
km 10+000 – 10+700 and 11+600 – 11+800 The Widawa River	Flora protection	[I.2.34.3] At the sections at km 10+000 - 10+700 and 11+600 - 11+800 of the Widawa River - conduct works at a distance exceeding 20 m from the patches of the habitat - willow, poplar, alder and ash carr *91E0 (identified as h-21 and h-26).	Contractor	
km 10+800 – 11+000 and	Flora protection	[I.2.34.4] At the sections at km 10+800 - 11+000 and 11+100 - 11+300 of the Widawa River, within the patches of the habitat - Low-land and	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
11+100 – 11+300 The Widawa River		mountain fresh meadows used extensively 6510 (identified respectively as h-24 and h-23) as well as the positions of Grass Lily - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified patches within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified patches.		
km: 10+800, 10+700, 9+700, 10+600 The Widawa River	Flora & fauna protection	[I.2.34.5] At the sections of the embankment at km: 10+800, 10+700, 9+700, 10+600 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-90, o-91, o-94, o-98, o-99). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 10+700 The Widawa River	Flora & fauna protection	[I.2.34.6] At the section at km 10+700 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-92). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	Contractor	
km: 10+000, 10+500 The Widawa River	Flora & fauna protection	[I.2.34.7] At the sections at km: 10+000, 10+500 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-95, o-96 and o-97). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 11+300 The Widawa River	Fauna protection	[I.2.34.8] At the section at km 11+300 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-22) and reptiles (identified as the habitat no. g-88), building / construction	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		works should be conducted beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat		
km 11+000 – 11+400 The Widawa River	Fauna protection	[I.2.34.9] At the section at km 11+000 - 11+400 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-104), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	Contractor	
km 11+200 – 11+500 km 11+200 – 11+500 The Widawa River	Fauna protection	[I.2.34.10] Within the places of occurrence of reptiles identified as the following habitats: g-32 (km 11+200 - 11+500 within the River), g-33 (km 11+200 - 11+500 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 11+000 – 11+500 The Widawa River	Fauna protection	[I.2.34.11] At the section at km 11+000 - 11+500 of the Widawa River, within the place of occurrence of reptiles (identified as the habitat no. g-90), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	Contractor	
km 11+100 The Widawa River	Fauna protection	[I.2.34.12] At the section at km 11+100 of the Widawa River, within the habitat of Corn Crane (identified as p-139) - conduct works only within a line of the embankment base (footing).	Contractor	
km 11+600, km 11+400 km 11+300 km 11+000 km 10+900 km 10+800	Fauna protection	[I.2.34.13] Within the places of occurrence of Red-backed Shrike, Corn Crane, Middle Spotted Woodpecker identified as the following habitats: p-135 (km 11+600 within the River), p-137 (km 11+400 within the River), p-138 (km 11+300 within the River), p-140 (km 11+000 within the River), p-141 (km 10+900 within the River), p-145 (km 10+800 within the River), p-146 (km 10+800 within the River) - perform felling / cutting down trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		machines and equipment as well as technological routes.		
km 9+700 - 10+000, 11+700 The Widawa River	Fauna protection	[I.2.34.14] At the sections at km 9+700 - 10+000, 11+700 of the Widawa River, within the habitats of Grey-headed Woodpecker and Red-backed Shrike (identified respectively as p-150, p-134 and p-151) - do not locate any places of storage of materials and technological routes at the right bank of the River. Do not fell / cut down trees in the tree stand located east off the bridge as well as bushes located northern-east off the bridge (km 9+800 within the River).	Contractor	
WFS structure no. 44.8 Psary ring embankment				
km 8+400 – 8+700 The Widawa River	Flora protection	[I.2.35.1] At the section at km 8+400 - 8+700 of the Widawa River, within and in the direct vicinity of the patch of the following natural habitat - oak, elm, ash Riverine forests 91F0 (identified as h-30) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	Contractor	
km 8+400 – 8+700 The Widawa River	Flora protection	[I.2.35.2] At the section at km 8+400 - 8+700 of the Widawa - do not perform building / construction works as well as do not locate technological routes and storage sites within the patch of the following habitat - low-land and mountain fresh meadows used extensively 6510 - identified as h-29.	Contractor	
km: 8+500, 8+400 – 8+500, 8+600 The Widawa River	Flora & fauna protection	[I.2.35.3] At the sections at km: 8+500, 8+400 - 8+500, 8+600 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-100, o-101, o-102 and o-103). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 9+700 The Widawa River	Flora & fauna protection	[I.2.35.4] At the section at km 9+700 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-94). All the building / construction works should be conducted beyond the area of trees and their direct vicinity	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		(beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.		
km 9+000 The Widawa River	Fauna protection	[I.2.35.5] At the section at km 9+000 of the Widawa, within the habitat of Red-backed Shrike (identified as p-152) - do not locate technological routes, storage sites and parking lots of machines and equipment.	Contractor	
WFS structure no. 44.9 Szymanow - new embankment				
km 8+200 – 8+400 The Widawa River	Flora protection	[I.2.36.1] At the section at km 8+200 - 8+400 of the Widawa River - conduct works at a distance exceeding 10 m from the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-31). Locate technological routes and storage sites at the land-side of the embankment.	Contractor	
km: 7+200 – 7+300, 8+500, 8+400 The Widawa River	Flora & fauna protection	[I.2.36.2] At the sections at km: 7+200 - 7+300, 8+500, 8+400 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-77, o-100, o-101 and o-104). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 7+800 and 8+600 The Widawa River	Flora & fauna protection	[I.2.36.3] At the section at km 7+800 and 8+600 of the Widawa River - do not fell / cut down trees constituting the habitat of Great Capricorn (identified as the habitats no. o-103, o-78). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 8+200 – 8+400 km 8+200 – 8+400	Fauna protection	[I.2.36.4] Within the places of occurrence of amphibians and reptiles identified respectively as the following habitats: p-106 and g-94 (km 8+200 - 8+400 within the River), p-65 and g-93 (km 8+200 - 8+400 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 8+000 The Widawa River	Fauna protection	[I.2.36.5] At the section at km 8+000 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-66) and reptiles (identified as the habitat no. g-96) - perform building / construction works only within the embankment base, making use of the	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		technology of work from the embankment front or from the embankment water-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological road designated at the route of the embankment should be used for transportation purposes.		
km 8+300 – 8+400 The Widawa River	Flora & fauna protection	[I.2.36.6] At the section at km 8+300 - 8+400 of the Widawa River, within the habitats of Red-backed Shrike - do not locate technological routes and parking lots of machines and equipment, do not store materials. Perform works including felling / cutting down of trees and shrubs only within a line of the embankment base.	Contractor	
WFS structure no.44.10 Szewce - new embankment				
km 4+000 – 6+000 The Widawa River	Flora protection	[I.2.37.1] At the section at km 4+000 - 6+000 of the Widawa River within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of the following natural habitats - oak, elm, ash Riverine forests 91F0 and oak-hornbeam forests 9170 (identified as h-34) as well as the positions of Common Snowdrop, Lily of the Valley and Broad-leaved Helleborine - execute the construction of the embankment from its land-side (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Organise technological routes and storage sites at the land-side of the embankment and beyond the area of the above-specified patch.	Contractor	
km 4+000 – 6+000 The Widawa River	Flora protection	[I.2.37.2] At the section at km 4+000 - 6+000 of the Widawa River - conduct felling / cutting down of trees and shrubs only within 50-m section of the embankment - within the road in the direction of Oborniki Slaskie. Limit the felling / cutting down to the width of the embankment base.	Contractor	
km 3+000 – 3+600 The Widawa River	Flora protection	[I.2.37.3] At the section at km 3+000 - 3+600 of the Widawa River at which the route of the embankment is adjacent to the patch of a mosaic of the following habitats - oak, elm, ash Riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified as h-36) as well as the positions of Common Snowdrop and Broad-leaved Helleborine - locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified patch. Conduct all the works related to temporary occupation of land at the land-side of the embankment.	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
km 6+600 – 7+000 The Widawa River	Flora protection	[1.2.37.4] At the section at km 6+600 - 7+000 of the Widawa River, within the future mid-embankment (within and in the direct vicinity of the patch of the following habitat - willow, poplar, alder and ash carr *91E0 (identified as h-32) - execute the construction of the embankment at the land-side of the embankment (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing)). Organise technological routes and storage sites at the land-side of the embankment and beyond the area of the above-specified patch.	Contractor	
km: 6+400 and 5+200 – 5+700 The Widawa River	Flora & fauna protection	[1.2.37.5] At the sections at km: 6+400 and 5+200 - 5+700 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-108 and o-112). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 6+500 The Widawa River	Flora & fauna protection	[1.2.37.6] At the section at km 6+500 of the Widawa River - do not fell / cut down trees constituting the habitats of Great Capricorn (identified as o-107). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well	Contractor	
km 3+900 and 5+200 – 5+700 The Widawa River	Flora & fauna protection	[1.2.37.7] At the sections at km 3+900 and 5+200 - 5+700 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-38, o-112). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	Contractor	
km 3+200 – 3+400, 3+900,	Flora & fauna protection	[1.2.37.8] In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of	Contractor/ entomologist	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
7+200, 6+700, 6+000 – 6+400, 5+200 – 5+700 The Widawa River		first larval stages from the positions of Caterpillar Moth (identified as o-37, o-38, o-105, o-106, o-110, o-111, o-112) located at km 3+200 - 3+400, 3+900, 7+200, 6+700, 6+000 - 6+400, 5+200 - 5+700 of the Widawa River and transfer to a habitat being appropriate for the species.		
km: 3+000 – 3+100, 3+300 – 3+500 and 4+100 – 4+900 The Widawa River	Flora & fauna protection	[I.2.37.9] At the sections at km: 3+000 - 3+100, 3+300 - 3+500 and 4+100 - 4+900 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-34, o-35, o-36 and o-111). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	
km 3+200 – 3+400, 3+900, 7+200, 6+700, 6+000 – 6+400, 4+900 – 5+100, 5+200 – 5+700 The Widawa River	Fauna protection	[I.2.37.10] In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions of Caterpillar Moth (identified as o-37, o-38, o-105, o-106, o-110, o-111, o-112) located at km 3+200 - 3+400, 3+900, 7+200, 6+700, 6+000 - 6+400, 4+900 - 5+100, 5+200 - 5+700 of the Widawa River and transfer to a habitat being appropriate for the species.	Contractor/ entomologist	
km 4+600 – 5+300 The Widawa River	Flora & fauna protection	[I.2.37.11] At the sections at km 4+600 - 5+300 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-111). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	Contractor	
km 3+400, 3+300, 3+050 – 3+200, 3+500 The Widawa River	Flora & fauna protection	[I.2.37.12] At the section at km 3+400, 3+300, 3+050 - 3+200, 3+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Great Capricorn (identified respectively as o-39, o-40, o-41, o-42). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
km 3+800 – 4+000 km 6+700	Fauna protection	[I.2.37.13] Within the places of occurrence of amphibians identified as the following habitats: p-68 (km 3+800 - 4+000 within the River), p-126 (km 6+700 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 4+000 – 6+100 The Widawa River	Fauna protection	[I.2.37.14] At the section at km 4+000 - 6+100 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-108) and reptiles (identified as the habitat no. g-97) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. Use the existing network of roads and the technological road designated at the route of the embankment for transportation purposes.	Contractor	
km 4+000 km 6+800	Fauna protection	[I.2.37.15] Within the places of occurrence of reptiles identified as the following habitats: g-107 (km 4+000 within the River), g-126 (km 6+800 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 3+400 - 4+000, 4+900 – 5+900 and 7+100 The Widawa River	Fauna protection	[I.2.37.16] At the sections at km 3+400 - 4+000, 4+900 - 5+900 and 7+100 of the Widawa River within the habitats of Red-backed Shrike (identified as p-160, p-170, p-173, p-178, p-179) - conduct works at the land-side of the embankment and do not locate technological routes, parking lots for machines and equipment as well as storage sites at the land-side of the embankment.	Contractor	
WFS structure no.19 Paniowice – demolition of the embankment				
km ca. 2+700 The Widawa River	Flora & fauna protection	[I.2.38.1] Conduct the demolition of fences at km around 2+700 of the Widawa River with no interference in the patches of the following habitat - Old River beds and natural eutrophic water reservoirs 3150 (identified as h-39 and h-40).	Contractor	
Entire section of embankment	Flora & fauna protection	[I.2.38.2] Limit places of the demolition within the embankment to the areas in the proximity of which mid-forest paths go (as they will serve as access roads as well as routes of transportation of materials from the demolition site).	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
Entire section of embankment	Flora & fauna protection	[I.2.38.3] Conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m ³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.5 m ³).	Contractor	
Entire section of embankment	Flora & fauna protection	[I.2.38.4] Limit all the required felling / cutting only to trees and shrubs growing at the embankment at places of its demolition, without disturbing the habitat, including trees being adjacent to the embankment.	Contractor	
km ca. 0+500, 1+600 2+200, 2+250 The Widawa River	Flora protection	[I.2.38.5] Exclude sections of the embankment at km around 0+500, 1+600, 2+200, 2+250 of the Widawa River within and in the direct vicinity of the positions of Lily of the Valley and Yellow Water-lily out of the demolition.	Contractor	
km 2+700 km 1+600 – 1+300 km 0+000	Fauna protection	[I.2.38.6] Within the places of occurrence of amphibians identified as the following habitats: p-25 (km 2+700 within the River), p-31 (km 1+600 - 1+300 within the River), p-33 (km 0+000 within the River), p-28 (km 0+000 within the River), p-29 (km 0+000 within the River), p-116 (km 0+000 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	
km 2+100 – 3+000 km 0+000 – 1+300 km 0+000 – 1+800 km 0+000	Fauna protection	[I.2.38.7] Within the places of occurrence of amphibians identified as the following habitats: p-111 (km 2+100 - 3+000 within the River), p-113 (km 0+000 - 1+300 within the River), p-114 (km 0+000 - 1+800 within the River), p-115 (km 0+000 within the River), conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m ³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.5 m ³).	Contractor	
km 1+600 – 1+700 km 2+700 km 0+000	Fauna protection	[I.2.38.8] Within the places of occurrence of reptiles identified as the following habitats: g-34 (km 1+600 - 1+700 within the River), g-37 (km 2+700 within the River), g-109 (km 0+000 within the River), g-110 (km 0+000 within the River), g-113 (km 0+000 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	Contractor	

Location		Issue	Mitigation measures	Institutional responsibility	Notes
km 0+000 – 1+800 km 0+000 – 1+300 km 0+000 km 2+000 – 3+000		Fauna protection	[I.2.38.9] Within the places of occurrence of reptiles identified as the following habitats: g-102 (km 0+000 - 1+800 within the River), g-103 (km 0+000 - 1+300 within the River), g-104 (km 0+000 within the River), g-106 (km 2+000 - 3+000 within the River), conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m ³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.5 m ³).	Contractor	
Concerns contract's structures	all	Flora & fauna protection	<p>[I.3.1.1] Do not locate the background facilities of construction sites and manoeuvring places at the areas at which the occurrence of protected natural habitats is inventoried, within mid-embankments and at a distance not shorter than 100 m from the existing water reservoirs and ponds, oxbow lakes and wetland areas.</p> <p>[I.3.1.2] Organise the construction site taking into account the principles of minimising the occupation of lands.</p> <p>[I.3.1.3] Locate technological routes at a distance not shorter than 100 m from water reservoirs, ponds and oxbow lakes.</p> <p>[I.3.1.4] Plan all the works consisting in the regulation, streamlining and strengthening the River-bed of the Widawa River only at sections under the rebuilt bridges and 50m sections below and above the bridges.</p> <p>[I.3.1.5] Determine the manner of dealing with wastes and earth masses generated at the stage of implementation of the investment considering the terms and conditions included in point I.2.1.48-I.2.1.50 of the present decision.</p> <p>[I.3.1.6] Determine the manner of drainage of foundation ditches under the embankment culverts considering the recommendations indicated in point I.2.1.55.</p> <p>[I.3.1.7] Apply the so-called "quiet surface" at the reconstructed bridge structures ensuring the reduction of the level of noise.</p> <p>[I.3.1.8] Determine the manner of drainage of bridge structures considering the conditions indicated in point I.2.3.7, I.2.4.6, I.2.6.5, I.2.19.6, and I.2.20.5.</p>	Contractor	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
		<p>[I.3.1.9] Determine the manner of conducting works at the bridge structures, minimising their negative impact onto the adjacent areas - considering the terms and conditions specified in point I.2.3.4, I.2.4.4, I.2.6.2, I.2.7.2, I.2.19.4, I.2.20.3, and I.2.21.3.</p> <p>[I.3.1.10] Determine the manner of embedding / seating of bridge structures considering the terms and conditions specified in point I.2.3.5, I.2.4.5, I.2.6.3, I.2.7.3, I.2.19.5, I.2.20.4.</p> <p>[I.3.1.11] Determine the manner of dealing with pumped out waters considering the terms and conditions specified in I.2.2.8, I.2.3.6, I.2.4.6, I.2.6.4, and I.2.7.40.</p>		
WFS 44.10 km 4+000 do km 6+100 The Widawa River	Flora protection	[I.3.2.1] At the section at km 4+000 up to km 6+100 of the Widawa River - design the embankment route north off the patch of a mosaic of the following habitats: oak-hornbeam forests 91F0 and oak, elm, ash Riverine forests 91F0 (identified as h-34) at a distance exceeding 5 m off the edge of the above-specified habitat.	Consultant	
WFS 44.10 km 3+200 to km 3+500 of the Widawa River	Flora protection	[I.3.2.2] At the section at km 3+200 up to 3+500 of the Widawa River - design the route of the embankment north off the patch of a mosaic of the following habitats: oak, elm, ash Riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified as h-36) at a distance exceeding 5 m off the edge of the above-specified habitat.	Consultant	
WFS 44.17 km 8+700 and 9+000 – 9+500 The Widawa River	Flora & fauna protection	[I.3.6.1] At the sections at km 8+700 and 9+000 - 9+500 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-66, o-71, o-72, o-67, o-68) - apply prefabricated walls made of T or L elements for the construction of the embankment.	Consultant	
WFS 44.18 km 5+500 The Widawa River,	Flora & fauna protection	[I.3.7.1] At the section at km 5+500 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-120) - apply prefabricated walls made of T or L elements for the construction of the embankment.	Consultant	

Location	Issue	Mitigation measures	Institutional responsibility	Notes
WFS 44.7 km 10+700 The Widawa River	Flora & fauna protection	[I.3.8.1] At the section at km 10+700 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-92) - apply prefabricated walls made of T or L elements for the construction of the embankment.	Consultant	
WFS 44.10 km 4+600 – 5+300, 3+900 and 5+200 – 5+700 The Widawa River	Flora & fauna protection	[I.3.9.1] At the sections at km 4+600 - 5+300, 3+900 and 5+200 - 5+700 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-111, o-38 and o-112) - apply prefabricated walls made of T or L elements for the construction of the embankment.	Consultant	
Concerns all contract's structures	Residents injured by construction traffic and machinery	[III.1.1] Appropriate marking of the construction site.	Contractor	
Concerns all contract's structures	Workers injured during construction	[III.1.2] Implement international HSE standards in all contracts.	Contractor	
Concerns all contract's structures	Illegal or excessive borrowing may damage archaeological or land resources	[III.1.3] No earth borrowed from unauthorized locations.	Contractor	
Concerns all contract's structures	Land acquisition	[III.1.4] Purchases, compensations for people affected by the Project, RAP implementation	DZMiUW with the help of Engineer	
Concerns all contract's structures	Archaeological artefacts	[III.1.5] In case of discovery of movable or immovable archaeological artefacts the Contractor is obliged to notify immediately the Lower Silesian Provincial Conservator of Monuments, the Engineer and the Employer. In the conduct of the Works the Contractor of the Works will comply with the guidance of the Lower Silesian Provincial Conservator of Monuments.	Contractor	
Concerns all con- tract's structures	Bombs, unexploded munitions	[III.1.6] In the case of come across an unexploded bombs and munitions the Contractor shall immediately stop work, evacuate workers and notify the police and the licensed entity of sappers.	Contractor	

**Appendix 2. Check List -
Monitoring Plan**

APPENDIX 2. CHECK LIST - MONITORING PLAN

Table 2. Monitoring plan for Works Contract B 3-2 Section: The Widawa River from to the railway bridge (Krzywoustego Street) to the estuary to the Odra River, WFS structures: 42.2, 42.3, 42.3.1, 43, 44.14, 44.4, 44.5, 44.15, 44.16, 44.6, 44.7, 44.8, 44.9, 44.17, 44.18, 44.10, 45.3, 45.4, 46.2, 19.

ATTENTION:

The Natura 2000 site SAC "**Dolina Widawy**" (PLH020036) is located partly in the area of the works (5 structures of the B3-2 Contract) which will be carried out: WFS 42.3, 42.3.1, 44.18, 44.10, 19. Others 15 structures of this Contract are located beyond this area.

Explanations regarding the Table:

- ¹ - confirmation by the Contractor of implementing the activity in a monthly report on the implementation of the contract, supported by the protocols from site visits, expert naturalist reports, etc.
- ² - confirmation by the Contract Engineer in a monthly Engineer's Report, supported by the protocols (minutes of meetings) and site visits. The Engineer will be responsible for evaluation of the monitoring, which will be confirmed in the Engineer's reports. The person responsible - Environmental Expert.
- ³ - confirmation by the expert naturalist understood as a report of actions taken by the expert (team of experts) in accordance with the requirements as contained in environmental decisions.
- ⁴ - the Contractor will be obliged to fulfil the control data sheets for implementation of mitigation measures with frequency indicated in the table below

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Monitoring referring all structures						
Soil	[I.2.1.1] Prior to works substantial levelling works - take off the top of the humus soil layer (to the depth of 30 cm on average) and store in the vicinity of the area covered by the construction, in separate piles secured against drying and	Concerns all contract's structures on whole	Completion of embankments – Contractor's report ¹ –	The entire period of contact implementation	Everytime on completion of the piles, each section of the works	Contractor

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	mixing with native rock, subject to the condition set out in point I.2.1.19.	section of embankments	confirmed by the Engineer ²			
					Once a month control of piles protection	Engineer
	[I.2.1.2] Upon completion of earth works - use the taken-off over-load for forming slopes of the embankments intended for turf assessment: at the width of 5-10 metres along the embankment and within the reconstructed structures, at one side or both sides of the embankment - spread and level the previously taken-off humus. Within technological lines and places of storage (transport) of building materials - additionally execute all the tillage works: plating with discs, harrowing, fertilising and seeding grass mixtures in accordance with meadow habitats located closest to the site of re-cultivation.	Concerns all contract's structures on whole section of embankments	Completion of embankments – Contractor's report ¹ – confirmed by the Engineer ²	During entire period of works realization, according to the schedule of earth works	Everytime on completion of topsoil application on each section of the embankment	Contractor
					Everytime on completion of topsoil application on each section of the embankment, but not less frequently than once a month	Engineer
Soil/ environment	[I.2.1.3] Do not occupy lands adjacent to the area of implementation of the Works Contract beyond the existing communication system.	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution and after finishing of bank's section	Contractor
					Once a month	Engineer
	[I.2.1.4] Do not locate background facilities of construction sites at areas covered with bushes and trees as well as within protected natural habitats	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	During the Sites delimitation, During the Sites fencing	Everytime prior to determining location of each construction site	Contractor
					Everytime prior to determining location of each construction site	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	[I.2.1.5] Prior to starting works at particular structures within the Works Contract, with the participation of specialists in botany, plant sociology, and zoology, fence off valuable patches of natural habitats and positions of protected plants and animals which are adjacent to the set-out sites of works and designated for their preservation. Execute the fencing in such a manner which is visible for people performing building works and which prevents accidental intrusion into fenced-off patches of natural habitats and positions of plants and animals. Remove the fencing upon the completion of building works.	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution and after finishing of bank's section	Contractor with the participation of specialists in the field of botany, plant sociology and zoologist
					Everytime prior to commencement of execution and after finishing of bank's section	Engineer
	[I.2.1.6] Reduce (as far as possible) the area of damage as a result of building works conducted within valuable natural habitats of species.	Concerns all contract's structures on whole section of embankments	Environmental Specialist Report, Contractor's Report ¹ – confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution and after finishing of bank's section	Contractor
					Everytime prior to commencement of execution and after finishing of bank's section	Engineer
Soil/ environment	[I.2.1.7] Modify the technology applied for construction / reconstruction of the embankments consisting in conducting works at the opposite side to natural objects, or alternatively - conducting works at the front or crest of the embankment.	Concerns all contract's structures on whole section of embankments	Environmental Specialist Report Contractor's Report ¹ – confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution of any bank's section	Contractor
					Everytime prior to commencement of execution and during execution of bank's section, but not less frequently than once a month	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	[I.2.1.8] Determine the location of technological routes and sites in a manner which ensures: preservation of protected natural habitats, positions and habitats of protected species, preservation of all the tree- and shrub-based vegetation occurring beyond the areas required to be occupied in reference to the modernisation of the existing embankments and construction of new ones.	Concerns all contract's structures on whole section of embankments	Environmental Specialist Report Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution of bank's section	Contractor with the participation of environmental specialist
			Everytime prior to commencement of execution of bank's section		Engineer	
	[I.2.1.9] At the determination of location of technological routes and sites at the areas located within the zone of implementation of the Works Contract, the following should be done: 1. keep all tree and shrub vegetation growing beyond the places required to be occupied in reference to the modernisation of the existing embankments and construction of new ones, 2. set a precise location of technological routes and sites within the boundaries of the zone of implementation of the Works Contract - in co-operation with specialists in the field of zoology and botany, so as not to worsen the ecological status of natural objects located within the implementation.		Environmental Specialist Report Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution and during execution of bank's section	Contractor with the participation of environmental specialist
					Everytime prior to commencement of execution and during execution of bank's section	Engineer
Soil/ environment	[I.2.1.10] Reduce (as far as possible) the minimum depth of excavations / trenches and shorten (as far as possible) the duration of works.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution and during execution of bank's section, but not less frequently than once a month	Contractor

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	[I.2.1.11] Within the mid-embankment - not to dig up local depressions with a surplus of ground from excavations / trenches.				Once a month	Engineer
Soil/ environment (flora and fauna)	[I.2.1.12] Apply time constraints at the execution of works in connection with the requirements of conservation of valuable species of flora and fauna	Concerns all contract's structures on whole section of embankmen ts	Environmental Specialist Report, Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution and during execution of bank's section, but not less frequently than once a month	Contractor
	[I.2.1.13] Apply the principle of protection of natural environmental elements which are important to maintain a proper state of ecological corridors at each of the WFS structures (coverage with woods and shrubs, water reservoirs, oxbow lakes, etc.).				Once a month	Engineer
Surface waters/fauna	[I.2.1.14] Run the modernisation of bridges in a manner which ensures the ecological functionality for animals moving through the valley of the Widawa River (appropriate lighting, dry land at river-bank areas above average water levels, natural character of river-bank areas under the bridges).	Concerns all bridges	Environmental Specialist Report, Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution and during execution of bank's section, but not less frequently than once a month	Contractor
					Once a month	Engineer
Flora & fauna protection	[I.2.1.15] Limit the felling of trees and shrubs to an absolute minimum and perform it within the period from 15 October to the end of February, subject to point I.2.1.16 and I.2.1.29.	Concerns all contract's structures on whole section of embankmen ts	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement and after finishing of felling	Contractor
					Everytime prior to commencement and after finishing of felling, but not less frequently than once a month	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	<p>[I.2.1.16] In case of an intention of felling of trees with their breast height over 50 cm, directly prior to the felling, the following should be performed with the participation of specialists:</p> <p>entomologist - a control of the occupancy of these trees by protected species of beetles, such as: Great Capricorn Beetle <i>Cerambyx cerdo</i>, Hermit Beetle <i>Osmoderma eremita</i>,</p> <p>chiropterologist - a control of the presence of bats</p> <p>In case of any collision of the planned works with the positions of the above-specified beetles and the need to cut down trees because of the technical and technological conditions - make a transfer of the above-mentioned animals to another place or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Make the transfer in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.</p>	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² Additionally: Specialist report: entomologist report ³ chiropterologist report ³	During entire period of works realization Before starting the works, after the specialist's report stating the presence of beetles	Everytime prior to commencement and after finishing of felling Once a week during cutting of trees	Contractor Specialist - entomologist /Specialist - chiropterologist
					Everytime prior to commencement and after finishing of felling Once a month during cutting of trees	Engineer
Flora protection /soil protection	[I.2.1.17] Within the whole area of investment, secure all the trees and shrubs designated to be left (including the ones being habitats for Great Capricorn and Hermit Beetle against accidental damage by using the following methods:	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Everytime prior to commencement and after finishing of felling Once a week during cutting of trees	Contractor Specialist - entomologist /Specialist - chiropterologist
	[I.2.1.17.1] make tree-trunk protection (e.g. made of planks) fully around tree trunks up to the level of 1.5 m at minimum,					
	[I.2.1.17.2] make shields around shrubs (e.g. made of planks) up to the level of 1.0 m at minimum,					
	[I.2.1.17.3] make dig-outs / trenches at a distance of not less than 2 m from tree trunks,				Everytime prior to commencement and after finishing of felling	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	[1.2.1.17.4] do not store construction materials or solid / liquid waste which can alter the chemical characteristics of soil (e.g. salts, oils, fuels), or soil masses within the projection of tree crests, [1.2.1.17.5] execute earth works manually around skeletal roots. It is unacceptable to undercut skeletal roots, [1.2.1.17.6] in the period of hot weather, maximally reduce the time of exposure of roots to desiccation, while in the period of cold weather (frost) - to freezing.				Once a month during cutting of trees	
Flora protection /soil protection	[1.2.1.18] Make dig-outs / trenches (conducted within the root systems of trees and shrubs) manually, if necessary, use drilling or jacking methods.	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor
					Everytime prior to commencement of execution of bank's section Once a month during execution of each section of bank	Engineer
	[1.2.1.19] At places being designated as spots of potential occurrence of protected plant species, prior to the start of works - remove a top layer of soil with herbaceous vegetation growing on it and put it at a place secured against destruction - in order to make use of the layer during re-cultivation works. Consult and settle the details of dealing with a layer of soil with a specialist in the field of botany.		Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ² Additionally: Specialist report: botanist report ³	Before starting the works, after the specialist's report During entire period of works realization	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor
					Everytime prior to commencement of	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
					execution of bank's section Once a month during execution of each section of bank	
	[I.2.1.20] In case of any collision of the planned works with the positions of protected species of plants - re-plant the above-specified plants - to another place or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Conduct the re-planting in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.		Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ² Additionally: Specialist report: botanist report ³	Before starting the works, after the specialist's report During entire period of works realization	Everytime prior to commencement of execution of bank's section And after re-plantation Everytime prior to commencement of execution of bank's section And after re-plantation	Contractor with the participation of environmental specialist Engineer
	[I.2.1.21] Consult and settle the detailed principles of conduct with protected species of plant individuals specified in point I.2.1.20 (including a selection of technology and places of target re-planting) with a specialist in the field of botany and include the settled solutions in the application (request) for issuing an approval for the re-planting.		Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ² Additionally: Specialist report: botanist report ³	Before starting the works, after the specialist's report During entire period of works realization	Everytime prior to commencement of execution of bank's section Everytime prior to commencement of execution of bank's section	Contractor with the participation of environmental specialist Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora protection /soil protection	[I.2.1.22] Prior to the start of construction works - conduct field inspection of places of execution of the works with the participation of a botanist or phyto-sociologist to locate places of occurrence and population of invasive plants (with the exception of Small-flowered Touch-me-not). After conspicuously locating and marking of places which are covered with invasive plants - take preventive measures during implementation of the investment, which will reduce the spread of those plants, including:	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ² Additionally: Specialist report: botanist report or phyto-sociologist report ³	During entire period of works realization Before starting the works, after the specialist's report	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor with the participation of specialists in the field of botany or plant sociology
	[I.2.1.22.1] take off a layer of humus with invasive plants and remove them from the area of the works for composting or dispose in any other effective manner. It is unacceptable to mix the humus with the native vegetated humus,				Everytime prior to commencement of execution of bank's section Once a month during execution of each section of bank	Engineer
	[I.2.1.22.2] train and supervise persons performing works related to the elimination of invasive plants.					
Fauna protection /soil protection	[I.2.1.23] In case of any collision of the planned works with the habitats of protected species of animals - make a transfer of the above-specified animals to another places or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Make the transfer in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor with the participation of specialists in the field of zoology
					Everytime prior to commencement of execution of bank's section Once a month during execution of each section of bank	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	[I.2.1.24] Consult and settle the detailed principles of conduct with protected species of animals specified in point I.2.1.23 (including a selection of technology and places of target transfers) with a specialist in the field of zoology and include the settled solutions in the application (request) for issuing an approval for the animal transfer.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² Additionally: Specialist report: specialist in the field of zoology report ³	During entire period of works realization Before starting the works, after the specialist's report which confirmed the occurrence of protected species	Everytime prior to commencement of execution and after finishing of bank's section, during realization once a week	Contractor/ Specialist in the field of zoology
					Everytime prior to commencement of execution and after finishing of bank's section, during realization once a month	Engineer
	[I.2.1.25] At the breeding sites of amphibians - plan construction works so that they should be conducted beyond the breeding season, namely beyond the period from 1 March up to 31 August. Depending on particular species occurring in water bodies (reservoirs) it is allowed to shorten the period referred to above upon consulting a specialist herpetologist. In case of failure to conduct the works beyond the period specified above, it is allowed to make use of solutions securing against the mortality (as a result of the conducted works and traffic) of animals travelling to and from breeding grounds. Technical solutions (e.g. fencing of construction sites with fences or use of traps in the form of grooves in the ground) to perform at sections with their length corresponding to the length of breeding amphibians places and the length not less than 150 meters from the boundaries of these places. Detailed technological and location solutions and principles of handling amphibians to be agreed with a specialist in the field of herpetology.	Concerns all contract's structures on whole section of embankments	Statement of Completion /Contractor's Report ¹ - confirmed by the Engineer ² Specialist Report – specialist in the field of herpetology ³ / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement During entire period of works realization	Everytime prior to commencement of execution and after finishing of bank's section Once a week during execution of each section of bank	Contractor with specialist in the field of zoology / specialist in the field of herpetology
					Everytime prior to commencement of execution and after finishing of bank's section Once a month during execution of each section of bank	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	[1.2.1.26] The application of methods securing water chambers, trenches, collectors etc. prior to the confinement of minor mammals, amphibians and reptiles within them. Therefore, these components (elements) should be designed to allow individual animals to get out of these structures. If this is impossible, these structures should be secured against the possibility of falling by animals or - at the stage of implementation - these elements should be monitored daily with trapped animals got out and transported beyond the site of works.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Once a week during execution of each section of bank	Contractor
					Once a month during execution of each section of bank	Engineer
	[1.2.1.27] In the vicinity of especially environmentally valuable areas (within any protected areas, forests) - plan any works with their highest noise level in autumn and winter months (second half of October - end of February). Noise caused in the period from March up to July should not exceed 50 dB at a distance of 100 m from the site of works. Also due to the noise, in the period from April to October, any works should not be conducted at night in the vicinity of feeding of bats (large patches of trees, forests, water reservoir) - Greater Mouse-Eared Bat (<i>Myotis myotis</i>), Bechstein's bat (<i>Myotis bechsteinii</i>), Pond Bat (<i>Myotis dasycneme</i>) and Barbastelle Bat (<i>Barbastella barbastellus</i>).	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor
					Everytime prior to commencement of execution of bank's section Once a month during execution of each section of bank	Engineer
Fauna protection	[1.2.1.28] In order to protect valuable and rare species of birds (Corn Crane, Lapwing, Eurasian Bittern, Marsh-harrier) - conduct any works with the highest noise levels, planned within and in the close vicinity of their habitats in the period from October to March.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² Additionally: Specialist report: entomologist report ³ ornithologist report ³	During entire period of works realization	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor with specialists: ornithologist and entomologist
	[1.2.1.29] Reduce (as far as possible) felling / cutting down blackthorn brushwood (no grubbing) and perform between 15 July and 15 August under the supervision of specialists: ornithologist and entomologist.				Everytime prior to commencement of execution of bank's	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
					section Once a month during execution of each section of bank	
	[I.2.1.30] Start works and grubbing bush roots at the positions of cut blackthorn brushwood referred to in point I.2.1.29 at the earliest after 15 September and end by 15 March. Conduct construction / building works at a distance up to 100 m from the blackthorn brushwood - at day-time and with natural lighting only.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor
					Everytime prior to commencement of execution of bank's section Once a month during execution of each section of bank	Engineer
	[I.2.1.31] In case of no possibility to conduct the activities specified in point 2.1.29 and 2.1.30, perform felling / cutting down under the supervision of a specialist - entomologist. In case of finding eggs of Caterpillar Moth at blackthorn brushwood planned for felling / cutting down, move the felled / cut-down shrubs with eggs (in agreement with an entomologist) to a place ensuring the completion of their development cycle.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² Additionally: Specialist report: entomologist report ³ ornithologist report ³	During entire period of works realization	Everytime prior to commencement of execution of bank's section Once a week during execution of each section of bank	Contractor with specialist entomologist
					Everytime prior to commencement of execution of bank's section Once a month during execution of each section of bank	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	[I.2.1.32] Mow the area occupied to construct the embankment - within the found sites and potential habitats of Scarce Large Blue Butterfly <i>Phengaris Teleius</i> and Dusky Large Blue Butterfly <i>Phengaris Nausithous</i> , in particular within their habitats (identified as o-109 and o-119), one year prior starting the works, in the period from early June to late September, once a month. Mow at the height of not more than 10cm. Perform the mowing in the manner specified above (prior to the proceeding works) also in the following year (after starting the works).	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² Additionally: Specialist report: entomologist report ³ ornithologist report ³	One year prior starting the works	Everytime prior to (a year before) commencement of execution of bank's section	Employer before starting the works
					During realization before and after any mowing	Contractor
					Once a month	Engineer
Environment / Reporting	[I.2.1.33] All works relating to execution of activities minimising adverse impact of the investment onto the environment - to be performed under constant environmental supervision run by competent specialists , considering the following principles:	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² Additionally: Specialists reports	During entire period of works realization Before starting the works, after the specialist's report	Twice a year, 3 months after finishing of each structure	Employer
	[I.2.1.33.1] on the basis of the conducted implementation-based monitoring, summary reports should be prepared, confirmed by specialists and submitted to the present Body (Institution) at least twice a year,				Twice a year during realization	Contractor
	[I.2.1.33.2] the last report on implementation monitoring should be prepared within 3 months from the date of completion of the investment.				Twice a year during realization	Engineer
	[I.2.1.34] Submit all the information about arrangements referring to the manner and scope of the conducted activities specified in I.2.1.5, I.2.1.16, I.2.1.20 - I.2.1.24 as well as documents confirming the participation of specialists (e.g. report on settlements and / or statement of specialists confirming the proper conduct of operations) to the Regional Director of the Environmental Protection in Wroclaw immediately upon making the settlements and / or implementation of these settlements.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² Additionally: Specialists reports	During entire period of works realization Before starting the works, after the specialist's report	After making arrangements	Employer
					Everytime prior to commencement of execution of bank's section	Contractor with specialists
					Everytime prior to commencement of execution of bank's section	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Soil	[I.2.1.35] Design and project access roads leading to the construction site along the existing ground and hardened roads.	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Everyday	Contractor
	[I.2.1.36] Traffic of vehicles should run along technological routes. Shipments of machinery should be made as far as possible along fixed routes.				Once a month	Engineer
	[I.2.1.37] Upon termination of the construction works restore the places of temporary works to the previous state.					
Soil/Soil protection	[I.2.1.38] The technical state of working construction and transportation machines should be checked on a regular basis in order to eliminate the spillage of petroleum into the ground.	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Everyday during realization; immediately in case of the event	Contractor
	[I.2.1.39] In case of occurrence of any failure in the scope of contamination with petroleum products, the ground contaminated by an accident must be removed immediately and pass to the appropriate bodies holding authorisation for its further development.				Once a month	Engineer
Ground & under-ground water protection	[I.2.1.40] Any places designated for handling vehicles and machines must be periodically (until the completion) lined with insulating materials. Places for parking of vehicles should not be located: at the area where the Main Reservoir of Underground Waters GZWP-320 is located, at the area of the mid-embankment and directly by the slope of the flood protection embankment. Locate the background facilities of the construction site beyond the protective zone of underground water in-takes where the level of ground water is below 1.5 m below terrain level.	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	Before Works commencement	Before Works commencement and during realization once a week	Contractor
	[I.2.1.41] In the vicinity of machine garaging and filling there should a stand with sorbent serving to eliminate any leaks of petroleum substances.				Once a month	Engineer
Noise protection	[I.2.1.42] Works at acoustically-protected areas should be performed at day-time only - namely between 6 ⁰⁰ and 22 ⁰⁰ .	Concerns all contract's structures	Statement of Completion – Contractor's	The entire period of contract implementation	Everyday	Contractor

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
		on whole section of embankmen ts	report ¹ – confirmed by the Engineer ²		Once a month	Engineer
Noise protection	[I.2.1.43] The construction site, access roads should be organised and maintained so as to minimise dusting and be located possible away from residential areas (in case of any works at areas near residential development, these works should be performed at daytime).	Concerns all contract's structures on whole section of embankmen ts	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Everytime prior to localization of each construction site. Everyday during realization	Contractor
					Once a month	Engineer
Soil/ environment	[I.2.1.44] Places of storage of soil masses should be properly secured in order to reduce their dusting.	Concerns all contract's structures on whole section of embankmen ts	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Everytime prior to commencement. Everyday during realization	Contractor
	[I.2.1.45] Do not allow long-term operation of internal combustion engines of machinery and construction vehicles at a standstill (limit emissions at the so-called stage of idling speed).				Everytime prior to commencement. Once a month during realization	Engineer
	[I.2.1.46] The execution of works should be organised taking into consideration the capabilities to conduct works synchronously at several locations spaced around 300 - 500 m from each other (one another), in a manner which minimises the aggregation of pollutant concentrations.					
	[I.2.1.47] In the immediate vicinity of residential buildings limit the number of machines working simultaneously at the given distance, in order to minimise direct impacts of emissions. Car parking lots should not be located in these areas.					

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Soil/ environment	[I.2.1.48] Organise all the works in such a manner as to minimise the amount of generated wastes and reduce their negative impact on the environment. All the wastes generated at the implementation of the investment should be categorised and stored separately in containers or at places being enclosed and adapted for this purpose, under conditions which prevent dusting and dispelling light fractions, and their negative effects on the environment and to ensure their gradual delivery and acceptance by operators with appropriate authorisation for their further development.	Concerns all contract's structures on whole section of embankments	Statement of Completion – Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Everytime prior to commencement and Everyday during realization	Contractor
	[I.2.1.49] Hazardous waste should be categorised and stored in designated containers placed at hardened and protected areas secured against access of third parties until their transfer to entities having the appropriate permission for their disposal.				Everytime prior to commencement. Once a month during realization	Engineer
	[I.2.1.50] Ground mass generated during the investment should be exploited in accordance with their intended use under existing legislation, taking into account the possibility of reuse to strengthen the rebuilt and upgraded floor protection embankments.					
Soil. Ground & under-ground water protection	[I.2.1.51] Social and domestic sewage must be collected in leak-proof, drain-less tanks and ensure that they are regularly collected by authorised bodies.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² /entities receiving confirmation	During entire period of works realization	Once a month during implementation	Contractor
					Once a month during implementation	Engineer
Local people	[I.2.1.52] The implementation of the investment cannot cause - regardless of the level of water flows - increasing any flood risk of the areas located below the places covered by the application.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² /entities receiving confirmation	During entire period of works realization	Once a month during implementation	Contractor
	[I.2.1.53] In the course of conducting the works there can no difficulties occurred in the manner of making use of the areas being adjacent to the projected Works Contract.				Once a month during implementation	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Surface waters	[1.2.1.54] Rainfall waters from within the areas at the embankments (re-built and under construction) - prior to entering the river - should be treated with sedimentation in ditches or mechanically cleaned.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² /entities receiving confirmation	During entire period of works realization	Everyday during the period of drainage	Contractor
	[1.2.1.55] Waters from draining the foundation bottoms for the embankment culverts should be treated with sedimentation in ditches prior to entering the receiver - the river. [1.2.1.56] Any works should not be conducted at the period of intensive precipitation. Grooves preventing direct out-flows of contaminated waters into local trenches should be made.				Once a month	Engineer
Air protection	[1.2.1.57] Embed all the transported masses directly into the embankment body and compact them to the required indicators levels, with no their indirect unloading and storage.	Concerns all contract's structures on whole section of embankments	Contractor's Report ¹ - confirmed by the Engineer ² /entities receiving confirmation	During entire period of works realization	Every day during the period of embankments construction	Contractor
					Once a month	Engineer
Surface waters	[1.2.1.58] At the stage of operation - ensure proper operation of machines and equipment for pre-treatment of rainfall waters discharged from communication facilities / structures.	Concerns all bridges	Contractor's Report ¹ - confirmed by the Engineer ² /entities receiving confirmation	During entire period of works realization	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction and modernization	Engineer
WFS structure no. 42.2 Reconstruction of the road bridge in the location of Widawa						
Flora and fauna	[1.2.19.1] Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge and possibly within a line not exceeding 10 m from the temporary bridge	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
					and modernization	
Flora and fauna protection/work safety	[I.2.19.2] Do not locate storage sites and parking lots of building / construction machines in the mid-embankment	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction and modernization	Engineer
Ecological design solutions	[I.2.19.3] Execute the strengthening of the channel bottom and slopes with gabions only at the projection of a road lane. Apply stone coverage at other sections	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction and modernization	Engineer
Protection of surrounding environment/ reduction of impacts on adjacent land	[I.2.19.4] All the earth works should be conducted within retaining walls [I.2.19.5] Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction and modernization	Engineer
Surface waters	[I.2.19.6] Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, waters should be pre-cleaned in the settler with its capacity of 3.5 m ³ and lamella separator (clarifier) with its flow from 10 up to 100 dm ³ /s.	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	During entire period of works realization	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
					and modernization	
WFS structure no. 42.3 Reconstruction of the Pegowski road bridge						
Flora and fauna	[I.2.20.1] At km 3+800 - 4+000 of the Widawa River, within and in the direct vicinity of patches of natural habitats - oak, elm, ash Riverine forests 91F0 (identified as h-34, h-87, h-88), willow, poplar, alder and ash carr *91E0 (identified as h-35) and the positions of Broad-leaved Helleborine (identified as f-21) - design technological routes in such a manner so that not to damage the above-specified patches making use of the existing network of roads to the furthest possible extent. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works at the area of the present mid-embankment (including possible felling / cutting down trees and shrubs) at a distance not exceeding 10 m from the reconstructed bridge. All the works should be performed in a manner which do not required to construct temporary bridges.	km 3+800 – 4+000 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor with participation of the environmental specialists
					Once a month during the period of bridges construction and modernization	Engineer
Flora and fauna	[I.2.20.2] At the section at km 3+600 - 3+800 of the Widawa river - plan the access to the place of works in such a manner which does not destroy the breeding habitats of Red-backed Shrike. Locate all the storage sites beyond the area of these habitats as well as beyond the area of the current mid-embankment. Conduct all the works (apart from possible felling / cutting down trees and shrubs) within a line with its width not exceeding 10 m from the rebuilt bridge.	km 3+600 – 3+800 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor with participation of the environmental specialists
					Once a month during the period of bridges construction and modernization	Engineer
Surrounding environment / environmental impact reduction	[I.2.20.3] At km 3+800 - 4+000 of the Widawa River - conduct earth works within retaining walls	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor
	[I.2.20.4] Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.				Once a month during the period of	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
					bridges construction and modernization	
Surface waters	[I.2.20.5] Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, waters should be pre-cleaned in the settler with its capacity of 3.5 m ³ and lamella separator (clarifier) with its flow from 10 up to 100 dm ³ /s.	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction and modernization	Engineer
WFS structure no. 42.3.1 Reconstruction of the Pegowski railway bridge						
Flora and fauna	[I.2.21.1] At km 3+800 - 4+000 of the Widawa River, within and in the direct vicinity of patches of natural habitats - oak, elm, ash Riverine forests 91F0 (identified as h-88, h-89), willow, poplar, alder and ash carr *91E0 (identified as h-35) - design technological routes in such a manner so that not to damage the above-specified patches making use of the existing network of roads to the furthest possible extent. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works at the area of the present mid-embankment (including possible felling / cutting down trees and shrubs) at a distance not exceeding 10 m from the reconstructed bridge. All the works should be performed in a manner which do not required to construct temporary bridges.	km 3+800 – 4+000 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor with participation of the environmental specialists
					Once a month during the period of bridges construction and modernization	Engineer
Flora and fauna	[I.2.21.2] At the section at km 3+600 - 3+900 of the Widawa River - project an access to the construction site in such a manner that not to damage the breeding habitats of Red-backed Shrike and Middle Spotted Woodpecker. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works (including possible felling / cutting down trees and shrubs) within a line with its width not exceeding 10 m from the reconstructed bridge.	km 3+600 – 3+900 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor with participation of the environmental specialists
					Once a month during the period of bridges construction and modernization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Surrounding environment / environmental impact reduction	[I.2.21.3] All the earth works should be conducted within retaining walls.	Bridge	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction and modernization	Engineer
WFS structure no. 43 Increasing the capacity of the bridge over the Widawa River at the location of Psary						
Flora and fauna	[I.2.22.1] Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge and possibly within a line not exceeding 10 m from the temporary bridge	Bridge	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor with participation of the environmental specialists
					Once a month during the period of bridges construction and modernization	Engineer
Ecological design solutions	[I.2.22.2] Do not use mattresses and gabions to strengthen the bottom and slopes of the Old Widawa River	Bridge on the section of 50m below and above the bridge	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of bridges construction and modernization	Contractor
					Once a month during the period of bridges construction and modernization	Engineer
WFS structure no. 44.14 Krzywoustego - the railway lines - the new embankment						
Flora and fauna	[I.2.23.1] At the section at km 16+900 - 17+200 of the Widawa River, within the place of occurrence of reptiles (identified as the habitat no. g-22), perform building /	km 16+900 – 17+200 The Widawa	Environmental Specialists Report/	Before Works commencement. During entire	Once a month during the period of modernization	Contractor with participation of the zoologist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	River	Contractor's Report ¹ - confirmed by the Engineer ²	period of works realization.	Once a month during the period of modernization	Engineer
Flora and fauna	[I.2.23.2] At the section at km 16+900 - 17+100 of the Widawa River, locate storage sites, technological routes and parking lots beyond the area of meadows constituting the breeding habitat of Grasshopper Warbler. Conduct works at the land-side of the projected embankment in order to preserve these meadows at their intact state within the future mid-embankment	km 16+900 – 17+100 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during the period of modernization	Contractor with participation of the environmental specialist
					Once a month during the period of modernization	Engineer
WFS structure no.44.15 Soltysowice (embankment along City Ring-road)						
Flora and fauna	[I.2.24.1] At the section at km 15+300 - 15+900 of the Widawa River within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of natural habitats - oak, elm, ash Riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified as h-69) as well as the positions of Broad-leaved Helleborine and Common Snowdrop - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	km 15+300 – 15+900 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora and fauna	[I.2.24.2] At the section at km 15+300 - 16+300 of the Widawa River - execute culverts in the embankment to enable an inflow of water to the areas separated by the embankments so that not to change the existing ground and water conditions at Riverine habitats. All the technological solutions should also allow a free outflow of water so as not to make the habitat swampy.	km 15+300 – 16+300 The Widawa River	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor
					Once a month during works realization	Engineer
Flora	[I.2.24.3] At the section of the Widawa River at km 16+300 - 16+500 - conduct works at a distance exceeding 20 m from the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-66).	km 16+300 – 16+500	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.24.4] At the section at km 14+500 - 14+700 of the Widawa River, within and in the direct vicinity of the patch of the natural habitat - willow, poplar, alder and ash carr *91E0 (identified as h-70) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	km 14+500 – 14+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.24.5] At the section at km 13+400 - 14+100 of the Widawa River within and in the direct vicinity of the patch of a mosaic of natural habitats - low-land and mountain fresh meadows used extensively 6510 and Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 (identified	km 13+400 – 14+100 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	as h-72) as well as the positions of Southern adders-tongue - conduct the construction of the embankment at the land-side of the embankment. Organise technological routes and storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.		confirmed by the Engineer ²		Once a month during works realization	Engineer
Flora	[I.2.24.6] At the section at km 13+000 - 13+400 of the Widawa River within and in the direct vicinity of the patch of a mosaic of natural habitats - low-land and mountain fresh meadows used extensively 6510 and Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 (identified as h-72) - conduct the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	km 13+000 – 13+400 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.24.7] At the sections at km 14+000 - 14+500 and 16+000 - 16+800 of the Widawa River, within and in the direct vicinity of the patches of the following natural habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-71 and h-64) - conduct the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified patches at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified patches.	km 14+000 – 14+500 and 16+000 – 16+800 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora	[I.2.24.8] At the section at km 15+300 - 16+500 of the Widawa River within the future mid-embankment (within and in the direct vicinity of the positions of Grass Lily, Common Snowdrop and Scarlet cup) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified positions at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified positions (at a distance exceeding 20 m from the positions).	km 15+300 – 16+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.24.9] At the section at km 15+300 - 16+500 of the Widawa River, within the position of Scarlet cup - apply tolerably efficient protection of tree trunks (e.g. by means of the so-called geo-textile). All the earth works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time (any exposure of trees for drying or freezing of their root system elements should be avoided).	km 15+300 – 16+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.24.10] At the section at km 14+000 - 14+500 of the Widawa River - conduct works at a distance exceeding 10 m from the position of Giant puffball (identified as m-3).	km 14+000 – 14+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.24.11] At the sections at km around 16+500 and at km around 15+650 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-43, o-44). Building / construction works should be performed beyond the	km ca. 16+500 and km ca. 15+650 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	projection area of tree crests. Within the boundaries of the area no storage sites and technological routes should be located as well. It is permitted only to make use of the existing roads (even if they are located within the projection area of tree crest). Then it is required to apply protection of tree trunks (execute by-trunk shields made of planks).	River	confirmed by the Engineer ²		Once a month during works realization	Engineer
Fauna	[I.2.24.12] Within the places of occurrence of amphibians identified as follows: p-60 (km 16+200 within the River), p-17 (km 16+100 within the River), p-16 (km 16+200 within the River), p-14 (km 16+700 within the River), p-15 (km 16+500 within the River), p-59 (km 16+700 within the River), p-95 (km 15+300 - 16+900 within the River), p-63 (km 15+300 - 15+500 within the River), p-19 (km 15+700 within the River), p-18 (km 15+700 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	The Widawa River according to km in column 2	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.24.13] Within the places of occurrence of amphibians identified as follows: p-59 (km 16+700 within the River), p-96 (km 15+000 - 16+100 within the River) and p-99 (km 13+000 - 14+500 within the River), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitats - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	The Widawa River according to km in column 2	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Fauna	[I.2.24.14] Within the places of occurrence of reptiles identified as follows: g-64 (km 16+200 within the River), g-65 (km 16+100 within the River), g-66 (km 16+200 within the River), g-67 (km 16+600 - 16+800 within the River), g-68 (km 16+500 within the River), g-71 (km 16+500 - 16+700 within the River), g-72 (km 15+300 - 16+900 within the River), g-77 (km 15+600 within the River), g-78 (km 15+800 within the River), g-79 (km 15+800 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	The Widawa River according to km in column 2	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.24.15] Within the places of occurrence of amphibians identified as follows: g-69 (km 16+000 - 16+800 within the River), g-70 (km 16+600 - 16+800 within the River), g-80 (km 15+000 - 16+000 within the River), g-81 (km 12+900 - 14+500 within the River), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	The Widawa River according to km in column 2	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.24.16] At the sections at km 16+700 and at km 16+600 of the Widawa River, within the habitats of Blue-throat and Great Reed Warbler, conduct all the works within a line of the embankment base or at the land-side of the future embankment. Locate technological routes, storage sites and parking lots at the land-side of the embankment.	km 16+700 and km 16+600 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Fauna	[I.2.24.17] At the section at km 16+500 of the Widawa River at the course of the embankment through the habitat of Common Rose-finch - conduct all the works within a line of the embankment base and locate storage sites and technological routes beyond the area of the above-specified habitat.	km 16+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.24.18] At the section at km 16+500 - 16+600 of the Widawa River, in the proximity of the breeding habitats of Western Marsh Harrier, Little Ringed Plover and Blue-throat, conduct building / construction works of the eastern part of the embankment at the settlers in Soltysowice in the period from 15 October up to the end of February.	km 16+500 - 16+600 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.24.19] Within the places of occurrence of Red-backed Shrike identified as follows: p-113 (km 13+500 within the River), p-122 (km 14+100 within the River), p-124 (km 13+500 within the River), p-126 (km 13+300 within the River), p-127 (km 13+200 within the River), p-128 (km 13+200 within the River), p-129 (km 13+300 within the River), p-132 (km 12+900 within the River), p-151 (km 14+000 within the River), p-78 (km 16+900 within the River), p-142 (km 11+500 within the River), p-143 (km 11+000 within the River), p-144 (km 10+800 within the River), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front. At the section of the embankment crossing the meadow habitat - conduct felling / cutting off trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.	The Widawa River according to km in column 2	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora and fauna	[I.2.24.20] At the section at km 13+300 - 13+400 of the Widawa River - do not conduct works, do not locate technological routes and parking lots of machines and equipment, do not store materials within meadows and bushes constituting the breeding habitat of Barred Warbler.	km 13+300 – 13+400 The Widawa River	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no.44.16 Polanowice - new embankment						
Flora	[I.2.25.1] At the section at km 12+500 - 12+600 of the Widawa River, within the patch of the following habitat - oak, elm, ash Riverine forests 91F0 (identified as h-76) - conduct works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the water-side of the embankment and beyond the area of the above-specified habitat.	km 12+500 – 12+600 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.25.2] At the section at km 10+300 - 10+400 of the Widawa River, within the habitat patch - Cnidium meadows 6440 (identified as h-78) - conduct all the works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified habitat.	km 10+300 – 10+400 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.25.3] At the section at km 9+900 - 10+200 of the Widawa River, within the patch of the following habitat - low-land and mountain fresh meadows used extensively 6510 (identified as h-79) - conduct all the works at the water-side of the embankment. Locate places of storage of materials and technological routes beyond the area of the above-specified habitat.	km 9+900 – 10+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Fauna	[I.2.25.4] Within the places of occurrence of amphibians identified as the following habitats: p-21 (km 12+200 - 12+700 within the River), p-105 (km 9+700 - 10+500 within the River) and reptiles identified as the following habitats: g-87 (km 12+200 - 12+600 within the River) and g-91 (km 9+800 - 10+500 within the River) - conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 12+200 – 12+700 km 9+800 – 10+500	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.25.5] At the section at km 10+300 and 17+200 of the Widawa River, within the breeding habitats of Great Reed Warbler, conduct works at the water-side within a line with its width not exceeding 30 m from the embankment.	km 10+300 and 17+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.25.6] Within the places of occurrence of Red-backed Shrike identified as follows: p-113 (km 13+500 within the River), p-122 (km 14+100 within the River), p-124 (km 13+500 within the River), p-126 (km 13+300 within the River), p-127 (km 13+200 within the River), p-128 (km 13+200 within the River), p-129 (km 13+300 within the River), p-132 (km 12+900 within the River), p-151 (km 14+000 within the River), p-78 (km 16+900 within the River), p-142 (km 11+500 within the River), p-143 (km 11+000 within the River), p-144 (km 10+800 within the River), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front. At the section of the embankment crossing the meadow habitat - conduct felling / cutting off trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.	Widawa according to km in column 2	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
WFS structure no.44.17 Prace Widawskie - new embankment						
Flora and fauna	[I.2.26.1] At the sections at km 8+700 and 9+000 - 9+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-66, o-71 and o-72). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km 8+700 and 9+000 – 9+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.26.2] At the sections at km 8+700, 9+000 - 9+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-67, o-68). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	km 8+700, 9+000 – 9+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.26.3] Within the places of occurrence of Red-backed Shrike and Barred Warbler identified as the following habitats: p-157 (km 8+700 within the River), p-158 (km 8+500 within the River), p-159 (km 7+700 within the River), p-161 (km 7+200 within the River), p-162 (km 7+250 within the River), p-156 (km 8+700 within the River) - perform felling / cutting down trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.	The Widawa River according to km in column 2	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no.46.2 Prace Widawskie demolition of the embankment						
Flora and fauna	[I.2.27.1] At the sections at km 7+500 - 7+700, 7+200 - 7+300, 7+100, 7+200, 8+300 - 8+600, 8+700 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-74, o-75, o-76, o-60, o-61, o-63, o-64). Conduct all the	km: 7+500 – 7+700, 7+200 – 7+300, 7+100,	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	building / construction works beyond the area of shrubs and their direct vicinity. Within the boundaries of the area no storage sites and technological routes should be located as well.	7+200, 8+300 – 8+600, 8+700 the Widawa River	confirmed by the Engineer ²		Once a month during works realization	Engineer
WFS structure no.44.18 Swiniary modernisation of the embankment						
Flora	[I.2.28.1] At the section at km 3+900 - 4+200 of the Widawa River, within the patch of the following habitat - oak, elm, ash Riverine forests 91F0 (identified as h-87) as well as the positions of Common Snowdrop - conduct all the works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified habitat. Conduct all the works related to temporary occupation of land at the land-side of the embankment. Limit possible felling / cutting down of trees and shrubs to the width of the embankment base.	km 3+900 – 4+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.28.2] At the section at km 4+600 - 7+000 of the Widawa River within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of the following natural habitats - oak, elm, ash Riverine forests 91F0 and oak-hornbeam forests 9170 (identified as h-82) as well as the positions of Common Snowdrop, Lily of the Valley and Broad-leaved Helleborine - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	km 4+600 – 7+000 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora and fauna	[I.2.28.3] At the sections at km: 3+900, 4+600, 8+300 - 8+600, 8+700, 7+100 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-113, o-79, o-63, o-64, o-66, o-60 and o-76). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity. Within the boundaries of the area no storage sites and technological routes should be located as well.	km: 3+900, 4+600, 8+300 – 8+600, 8+700, 7+100 the Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.28.4] In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions (identified as o-60 and o-76) located at km 7+100 of the Widawa River and transfer to a habitat being appropriate for the species.	km 7+100 The Widawa River	Entomologist Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.28.5] At the section at km 5+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-120). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	km 5+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.28.6] Within the places of occurrence of amphibians identified as the following habitats: p-108 (km 4+000 - 6+100 within the River), p-24 (km 5+300 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 4+000 – 6+100 km 5+300	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Fauna	[I.2.28.7] At the section at km 4+600 - 6+700 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-107) and reptiles (identified as the habitat no. g-98) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	km 4+600 – 6+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.28.8] Within the places of occurrence of reptiles identified as the following habitats: p-97 (km 4+000 - 6+000 within the River), p-99 (km 5+200 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 4+000 – 6+000, km 5+200	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.28.9] At the section at km 6+500 of the Widawa, within the breeding habitat of Lapwing - locate access roads and places of storage of materials at the water-side of the embankment.	km 6+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.28.10] At the section at km 4+600 - 6+100 of the Widawa River - conduct felling / cutting down trees within the habitat of Grey-headed Woodpecker, Black Woodpecker, Middle Spotted Woodpecker only within a line of the embankment base. At the section at which the	km 4+600 – 6+100 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	embankment runs through forest areas (at km 4+600 - 5+600 within the River) - conduct all the modernisation works from the embankment crest, then at the section where the embankment adheres the forest - at the water-side of the embankment (at km 5+600 - 6+100 of the River) - conduct works at the land-side of the embankment.		confirmed by the Engineer ²		Once a month during works realization	Engineer
WFS structure no.45.3 Krzywoustego - the railway lines, modernisation of the embankment						
Flora	[I.2.29.1] At the section at km 16+900 - 17+200 of the Widawa River, within and in the direct vicinity of the patch of the following habitat - willow, poplar, alder and ash carr *91E0 (identified as h-10) and the patch of a mosaic of the following habitats - low-land and mountain fresh meadows used extensively 6510 and Cnidium meadows 6440 (identified as h-11) - execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitats within a line of the embankment. Organise storage sites beyond the boundaries and beyond the vicinity of the above-specified habitats. Limit felling / cutting down of riparian trees and shrubs to the width of the projected embankment base.	km 16+900 – 17+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.29.2] At the section at km 16+900 - 17+200 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-92) and reptiles (identified as the habitat no. g-22) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	km 16+900 – 17+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.29.3] At the section at km 16+900 - 17+100 of the Widawa River, within the breeding habitat of Grasshopper Warbler - perform building / construction works only within	km 16+900 – 17+100 The Widawa River	Environmental Specialists Report/	Before Works commencement. During entire	Once a month during works realization	Contractor with participation of the

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	the embankment base, making use of the technology of work from the embankment front.	River	Contractor's Report ¹ - confirmed by the Engineer ²	period of works realization.	Once a month during works realization	environmental specialist Engineer
WFS structure no.44.4 Psie Pole - new embankment						
Flora	[I.2.30.1] At the section at km 16+600 - 16+800 of the Widawa River - do not perform building / construction works within and in the direct proximity of the patch of the following habitat - Old River beds and natural eutrophic water reservoirs 3150 (identified as h-14).	km 16+600 – 16+800 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization Once a month during works realization	Contractor with participation of the environmental specialist Engineer
Flora	[I.2.30.2] At the section at km 16+500 - 16+900 of the Widawa River, within the habitat patch - low-land and mountain fresh meadows used extensively 6510 (identified as h-4) - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the section crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	km 16+500 – 16+900 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization Once a month during works realization	Contractor with participation of the environmental specialist Engineer
Fauna	[I.2.30.3] At the section at km 16+500 - 16+900 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-93) and reptiles (identified as	km 16+500 – 16+900 The Widawa River	Environmental Specialists Report/	Before Works commencement. During entire	Once a month during works realization	Contractor with participation of the zoologist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	the habitat no. g-25) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	River	Contractor's Report ¹ - confirmed by the Engineer ²	period of works realization.	Once a month during works realization	Engineer
Fauna	[I.2.30.4] At the section at km 16+500 - 16+700 of the Widawa River, within the breeding habitat of Grasshopper Warbler - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Within the boundaries of the habitat - do not locate storage sites, parking lots of machines and equipment as well as technological routes.	km 16+500 - 16+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no.44.5 Klokoczyce - new embankment						
Flora	[I.2.31.1] At the section at km 15+100 - 16+500 of the Widawa River, within the patch of the following habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-18) - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the section crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	km 15+100 – 16+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.31.2] At the section at km 20+500 - 21+000 of the Widawa River - do not perform building / construction works within and in the direct proximity of the habitat patch - old River beds and natural eutrophic water reservoirs 3150 (identified as h-3).	km 15+500 – 16+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora	[I.2.31.3] At the section at km 13+000 - 14+200 of the Widawa River, within and in the vicinity of the patch of the following habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-19) - do not locate technological routes and storage sites.	km 13+000 – 14+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.31.4] At the section at km 14+250 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-89). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km 14+250 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.31.5] Within the places of occurrence of amphibians identified as follows: p-97 (km 14+600 - 16+500 within the River), p-101 (km 14+500 - 14+800 within the River), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological road designated at the route of the embankment should be used for transportation purposes.	km 14+600 – 16+500, km 14+500 – 14+800	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Fauna	[1.2.31.6] Within the places of occurrence of amphibians identified as the following habitats: p-98 (km 16+000 - 16+400 within the River) p-61 (km 16+000 within the River) p-62 (km 15+900 within the River), p-102 (km 13+400 - 14+200 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 16+000 – 16+400 km 16+000 km 15+900 km 13+400 – 14+200	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[1.2.31.7] Within the places of occurrence of reptiles identified as follows: g-76 (km 15+100 - 16+500 within the River), g-82 (km 14+600 - 15+200 within the River), g-83 (km 14+500 - 14+800 within the River), conduct building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	km 15+100 – 16+500 km 14+600 – 15+200 km 14+500 – 14+800 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Flora and fauna	[1.2.31.8] At the section at km 14+200 of the Widawa River - do not locate the places of storage of materials, technological routes and parking lots of machines and equipment within shrubs constituting the breeding habitat of Red-backed Shrike. The western end of the embankment should be executed in a manner which does not damage the above-specified habitat.	km 14+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[1.2.31.9] At the section at km 15+400 - 16+400 of the Widawa River, within the breeding habitats of Grasshopper Warbler and Corn Crake - conduct all the works within a line of the embankment base. Locate technological routes,	km 15+400 – 16+400 The Widawa River	Environmental Specialists Report/ Contractor's	Before Works commencement. During entire period of works	Once a month during works realization	Contractor with participation of the environmental

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	storage sites and parking lots at the land-side of the embankment and beyond the above-specified habitats.		Report ¹ - confirmed by the Engineer ²	realization.		specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.31.10] At the construction of the western end of the projected embankment - do not allow to damage the River banks and the existing water and rush vegetation being the breeding habitat of Great Reed Warbler (at km 14+300 - 14+500 within the River).	km 14+300 – 14+500	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.31.11] At the section at km 16+300 of the Widawa River, within the boundaries of a forest being the breeding habitat of Grey-headed Woodpecker - do not locate the places of storage of materials and parking lots of machines and equipment. Execute felling / cutting down of riparian trees and shrubs only within a line of the embankment base.	km 16+300 The Widawa River	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no. 44.6 Krzyzanowice - new embankment						
Flora	[I.2.32.1] At the section at km 12+200 - 12+500 of the Widawa River, within and in the direct vicinity of the patch of the following natural habitat - willow, poplar, alder and ash carr *91E0 (identified as h-20) - execute the construction of the embankment from its front (at the same time with	km 12+200 – 12+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat. Limit felling / cutting down of riparian trees and shrubs to the width of the projected embankment base.		confirmed by the Engineer ²		Once a month during works realization	Engineer
Flora and fauna	[I.2.32.2] At the section at km 13+100 of the Widawa River, within the habitat of Blue-throat - do not locate technological routes and parking lots of machines and equipment, do not store materials.	km 13+100 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.32.3] At the section at km 12+900 of the Widawa River, within the habitat of Red-backed Shrike - do not locate technological routes and parking lots of machines and equipment, do not store materials. Execute felling / cutting down of trees and shrubs only within a line of the embankment base.	km 12+900 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no.45.4 Krzyzanowice - embankment modernization						
Flora and fauna	[I.2.33.1] At the section at km 12+200 of the Widawa River, within the habitat of Red-backed Shrike (identified as p-133), conduct all the modernisation works at the land-side within a line with its width not exceeding 20 m from the embankment. Locate places of storage of materials and technological routes beyond the habitat.	km 12+200 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
WFS structure no.44.7 Psary - new embankment						
Flora	[I.2.34.1] At the section at km 11+300 - 11+400 of the Widawa River, within the future mid-embankment - do not conduct building and construction works within and in the direct vicinity of the patch of a mosaic of the following habitats - Old River beds and natural eutrophic water reservoirs 3150 and willow, poplar, alder and ash carr *91E0 (identified as h-22) as well as the positions of Common Snowdrop, Broad-leaved Helleborine, Yellow Water-lily and White Water-lily. Organise technological routes and storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified patch. For the duration of the construction it is required to secure shrubs and trees within banks of the above-specified old River-bed against damage.	km 11+300 – 11+400 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.34.2] At the section at km 10+700 - 10+800 of the Widawa River, within the patch of the following habitat - oak, elm, ash Riverine forests 91F0 (identified as h-25) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.	km 10+700 – 10+800 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.34.3] At the sections at km 10+000 - 10+700 and 11+600 - 11+800 of the Widawa River - conduct works at a distance exceeding 20 m from the patches of the habitat - willow, poplar, alder and ash carr *91E0 (identified as h-21 and h-26).	km 10+000 – 10+700 and 11+600 – 11+800 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
		River	confirmed by the Engineer ²		Once a month during works realization	Engineer
Flora	[I.2.34.4] At the sections at km 10+800 - 11+000 and 11+100 - 11+300 of the Widawa River, within the patches of the habitat - Low-land and mountain fresh meadows used extensively 6510 (identified respectively as h-24 and h-23) as well as the positions of Grass Lily - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified patches within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified patches.	km 10+800 – 11+000 and 11+100 – 11+300 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.34.5] At the sections of the embankment at km: 10+800, 10+700, 9+700, 10+600 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-90, o-91, o-94, o-98, o-99). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km: 10+800, 10+700, 9+700, 10+600 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.34.6] At the section at km 10+700 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-92). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the	km 10+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).		confirmed by the Engineer ²		Once a month during works realization	Engineer
Flora and fauna	[I.2.34.7] At the sections at km: 10+000, 10+500 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-95, o-96 and o-97). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km: 10+000, 10+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.34.8] At the section at km 11+300 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-22) and reptiles (identified as the habitat no. g-88), building / construction works should be conducted beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat.	km 11+300 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.34.9] At the section at km 11+000 - 11+400 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-104), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	km 11+000 – 11+400 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.34.10] Within the places of occurrence of reptiles identified as the following habitats: g-32 (km 11+200 - 11+500 within the River), g-33 (km 11+200 - 11+500 within	km 11+200 – 11+500 km 11+200	Environmental Specialists Report/	Before Works commencement. During entire	Once a month during works realization	Contractor with participation of the zoologist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	– 11+500 The Widawa River	Contractor's Report ¹ - confirmed by the Engineer ²	period of works realization.	Once a month during works realization	Engineer
Fauna	[I.2.34.11] At the section at km 11+000 - 11+500 of the Widawa River, within the place of occurrence of reptiles (identified as the habitat no. g-90), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.	km 11+000 – 11+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.34.12] At the section at km 11+100 of the Widawa River, within the habitat of Corn Crane (identified as p-139) - conduct works only within a line of the embankment base (footing).	km 11+100 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.34.13] Within the places of occurrence of Red-backed Shrike, Corn Crane, Middle Spotted Woodpecker identified as the following habitats: p-135 (km 11+600 within the River), p-137 (km 11+400 within the River), p-138 (km 11+300 within the River), p-140 (km 11+000 within the River), p-141 (km 10+900 within the River), p-145 (km 10+800 within the River), p-146 (km 10+800 within the River) - perform felling / cutting down trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.	km 11+600, km 11+400 km 11+300 km 11+000 km 10+900 km 10+800	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Fauna	[I.2.34.14] At the sections at km 9+700 - 10+000, 11+700 of the Widawa River, within the habitats of Grey-headed Woodpecker and Red-backed Shrike (identified respectively as p-150, p-134 and p-151) - do not locate any places of storage of materials and technological routes at the right bank of the River. Do not fell / cut down trees in the tree stand located east off the bridge as well as bushes located northern-east off the bridge (km 9+800 within the River).	km 9+700 - 10+000, 11+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no.44.8 Psary ring embankment						
Flora	[I.2.35.1] At the section at km 8+400 - 8+700 of the Widawa River, within and in the direct vicinity of the patch of the following natural habitat - oak, elm, ash Riverine forests 91F0 (identified as h-30) - limit felling / cutting down of Riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat	km 8+400 – 8+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.35.2] At the section at km 8+400 - 8+700 of the Widawa - do not perform building / construction works as well as do not locate technological routes and storage sites within the patch of the following habitat - low-land and mountain fresh meadows used extensively 6510 - identified as h-29.	km 8+400 – 8+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.35.3] At the sections at km: 8+500, 8+400 - 8+500, 8+600 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-100, o-101, o-102 and o-103). Conduct all the building / construction works beyond the area of	km: 8+500, 8+400 – 8+500, 8+600 The Widawa	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	River	confirmed by the Engineer ²		Once a month during works realization	Engineer
Flora and fauna	[I.2.35.4] At the section at km 9+700 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-94). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km 9+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.35.5] At the section at km 9+000 of the Widawa, within the habitat of Red-backed Shrike (identified as p-152) - do not locate technological routes, storage sites and parking lots of machines and equipment.	km 9+000 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no. 44.9 Szymanow - new embankment.						
Flora	[I.2.36.1] At the section at km 8+200 - 8+400 of the Widawa River - conduct works at a distance exceeding 10 m from the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-31). Locate technological routes and storage sites at the land-side of the embankment.	km 8+200 – 8+400 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.36.2] At the sections at km: 7+200 - 7+300, 8+500, 8+400 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-77, o-100, o-101 and o-104). Conduct all the building / construction works beyond the area of	km: 7+200 – 7+300, 8+500, 8+400 The Widawa	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	River	confirmed by the Engineer ²		Once a month during works realization	Engineer
Flora and fauna	[1.2.36.3] At the section at km 7+800 and 8+600 of the Widawa River - do not fell / cut down trees constituting the habitat of Great Capricorn (identified as the habitats no. o-103, o-78). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km 7+800 and 8+600 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[1.2.36.4] Within the places of occurrence of amphibians and reptiles identified respectively as the following habitats: p-106 and g-94 (km 8+200 - 8+400 within the River), p-65 and g-93 (km 8+200 - 8+400 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 8+200 – 8+400 km 8+200 – 8+400	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[1.2.36.5] At the section at km 8+000 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-66) and reptiles (identified as the habitat no. g-96) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment water-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological road designated at the route of the embankment should be used for transportation purposes.	km 8+000 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Flora and fauna	[1.2.36.6] At the section at km 8+300 - 8+400 of the Widawa River, within the habitats of Red-backed Shrike - do not locate technological routes and parking lots of machines and equipment, do not store materials. Perform works including felling / cutting down of trees and shrubs only	km 8+300 – 8+400 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	within a line of the embankment base.		confirmed by the Engineer ²		Once a month during works realization	Engineer
WFS structure no.44.10 Szewce - new embankment						
Fauna	[I.2.37.1] At the section at km 4+000 - 6+000 of the Widawa River within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of the following natural habitats - oak, elm, ash Riverine forests 91F0 and oak-hornbeam forests 9170 (identified as h-34) as well as the positions of Common Snowdrop, Lily of the Valley and Broad-leaved Helleborine - execute the construction of the embankment from its land-side (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Organise technological routes and storage sites at the land-side of the embankment and beyond the area of the above-specified patch.	km 4+000 – 6+000 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.37.2] At the section at km 4+000 - 6+000 of the Widawa River - conduct felling / cutting down of trees and shrubs only within 50-m section of the embankment - within the road in the direction of Oborniki Slaskie. Limit the felling / cutting down to the width of the embankment base.	km 4+000 – 6+000 The Widawa River	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora	[I.2.37.3] At the section at km 3+000 - 3+600 of the Widawa River at which the route of the embankment is adjacent to the patch of a mosaic of the following habitats - oak, elm, ash Riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified as h-36) as well as the positions of Common Snowdrop and Broad-leaved Helleborine - locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified patch. Conduct all the works related to temporary occupation of land at the land-side of the embankment.	km 3+000 – 3+600 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora	[I.2.37.4] At the section at km 6+600 - 7+000 of the Widawa River, within the future mid-embankment (within and in the direct vicinity of the patch of the following habitat - willow, poplar, alder and ash carr *91E0 (identified as h-32) - execute the construction of the embankment at the land-side of the embankment (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing)). Organise technological routes and storage sites at the land-side of the embankment and beyond the area of the above-specified patch.	km 6+600 – 7+000 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.37.5] At the sections at km: 6+400 and 5+200 - 5+700 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-108 and o-112). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km: 6+400 and 5+200 – 5+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.37.6] At the section at km 6+500 of the Widawa River - do not fell / cut down trees constituting the habitats of Great Capricorn (identified as o-107). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km 6+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.37.7] At the sections at km 3+900 and 5+200 - 5+700 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-38, o-112). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top	km 3+900 and 5+200 – 5+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).		confirmed by the Engineer ²		Once a month during works realization	Engineer
Flora and fauna	[I.2.37.8] In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions of Caterpillar Moth (identified as o-37, o-38, o-105, o-106, o-110, o-111, o-112) located at km 3+200 - 3+400, 3+900, 7+200, 6+700, 6+000 - 6+400, 5+200 - 5+700 of the Widawa River and transfer to a habitat being appropriate for the species.	km 3+200 – 3+400, 3+900, 7+200, 6+700, 6+000 – 6+400, 5+200 – 5+700 The Widawa River	Entomologist Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the entomologist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.37.9] At the sections at km: 3+000 - 3+100, 3+300 - 3+500 and 4+100 - 4+900 of the Widawa River - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified as o-34, o-35, o-36 and o-111). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km: 3+000 – 3+100, 3+300 – 3+500 and 4+100 – 4+900 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.37.10] In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions of Caterpillar Moth (identified as o-37, o-38, o-105, o-106, o-110, o-111, o-112) located at km 3+200 - 3+400, 3+900, 7+200, 6+700,	km 3+200 – 3+400, 3+900, 7+200, 6+700,	Entomologist Report / Contractor's Report ¹ - confirmed by the	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	7+200, 6+700, 6+000 - 6+400, 4+900 - 5+100, 5+200 - 5+700 of the Widawa River and transfer to a habitat being appropriate for the species.	6+000 – 6+400, 4+900 – 5+100, 5+200 – 5+700 The Widawa River	Engineer ²		Once a month during works realization	Engineer
Flora and fauna	[1.2.37.11] At the sections at km 4+600 - 5+300 of the Widawa River - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as 0-111). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).	km 4+600 – 5+300 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[1.2.37.12] At the section at km 3+400, 3+300, 3+050 - 3+200, 3+500 of the Widawa River - do not fell / cut down trees constituting the habitat of Great Capricorn (identified respectively as o-39, o-40, o-41, o-42). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.	km 3+400, 3+300, 3+050 – 3+200, 3+500 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[1.2.37.13] Within the places of occurrence of amphibians identified as the following habitats: p-68 (km 3+800 - 4+000 within the River), p-126 (km 6+700 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats	km 3+800 – 4+000 km 6+700	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Fauna	[I.2.37.14] At the section at km 4+000 - 6+100 of the Widawa River, within the place of occurrence of amphibians (identified as the habitat no. p-108) and reptiles (identified as the habitat no. g-97) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. Use the existing network of roads and the technological road designated at the route of the embankment for transportation purposes.	km 4+000 – 6+100 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.37.15] Within the places of occurrence of reptiles identified as the following habitats: g-107 (km 4+000 within the River), g-126 (km 6+800 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 4+000 km 6+800	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.37.16] At the sections at km 3+400 - 4+000, 4+900 - 5+900 and 7+100 of the Widawa River within the habitats of Red-backed Shrike (identified as p-160, p-170, p-173, p-178, p-179) - conduct works at the land-side of the embankment and do not locate technological routes, parking lots for machines and equipment as well as storage sites at the land-side of the embankment.	km 3+400 - 4+000, 4+900 – 5+900 and 7+100 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
WFS structure no.19 Paniowice – embankment demolition						
Flora	[I.2.38.1] Conduct the demolition of fences at km around 2+700 of the Widawa River with no interference in the patches of the following habitat - Old River beds and natural eutrophic water reservoirs 3150 (identified as h-39 and h-40).	km ca. 2+700 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora and fauna	[I.2.38.2] Limit places of the demolition within the embankment to the areas in the proximity of which mid-forest paths go (as they will serve as access roads as well as routes of transportation of materials from the demolition site).	Entire section of embankmen t	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor
					Once a month during works realization	Engineer
Flora and fauna	[I.2.38.3] Conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m ³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.5 m ³).	Entire section of embankmen t	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor
					Once a month during works realization	Engineer
Flora	[I.2.38.4] Limit all the required felling / cutting only to trees and shrubs growing at the embankment at places of its demolition, without disturbing the habitat, including trees being adjacent to the embankment.	Entire section of embankmen t	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.2.38.5] Exclude sections of the embankment at km around 0+500, 1+600, 2+200, 2+250 of the Widawa River within and in the direct vicinity of the positions of Lily of the Valley and Yellow Water-lily out of the demolition.	km ca. 0+500, 1+600 2+200, 2+250 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Fauna	[I.2.38.6] Within the places of occurrence of amphibians identified as the following habitats: p-25 (km 2+700 within the River), p-31 (km 1+600 - 1+300 within the River), p-33	km 2+700 km 1+600 – 1+300	Environmental Specialists Report /	Before Works commencement. During entire	Once a month during works realization	Contractor with participation of the zoologist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	(km 0+000 within the River), p-28 (km 0+000 within the River), p-29 (km 0+000 within the River), p-116 (km 0+000 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 0+000	Contractor's Report ¹ - confirmed by the Engineer ²	period of works realization.	Once a month during works realization	Engineer
Fauna	[I.2.38.7] Within the places of occurrence of amphibians identified as the following habitats: p-111 (km 2+100 - 3+000 within the River), p-113 (km 0+000 - 1+300 within the River), p-114 (km 0+000 - 1+800 within the River), p-115 (km 0+000 within the River), conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m ³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.5 m ³).	km 2+100 – 3+000 km 0+000 – 1+300 km 0+000 – 1+800 km 0+000	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.38.8] Within the places of occurrence of reptiles identified as the following habitats: g-34 (km 1+600 - 1+ 700 within the River), g-37 (km 2+700 within the River), g-109 (km 0+000 within the River), g-110 (km 0+000 within the River), g-113 (km 0+000 within the River), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.	km 1+600 – 1+ 700 km 2+700 km 0+000	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer
Fauna	[I.2.38.9] Within the places of occurrence of reptiles identified as the following habitats: g-102 (km 0+000 - 1+800 within the River), g-103 (km 0+000 - 1+300 within the River), g-104 (km 0+000 within the River), g-106 (km 2+000 - 3+000 within the River), conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m ³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.5 m ³).	km 0+000 – 1+800 km 0+000 – 1+300 km 0+000 km 2+000 – 3+000	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the zoologist
					Once a month during works realization	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Flora and fauna	[I.2.38.10] At the section of the embankment at km 0+000 - 2+000 of the Widawa River - leave sections of the embankment located within old trees (the oldest tree stand) as well as over-grown with older tree units. Limit felling / cutting off trees and shrubs to the sections covered by the demolition. Do not remove greenery in the direct vicinity of the embankment.	km 0+000 – 2+000 The Widawa River	Environmental Specialists Report / Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Once a month during works realization	Contractor with participation of the environmental specialist
					Once a month during works realization	Engineer
Flora and fauna	[I.3.1.1] Do not locate the background facilities of construction sites and manoeuvring places at the areas at which the occurrence of protected natural habitats is inventoried, within mid-embankments and at a distance not shorter than 100 m from the existing water reservoirs and ponds, oxbow lakes and wetland areas.	Concerns all contract's structures	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement, During entire period of works realization	Once a month during implementation	Contractor
	[I.3.1.2] Organise the construction site taking into account the principles of minimising the occupation of lands.				Once a month	Engineer
	[I.3.1.3] Locate technological routes at a distance not shorter than 100 m from water reservoirs, ponds and oxbow lakes.					
	[I.3.1.4] Plan all the works consisting in the regulation, streamlining and strengthening the river-bed of the Widawa River only at sections under the re-built bridges and 50m sections below and above the bridges.					
Soil protection	[I.3.1.5] Determine the manner of dealing with wastes and earth masses generated at the stage of implementation of the investment considering the terms and conditions included in point I.2.1.48-I.2.1.50 of the environmental decision.	Concerns all contract's structures	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement, During entire period of works realization	Before works commencement, Once a month during implementation	Contractor
Surface water protection	[I.3.1.6] Determine the manner of drainage of foundation ditches under the embankment culverts considering the recommendations indicated in point I.2.1.55.				Once a month	Engineer

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Noise protection	[I.3.1.7] Apply the so-called "quiet surface" at the re-constructed bridge structures ensuring the reduction of the level of noise.					
Surface water protection	[I.3.1.8] Determine the manner of drainage of bridge structures considering the conditions indicated in point I.2.3.7, I.2.4.6, I.2.6.5, I.2.19.6, and I.2.20.5.	Concerns all contract's structures	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement, During entire period of works realization	Before drainage commencement	Contractor
					Before drainage commencement	Engineer
Impact on surrounding areas	[I.3.1.9] Determine the manner of conducting works at the bridge structures, minimising their negative impact onto the adjacent areas - considering the terms and conditions specified in point I.2.3.4, I.2.4.4, I.2.6.2, I.2.7.2, I.2.19.4, I.2.20.3, I.2.21.3	Concerns all contract's structures	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement, During entire period of works realization	Before Works commencement	Contractor
					Before Works commencement	Engineer
Impact on surrounding areas	[I.3.1.10] Determine the manner of embedding / seating of bridge structures considering the terms and conditions specified in point I.2.3.5, I.2.4.5, I.2.6.3, I.2.7.3, I.2.19.5, I.2.20.4.	Concerns all contract's structures	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement, During entire period of works realization	Before Works commencement	Contractor
					Before Works commencement	Engineer
Surface water protection	[I.3.1.11] Determine the manner of dealing with pumped-out waters considering the terms and conditions specified in I.2.2.8, I.2.3.6, I.2.4.6, I.2.6.4, I.2.7.40.	Concerns all contract's structures	Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement, During entire period of works realization	Before Works commencement	Contractor
					Before Works commencement	Engineer
Flora and fauna	[I.3.2.1] At the section at km 4+000 up to km 6+100 of the Widawa River - design the embankment route north off the patch of a mosaic of the following habitats: oak-hornbeam forests 91F0 and oak, elm, ash Riverine forests 91F0 (identified as h-34) at a distance exceeding 5 m off the edge of the above-specified habitat.	WFS 44.10 km 4+000 do km 6+100 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Before Works commencement	Contractor with participation of the environmental specialist
					Before Works commencement	Engineer
Flora and fauna	[I.3.2.2] At the section at km 3+200 up to 3+500 of the Widawa River - design the route of the embankment north off the patch of a mosaic of the following habitats: oak, elm, ash Riverine forests 91F0 and willow, poplar, alder and ash	WFS 44.10 km 3+200 to km 3+500 The Widawa	Environmental Specialists Report/ Contractor's	Before Works commencement. During entire period of works	Before Works commencement	Contractor with participation of the environmental

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
	carr *91E0 (identified as h-36) at a distance exceeding 5 m off the edge of the above-specified habitat.	River	Report ¹ - confirmed by the Engineer ²	realization.		specialist
					Before Works commencement	Engineer
Flora and fauna	[I.3.6.1] At the sections at km 8+700 and 9+000 - 9+500 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-66, o-71, o-72, o-67, o-68) - apply prefabricated walls made of T or L elements for the construction of the embankment.	WFS 44.17 km 8+700 and 9+000 – 9+500 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Before Works commencement	Contractor with participation of the environmental specialist
					Before Works commencement	Engineer
Flora and fauna	[I.3.7.1] At the section at km 5+500 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-120) - apply prefabricated walls made of T or L elements for the construction of the embankment.	WFS 44.18 km 5+500 The Widawa River,	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Before Works commencement	Contractor with participation of the environmental specialist
					Before Works commencement	Engineer
Flora and fauna	[I.3.8.1] At the section at km 10+700 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-92) - apply prefabricated walls made of T or L elements for the construction of the embankment	WFS 44.7 km 10+700 The Widawa River	Environmental Specialists Report/ Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement. During entire period of works realization.	Before Works commencement	Contractor with participation of the environmental specialist
					Before Works commencement	Engineer
Flora and fauna	[I.3.9.1] At the sections at km 4+600 - 5+300, 3+900 and 5+200 - 5+700 of the Widawa River in order to protect the habitats of Hermit Beetle and Great Capricorn (identified as o-111, o-38 and o-112) - apply prefabricated walls made of T or L elements for the construction of the embankment.	WFS 44.10 km 4+600 – 5+300, 3+900 and 5+200 –	Environmental Specialists Report/ Contractor's Report ¹ -	Before Works commencement. During entire period of works realization.	Before Works commencement	Contractor with participation of the environmental specialist

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
		5+700 The Widawa River	confirmed by the Engineer ²		Before Works commencement	Engineer
Monitoring of all others WFS Structures of contract						
Environment/ Flora and fauna	[III.2.1] At the performance of the investment - conduct - with the participation of specialists - constant natural supervision considering the proper accomplishment of preventive and minimising measures in reference to the protected natural habitats as well as the species of fauna and flora. The supervision should include:	Concerns all contract's structures on whole section of embankmen ts	Environmental Specialists Report, Contractor's Report ¹ - confirmed by the Engineer ²	Before Works commencement, During entire period of works realization	Before Works commencement, Once a month during implementation	Environmental Specialists/ Contractor
	[III.2.1.1] Pre-implementation monitoring conducted by an entomologist in terms of the location of occurrence of (among others) places and populations of the protected species of insects.				Once a month	Engineer
	[III.2.1.2] Pre-implementation monitoring conducted by a chiropterologist in order to identify the potential living places of bats.					
	[III.2.1.3] Monitoring (by specialists in the field of zoology and botany) of the occupation of the area and the correctness of the executed works within and in the direct vicinity of the protected natural habitats as well as the habitats of the species of plants and animals.					
	[III.2.1.4] Supervision of an ichthyologist at the conduct of works at the section in the proximity of the habitat of occurrence of Ray-finned fish <i>Sabanejewia aurata</i> (1146).					
	[III.2.1.5] Supervision of a zoologist or herpetologist covering the monitoring of occurrence of amphibians and reptiles at the area(s) of the conducted building / construction works.					
	[III.2.1.6] In case of statement of low effectiveness of the introduced minimising measures in the course of such supervision, immediately develop appropriate modifications with the participation of specialists and implement them.					

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
Environment (flora)	[III.2.2] Every year at the peaks of growing seasons of the species - within 2 years from the time of moving plants - with the participation of a botanist - examine the state of the protected plants moved from the area of the investment.	Concerns all contract's structures on whole section of embankments	Specialist Report - botanist / Contractor's Report ¹ - confirmed by the Engineer ²	Every year for two years in May from the time of plant transfer	During works implementation - once a year after transfer; for 2 years During works implementation - once a year after transfer; for 2 years	Specialist botanist / Contractor Engineer
Environment (flora)	[III.2.3] For a period of 5 years at least from the completion of works at particular WFS structures - with the involvement of a specialist - phyto-sociologist - conduct the monitoring of the natural habitats. The monitoring should include: spatial range of these habitats, extent of their structure formation, state of their preservation, forms of degeneration, presence of characteristic species and observed changes of these features.	Concerns all contract's structures on whole section of embankments	Beneficiary's report - monitoring report	For five years from completion of works	Once a year, for 5 years after completion	Beneficiary (DZMiUW)
Environment (flora and fauna)	[III.2.4] For a period of at least 5 years from the completion of works at particular WFS structures - with the involvement of specialists in the field of botany and zoology - conduct the monitoring of the protected species of plants and animals covering the occurrence of the species and the conservation status of their populations. The monitoring should be conducted at growing seasons.	Concerns all contract's structures on whole section of embankments	Beneficiary's report - monitoring report	For five years from completion of works	Once a year, for 5 years after completion	Beneficiary (DZMiUW)
Environment (flora)	[III.2.5] For a period of at least 5 years from the completion of works at particular WFS structures within the investment - conduct - by trained people - annual monitoring of the occurrence of invasive plants, including thickets of Knotweed (<i>Reynoutria spp</i>). In case of observing the occurrence of any positions of invasive plants (shoots and seedlings) - take appropriate remedial measures to eliminate the identified positions and to prevent its further spread.	Concerns all contract's structures on whole section of embankments	Beneficiary's report - monitoring report	For five years from completion of works	Once a year, for 5 years after completion	Beneficiary (DZMiUW)
Environment (flora)	[III.2.6] Submit the results of the monitoring with the assessment and analysis carried out by specialists to the Regional Director of the Environmental Protection in Wroclaw till 31 January of every year following the year of observation.	Concerns all contract's structures on whole section of	Beneficiary's report - monitoring report	By 31 January, for 5 years after completion	Once a year by 31 January for 5 years after completion	Beneficiary (DZMiUW)

Item/ monitoring area	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored?	Monitoring frequency	By whom?
		embankments				
Residents safety	[III.3.1] Control of the marking	The entire Works Contract	Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Once a month during implementation	Engineer
Workers safety	[III.3.2] Protective equipment, H&S trainings, appropriate organization of the construction site	The entire Works Contract	Regular inspections during work Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Once a month during implementation	Contractor
					Once a month	Engineer
Illegal or excessive borrowing may damage archaeological or land resources	[III.3.3] Control of the construction site	The entire Works Contract	Regular inspections during work Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Once a month during implementation	Contractor
					Once a month	Engineer
Land acquisition	[III.3.4] Number of the plots obtained, formal and legal status of plots	The entire Works Contract	RAP Reports, table of change investigation	The entire period of Project implementation	Once a month during implementation	Engineer
					Once a month	Beneficiary (DZMiUW)
Archaeological artefacts	[III.3.5] Control of the construction site	The entire Works Contract	Regular inspections during work Contractor's report ¹ – confirmed by the Engineer ²	The entire period of contract implementation	Once a month during implementation	Contractor
					Once a month	Engineer

APPENDIX 3. MAIN POLISH LEGISLATION

According to national law the investment process in scope of environmental protection is regulated by among others the following acts and regulations:

1. Act of 3 October 2008 r. concerning popularization the environmental and its protection information as well as environmental impact assessment ("EIA Act"),
2. Act of 27 April 2001 - Environmental Protection Law ("EP Act");
3. Act of 16 April 2004 concerning nature conservation ("NC Act");
4. Act of 27 March 2003 concerning spatial planning and management;
5. Act of 7 July 1994 Construction Law ("Construction Law");
6. Act of 18 July 2001 - Water Law;
7. Act of 4 February 1994 r. Mining and Geological Law,
8. Act of 14 June 1960 r. Code of administrative procedures ("kpa");
9. Regulation of the Council of Ministers of 9 November 2010 on projects likely to significantly affect the environment this regulation replace Regulation of the Council of Ministers of 9 November 2004 (regulation EIA),
10. Act of 8 July 2010 concerning the preparation for the implementation of investments in flood protection structures.

APPENDIX 4. ENVIRONMENTAL DECISION

**EXTRACT****Regional Director
of the Environmental Protection
in Wrocław**

Wrocław, 31 January 2012.

WOOS.4233.1.2011.LCK

DECISION

Pursuant to article 71, clause 2 point 2, article 75, clause 1, point 1, letter "b" and clause 6 and 75 clause 1 point 1 letter "i" as well as 82 and article 85 clause 1 of the act dated 3 October 2008 *on sharing information about the environment and its conservation, public participation in environmental protection and environmental impact assessments* (Journal of Laws No. 199, item 1227 as amended) as well as paragraph 3, clause 1, point 54, 56, 61, 62 of the regulation of the Council of Ministers dated 9 November 2004 *on the types of projects which can significantly affect the environment and specific conditions for qualifying projects to prepare the environment impact assessment report* (Journal of Laws no. 257, item 2573 as amended) in reference to paragraph 4 of the regulation of the Council of Ministers dated 9 November 2010 *on projects which can significantly affect the environment* (Journal of Laws No. 231, item 1397) as well as article 104 of the act dated 14 June 1960 - the *Code of Administrative proceedings* (Journal of Laws of 2000, No. 98, item 1071 as amended), upon processing the application of the Lower Silesia Board of Amelioration and Water Structures in Wrocław located at 5 Jana Matejki Avenue in Wrocław, acting for and on behalf of the Lower Silesia Province, represented by the proxy - Michał Lenartowski,

I settle

the environmental conditions for the Works Contract involving the construction of structures and facilities of the flood-protection system of the city of Wrocław within the activities related to the Modernisation of the Wrocław Flood-way System (WFS), namely:

- 3. reconstruction and modernisation of the Odra - Widawa channel together with water over-flow mechanisms (damming and weir facilities),**

4. construction of the flood-protection embankments in the valley of the Widawa River together with a reconstruction of their road and railway bridges.

I. I specify

1. TYPE AND LOCATION OF IMPLEMENTING THE WORKS

CONTRACT:

The investment project under consideration involves a construction of structures and facilities of the flood-protection system of the city of Wrocław within the activities related to the modernisation of the Wrocław Flood-way System, namely: reconstruction and modernisation of the Odra-Widawa channel together with water over-flow mechanisms (damming and weir facilities) as well as a construction of the flood-protection embankments in the valley of the Widawa River together with a reconstruction of road and railway bridges. The Works Contract covers 37 structures. It will be implemented at the area of the City of Wrocław within the following housing settlements: Strachocin, Swojczyce, Kowale, Zgorzeliwsko-Gorlice, Zakrzow, Klokoczyce, Soltysowice, Polanowice, Psie Pole, Widawa and Swiniary, in the Wrocław district at the location of Wilczyce (the community of Długoleka) and in the Trzebnica district, Krzyzanowice, Psary, Szymanow, Szewce, Biskupice (the community of Wisznia Mala) and Panowice (the community of Oborniki Slaskie), at the area of Lower Silesia.

2. THE CONDITIONS ON UTILISATION OF THE LAND AT THE STAGE OF IMPLEMENTATION AND OPERATION OF THE WORKS CONTRACT, TAKING INTO SPECIAL ACCOUNT THE NEED TO PROTECT VALUABLE ENVIRONMENTAL ASSETS, NATURAL RESOURCES AND HISTORICAL SITES AND TO REDUCE NUISANCE TO THEIR NEIGHBOURING AREAS:

2.1. General recommendations (related to the overall project).

- 2.1.3 Prior to works substantial levelling works - take off the top of the humus soil layer (to the depth of 30 cm on average) and store in the vicinity of the area covered by the construction, in separate piles secured against drying and mixing with native rock, subject to the condition set out in point I.2.1.19.

- 2.1.4 Upon completion of earth works - use the taken-off over-load for forming slopes of the embankments intended for turf assessment: at the width of 5-10 metres along the embankment and within the reconstructed structures, at one side or both sides of the embankment - spread and level the previously taken-off humus. Within technological lines and places of storage (transport) of building materials - additionally execute all the tillage works: plating with discs, harrowing, fertilising and seeding grass mixtures in accordance with meadow habitats located closest to the site of re-cultivation.
- 2.1.5 Do not occupy lands adjacent to the area of implementation of the Works Contract beyond the existing communication system.
- 2.1.6 Do not locate background facilities of construction sites at areas covered with bushes and trees as well as within protected natural habitats.
- 2.1.7 Prior to starting works at particular structures within the Works Contract, with the participation of specialists in botany, plant sociology, and zoology, fence off valuable patches of natural habitats and positions of protected plants and animals which are adjacent to the set-out sites of works and designated for their preservation. Execute the fencing in such a manner which is visible for people performing building works and which prevents accidental intrusion into fenced-off patches of natural habitats and positions of plants and animals. Remove the fencing upon the completion of building works.
- 2.1.8 Reduce (as far as possible) the area of damage as a result of building works conducted within valuable natural habitats of species.
- 2.1.9 Modify the technology applied for construction / reconstruction of the embankments consisting in conducting works at the opposite side to natural objects, or alternatively - conducting works at the front or crest of the embankment.
- 2.1.10 Determine the location of technological routes and sites in a manner which ensures: preservation of protected natural habitats, positions and habitats of protected species, preservation of all the tree- and shrub-based vegetation occurring beyond the areas required to be occupied in reference to the modernisation of the existing embankments and construction of new ones.

- 2.1.11 At the determination of location of technological routes and sites at the areas located within the zone of implementation of the Works Contract, the following should be done:
- 2.1.11.1 keep all tree and shrub vegetation growing beyond the places required to be occupied in reference to the modernisation of the existing embankments and construction of new ones,
 - 2.1.11.2 set a precise location of technological routes and sites within the boundaries of the zone of implementation of the Works Contract - in co-operation with specialists in the field of zoology and botany, so as not to worsen the ecological status of natural objects located within the implementation.
- 2.1.12 Reduce (as far as possible) the minimum depth of excavations / trenches and shorten (as far as possible) the duration of works.
- 2.1.13 Within the mid-embankment - not to dig up local depressions with a surplus of ground from excavations / trenches.
- 2.1.14 Apply time constraints at the execution of works in connection with the requirements of conservation of valuable species of flora and fauna.
- 2.1.15 Apply the principle of protection of natural environmental elements which are important to maintain a proper state of ecological corridors at each of the WFS structures (coverage with woods and shrubs, water reservoirs, oxbow lakes, etc.).
- 2.1.16 Run the modernisation of bridges in a manner which ensures the ecological functionality for animals moving through the valley of the Widawa river (appropriate lighting, dry land at river-bank areas above average water levels, natural character of river-bank areas under the bridges).
- 2.1.17 Limit the felling of trees and shrubs to an absolute minimum and perform it within the period from 15 October to the end of February, subject to point I.2.1.16 and I.2.1.29.
- 2.1.18 In case of an intention of felling of trees with their breast height over 50 cm, directly prior to the felling, the following should be performed with the participation of specialists:
- entomologist - a control of the occupancy of these trees by protected species of beetles, such as: Great Capricorn Beetle *Cerambyx cerdo*, Hermit Beetle *Osmoderma eremita*,

- chiropterologist - a control of the presence of bats

In case of any collision of the planned works with the positions of the above-specified beetles and the need to cut down trees because of the technical and technological conditions - make a transfer of the above-mentioned animals to another place or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Make the transfer in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.

Consult and settle the detailed principles of conduct (on determining places to which appropriately felled fragments of trees will be transferred and a code of conduct with felled trees and particular species individuals) with an entomologist and include the settled solutions in the application (request) for issuing an approval for the destruction of habitats and animals.

In cases of statement of the presence of bats in trees to be felled, temporarily suspend felling and implement the chiropterologist's recommendations which are adequate to the current atmospheric situation and identified the species of bats.

2.1.19 Within the whole area of investment, secure all the trees and shrubs designated to be left (including the ones being habitats for Great Capricorn and Hermit Beetle against accidental damage by using the following methods:

- 2.1.19.1 make tree-trunk protection (e.g. made of planks) fully around tree trunks up to the level of 1.5 m at minimum,
- 2.1.19.2 make shields around shrubs (e.g. made of planks) up to the level of 1.0 m at minimum,
- 2.1.19.3 make dig-outs / trenches at a distance of not less than 2 m from tree trunks,
- 2.1.19.4 do not store construction materials or solid / liquid waste which can alter the chemical characteristics of soil (e.g. salts, oils, fuels), or soil masses within the projection of tree crests,
- 2.1.19.5 execute earth works manually around skeletal roots. It is unacceptable to undercut skeletal roots,
- 2.1.19.6 in the period of hot weather, maximally reduce the time of exposure of roots to desiccation, while in the period of cold weather (frost) - to freezing.

- 2.1.20 Make dig-outs / trenches (conducted within the root systems of trees and shrubs) manually, if necessary, use drilling or jacking methods.
- 2.1.21 At places being designated as spots of potential occurrence of protected plant species, prior to the start of works - remove a top layer of soil with herbaceous vegetation growing on it and put it at a place secured against destruction - in order to make use of the layer during re-cultivation works. Consult and settle the details of dealing with a layer of soil with a specialist in the field of botany.
- 2.1.22 In case of any collision of the planned works with the positions of protected species of plants - re-plant the above-specified plants - to another place or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Conduct the re-planting in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.
- 2.1.23 Consult and settle the detailed principles of conduct with protected species of plant individuals specified in point I.2.1.20 (including a selection of technology and places of target re-planting) with a specialist in the field of botany and include the settled solutions in the application (request) for issuing an approval for the re-planting.
- 2.1.24 Prior to the start of construction works - conduct field inspection of places of execution of the works with the participation of a botanist or phyto-sociologist to locate places of occurrence and population of invasive plants (with the exception of Small-flowered Touch-me-not). After conspicuously locating and marking of places which are covered with invasive plants - take preventive measures during implementation of the investment, which will reduce the spread of those plants, including:
 - 2.1.24.1 take off a layer of humus with invasive plants and remove them from the area of the works for composting or dispose in any other effective manner. It is unacceptable to mix the humus with the native vegetated humus,
 - 2.1.24.2 train and supervise persons performing works related to the elimination of invasive plants.

- 2.1.25 In case of any collision of the planned works with the habitats of protected species of animals - make a transfer of the above-specified animals to another places or places being suitable in respect of habitat requirements of particular species or not threatening to cause losses in the resources of other protected species. Make the transfer in accordance with the terms and conditions specified in the decision of the competent authority issued on the grounds of article 56 of the act dated 16 April 2004 on nature protection.
- 2.1.26 Consult and settle the detailed principles of conduct with protected species of animals specified in point I.2.1.23 (including a selection of technology and places of target transfers) with a specialist in the field of zoology and include the settled solutions in the application (request) for issuing an approval for the animal transfer.
- 2.1.27 At the breeding sites of amphibians - plan construction works so that they should be conducted beyond the breeding season, namely beyond the period from 1 March up to 31 August. Depending on particular species occurring in water bodies (reservoirs) it is allowed to shorten the period referred to above upon consulting a specialist herpetologist. In case of failure to conduct the works beyond the period specified above, it is allowed to make use of solutions securing against the mortality (as a result of the conducted works and traffic) of animals travelling to and from breeding grounds. Technical solutions (e.g. fencing of construction sites with fences or use of traps in the form of grooves in the ground) to perform at sections with their length corresponding to the length of breeding amphibians places and the length not less than 150 meters from the boundaries of these places. Detailed technological and location solutions and principles of handling amphibians to be agreed with a specialist in the field of herpetology.
- 2.1.28 The application of methods securing water chambers, trenches, collectors etc. prior to the confinement of minor mammals, amphibians and reptiles within them. Therefore, these components (elements) should be designed to allow individual animals to get out of these structures. If this is impossible, these structures should be secured against the possibility of falling by animals or - at the stage of implementation - these elements should be monitored daily with trapped animals got out and transported beyond the site of works.

- 2.1.29 In the vicinity of especially environmentally valuable areas (within any protected areas, forests) - plan any works with their highest noise level in autumn and winter months (second half of October - end of February). Noise caused in the period from March up to July should not exceed 50 dB at a distance of 100 m from the site of works. Also due to the noise, in the period from April to October, any works should not be conducted at night in the vicinity of feeding of bats (large patches of trees, forests, water reservoir) - Greater Mouse-Eared Bat (*Myotis myotis*), Bechstein's bat (*Myotis bechsteinii*), Pond Bat (*Myotis dasycneme*) and Barbastelle Bat (*Barbastella barbastellus*).
- 2.1.30 In order to protect valuable and rare species of birds (Corn Crake, Lapwing, Eurasian Bittern, Marsh-harrier) - conduct any works with the highest noise levels, planned within and in the close vicinity of their habitats in the period from October to March.
- 2.1.31 Reduce (as far as possible) felling / cutting down blackthorn brushwood (no grubbing) and perform between 15 July and 15 August under the supervision of specialists: ornithologist and entomologist.
- 2.1.32 Start works and grubbing bush roots at the positions of cut blackthorn brushwood referred to in point I.2.1.29 at the earliest after 15 September and end by 15 March. Conduct construction / building works at a distance up to 100 m from the blackthorn brushwood - at day-time and with natural lighting only.
- 2.1.33 In case of no possibility to conduct the activities specified in point 2.1.29 and 2.1.30, perform felling / cutting down under the supervision of a specialist - entomologist. In case of finding eggs of Caterpillar Moth at blackthorn brushwood planned for felling / cutting down, move the felled / cut-down shrubs with eggs (in agreement with an entomologist) to a place ensuring the completion of their development cycle.
- 2.1.34 Mow the area occupied to construct the embankment - within the found sites and potential habitats of Scarce Large Blue Butterfly *Phengaris Teleius* and Dusky Large Blue Butterfly *Phengaris Nausithous*, in particular within their habitats (identified as o-109 and o-119 in the Report), one year prior starting the works, in the period from early June to late September, once a month. Mow at the height of not more than 10cm. Perform the mowing in the manner specified above (prior to the proceeding works) also in the following year (after starting the works).

- 2.1.35 All works relating to execution of activities minimising adverse impact of the investment onto the environment - to be performed under constant environmental supervision run by competent specialists , considering the following principles:
- 2.1.33.1 on the basis of the conducted implementation-based monitoring, summary reports should be prepared, confirmed by specialists and submitted to the present Body (Institution) at least twice a year,
 - 2.1.33.2 the last report on implementation monitoring should be prepared within 3 months from the date of completion of the investment.
- 2.1.34 Submit all the information about arrangements referring to the manner and scope of the conducted activities specified in I.2.1.5, I.2.1.16, I.2.1.20 - I.2.1.24 as well as documents confirming the participation of specialists (e.g. report on settlements and / or statement of specialists confirming the proper conduct of operations) to the Regional Director of the Environmental Protection in Wroclaw immediately upon making the settlements and / or implementation of these settlements.
- 2.1.35 Design and project access roads leading to the construction site along the existing ground and hardened roads.
- 2.1.36 Traffic of vehicles should run along technological routes. Shipments of machinery should be made as far as possible along fixed routes.
- 2.1.37 Upon termination of the construction works restore the places of temporary works to the previous state.
- 2.1.38 The technical state of working construction and transportation machines should be checked on a regular basis in order to eliminate the spillage of petroleum into the ground.
- 2.1.39 In case of occurrence of any failure in the scope of contamination with petroleum products, the ground contaminated by an accident must be removed immediately and pass to the appropriate bodies holding authorisation for its further development.
- 2.1.40 Any places designated for handling vehicles and machines must be periodically (until the completion) lined with insulating materials. Places for parking of vehicles should not be located: at the area where the Main Reservoir of Underground Waters GZWP-320 is located, at the area of the mid-embankment and directly by the slope of the flood protection embankment. Locate the background facilities of the construction site beyond the protective zone of under-ground water in-takes where the level of ground water is below 1.5 m below terrain level.

- 2.1.41 In the vicinity of machine garaging and filling there should a stand with sorbent serving to eliminate any leaks of petroleum substances.
- 2.1.42 Works at acoustically-protected areas should be performed at day-time only - namely between 6⁰⁰ and 22⁰⁰.
- 2.1.43 The construction site, access roads should be organised and maintained so as to minimise dusting and be located possible away from residential areas (in case of any works at areas near residential development, these works should be performed at daytime).
- 2.1.44 Places of storage of soil masses should be properly secured in order to reduce their dusting.
- 2.1.45 Do not allow long-term operation of internal combustion engines of machinery and construction vehicles at a standstill (limit emissions at the so-called stage of idling speed).
- 2.1.46 The execution of works should be organised taking into consideration the capabilities to conduct works synchronously at several locations spaced around 300 - 500 m from each other (one another), in a manner which minimises the aggregation of pollutant concentrations.
- 2.1.47 In the immediate vicinity of residential buildings limit the number of machines working simultaneously at the given distance, in order to minimise direct impacts of emissions. Car parking lots should not be located in these areas.
- 2.1.48 Organise all the works in such a manner as to minimise the amount of generated wastes and reduce their negative impact on the environment. All the wastes generated at the implementation of the investment should be categorised and stored separately in containers or at places being enclosed and adapted for this purpose, under conditions which prevent dusting and dispelling light fractions, and their negative effects on the environment and to ensure their gradual delivery and acceptance by operators with appropriate authorisation for their further development .
- 2.1.49 Hazardous waste should be categorised and stored in designated containers placed at hardened and protected areas secured against access of third parties until their transfer to entities having the appropriate permission for their disposal.
- 2.1.50 Ground mass generated during the investment should be exploited in accordance with their intended use under existing legislation, taking into account the possibility of reuse to strengthen the rebuilt and upgraded floor protection embankments.

- 2.1.51 Social and domestic sewage must be collected in leak-proof, drain-less tanks and ensure that they are regularly collected by authorised bodies.
- 2.1.52 The implementation of the investment cannot cause - regardless of the level of water flows - increasing any flood risk of the areas located below the places covered by the application.
- 2.1.53 In the course of conducting the works there can no difficulties occurred in the manner of making use of the areas being adjacent to the projected Works Contract.
- 2.1.54 Rainfall waters from within the areas at the embankments (re-built and under construction) - prior to entering the river - should be treated with sedimentation in ditches or mechanically cleaned.
- 2.1.55 Waters from draining the foundation bottoms for the embankment culverts should be treated with sedimentation in ditches prior to entering the receiver - the river.
- 2.1.56 Any works should not be conducted at the period of intensive precipitation. Grooves preventing direct out-flows of contaminated waters into local trenches should be made.
- 2.1.57 Embed all the transported masses directly into the embankment body and compact them to the required indicators levels, with no their indirect unloading and storage.
- 2.1.58 At the stage of operation - ensure proper operation of machines and equipment for pre-treatment of rainfall waters discharged from communication facilities / structures.

2.2 Recommendations for the structure: the Odra - Widawa Transfer - Flap weir (the WFS structure no. 40).

- 2.2.1 At the stretch of the Channel at km 2+600 - 3+000, conduct building (construction) works at the opposite side of the over-flow in relation to the land patch being a mosaic of habitats - Cnidium meadows (*Cnidion dubii*, habitat code - 6440) and low-land and mountain fresh meadows used extensively (*Arrhenatherion elatioris*) (6510) (identified as h-54 in the report) as well as the position of Fen Violet (identified as f-1 in the report). Locate technological routes and storage places beyond within and in the direct vicinity of the above-specified habitats. It is allowed to conduct works required to build a flow-over at the side of the habitat, within a line up to 10 m from the structure under consideration.
- 2.2.2 At the stretch of the Channel at km 2+500 - 2+600 - do not conduct works within and in the direct vicinity of the habitat patch - willow, poplar, alder and ash carr within and in the direct vicinity of the 91E0* habitat (identified as h-55 in the Report).

- 2.2.3 Do not fell / cut down trees which are the habitat of Great Capricorn and Hermit Beetle located at km 2+700 of the Channel (identified as o-1 in the Report). Building / construction works should be performed beyond the projection area of tree crests forming the above-specified habitat. Within the boundaries of the area no storage sites and technological routes should be located as well. It is permitted only to make use of the existing roads (even if they are located within the projection area of tree crests).
- 2.2.4 At the section at km 2+200 - 2+800 of the Channel, within the places of occurrence of amphibians (identified as the positions no. p-1, p-2, p-3 and p-73 in the Report) and reptiles (identified as the positions no. g-2 and g-43 in the Report), building / construction works should be conducted beyond the above-specified positions. No storage sites and technological routes should be located within their boundaries.
- 2.2.5 At the sections at km 2+500 - 2+600 and km 2+700 of the Channel, do not locate any sites of storage of materials, technological routes and places of stoppage of machines / equipment in the direct vicinity of water reservoirs as well as within meadows constituting the breeding habitat of Eurasian Bittern, Grasshopper Warbler, Great Reed Warbler (at km 2+500 - 2+600 of the channel, at km 2+700 of the river). At km 2+500 - 2+600 of the channel, perform works at high noise levels at the period from 15 October up to the end of February.
- 2.2.6 Perform building / constructions works under the cover of a temporary shield raised up to the ordinate of 120.50 m above sea level at the side of the Odra river.
- 2.2.7 All the earth works should be conducted within retaining walls.
- 2.2.8 Drain water from trenches by means of pipelines beyond the temporary earth shield into the ditch (the existing ditch at the bottom of the inlet channel) and further to the Widawa river. At the inlet of the pipelines into the ditch - the so-called sumps - in order to reduce the speed of flow and to allow sediment of suspensions.

2.3 Recommendations for the structure: Reconstruction of the road bridge (the WFS structure no. 41.1 - the Strachocinski Bridge)

- 2.3.1 Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge and in case of the construction of a temporary bridge within a line not exceeding 10 m from this bridge.
- 2.3.2 Do not locate storage sites and parking lots of building / construction machines in the mid-embankment.

- 2.3.3 Execute the strengthening of the channel bottom and slopes with gabions only at the projection of a road lane. Apply stone coverage at other sections.
- 2.3.4 All the earth works should be conducted within retaining walls.
- 2.3.5 Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.
- 2.3.6 Discharge waters pumped out of trenches by means of pipelines to the existing ditch at the bottom of the channel. Execute sumps at the outlet of the pipelines. Such method of draining of trenches as well as discharging of waters will maximally reduce its impact onto adjacent areas.
- 2.3.7 Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, waters should be pre-cleaned in the settler with its capacity of 3.5 m³ and lamella separator (clarifier) with its flow from 10 up to 100 dm³/s.

2.4 Recommendations for the structure: Reconstruction of the railway bridge (the WFS structure no. 41.2 - the Strachocinski Bridge)

- 2.4.1 Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge.
- 2.4.2 Do not locate storage sites and parking lots of building / construction machines in the mid-embankment.
- 2.4.3 Execute the strengthening of the channel bottom and slopes with gabions only at the projection of a road lane. Apply stone coverage at other sections.
- 2.4.4 Secure the railway embankment in the course of conducting earth works. All the earth works should be conducted within retaining walls.
- 2.4.5 Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.
- 2.4.6 Discharge waters pumped out of trenches by means of pipelines to the existing ditch at the bottom of the channel. Execute sumps at the outlet of the pipelines. Such method of draining of trenches as well as discharging of waters will maximally reduce its impact onto adjacent areas.

2.5 Recommendations for the structure: Redevelopment of the channel (the WFS structure no. 41.3)

- 2.5.1 Do not conduct works at both river banks at the same time (leave one bank undisturbed with works conducted at the other bank).
- 2.5.2 At the time of temporary storage of extracted materials mined from the bottom of the channel - make a review of places projected for storage of newly-extracted materials and collect individuals of mussel reaching the top surface of excavated material. The collected individuals should be moved and released at places ensuring their safety (e.g. at sections of completed works related to the implementation of the Works Contract). Consult and develop the detailed method of reviewing, collecting and handling of individuals of mussel with the participation of a specialist in the field of zoology.
- 2.5.3 Do not use gabion baskets and mattresses to strengthen the channel bottom and slopes (apart from sections under re-built bridges as well as within and in the immediate vicinity of the weir).
- 2.5.4 Form the new river-bank slopes in a manner which ensures the variation of the course of the line, height and tilt of these river-bank slopes, formation of creeks and bays within these river-banks as well as enabling the development of communities of river-bank vegetation at some of their slopes. Consult and develop detailed solutions in terms of location, design and technology - in consultation with specialists in the field of zoology (including ichthyology and ornithology) as well as botany - plant sociology.

2.6 Recommendations for the structure: Reconstruction of the road bridge named after B. Krzywousty (the WFS structure no. 42.1)

- 2.6.1 Do not locate storage sites and technological routes at the section of the Widawa river at km 17+250 - 19+400 within the mid-embankment, within the patch of the habitat - Cnidium meadows 6440 (identified as h-63 in the Report) as well as the location of Fen Violet (identified as f-8 in the Report). Execute the works at the line not exceeding 10 m from the bridge.
- 2.6.2 All the earth works should be conducted within retaining walls.
- 2.6.3 Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.
- 2.6.4 Discharge waters pumped out of trenches by means of pipelines to the existing ditch at the bottom of the channel. Execute sumps at the outlet of the pipelines. Such method

of draining of trenches as well as discharging of waters will maximally reduce its impact onto adjacent areas.

- 2.6.5 Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, water from the (northern and southern) bridge structures should be pre-cleaned in the settlers with their capacity of 3.5 m³ each and lamella separators with their flow from 15 up to 150 dm³/s each.

2.7 Recommendations for the structure: Reconstruction of the railway bridge named after B. Krzywousty (the WFS structure no. 42.1.1)

- 2.7.1 Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge.
- 2.7.2 All the earth works should be conducted within retaining walls.
- 2.7.3 Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.
- 2.7.4 Discharge waters pumped out of trenches by means of pipelines to the existing ditch at the bottom of the channel. Execute sumps at the outlet of the pipelines. Such method of draining of trenches as well as discharging of waters will maximally reduce its impact onto adjacent areas.

2.8 Recommendations for the structure: The Channel - the new right-bank embankment (WFS structure no. 44.1)

- 2.8.1 Do not conduct building / construction works, do not locate storage sites and technological routes at the section of the Channel at km 0+000 - 1+300 within the mid-embankment, within the patch of the habitat - Cnidium meadows 6440 (identified as h-57 in the Report). Perform the construction of the embankment from its land-side.

2.9 Recommendations for the structure: The Channel - the new left-bank embankment (WFS structure no. 44.11)

- 2.9.1 Do not conduct building / construction works at the section of the Channel at km 1+900 within and in the direct vicinity of the patch of the habitat - Old river beds and natural eutrophic water reservoirs 3150 (identified as h-56 in the Report).
- 2.9.2 At km 0+000 - 1+300 of the Channel within the mid-embankment, within the patch of the habitat - Cnidium meadows 6440 (identified as h-57 in the Report) and the position of Fen Violet (identified as f-2 in the Report) - do not perform building /

construction works, do not locate storage sites and technological routes. Perform the construction of the embankment from its land-side.

- 2.9.3 At the section at km 1+900 of the Channel, within the place of occurrence of amphibians (identified as the habitat no. p-5 in the Report), building / construction works should be performed beyond the above-specified position. No storage sites and technological routes should be located within the boundaries of the position.
- 2.9.4 At the section at km 1+700 of the Channel, within the place of occurrence of amphibians (identified as the habitat no. p-6 in the Report), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.9.5 At the section at km 2+000 of the Channel, within the place of occurrence of reptiles (identified as the habitat no. p-44 in the Report), building / construction works should be performed beyond the above-specified position. No storage sites and technological routes should be located within the boundaries of the position.
- 2.9.6 At the section at km 1+800 of the Channel, within the place of occurrence of reptiles (identified as the habitat no. p-3 in the Report), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.9.7 At the section at km 1+700 and 1+900 of the Channel, do not perform works, do not locate technological routes and parking lots of machines and equipment, do not store materials within meadows and brushwood constituting the breeding habitat of Red-backed Shrike and Great Reed Warbler overgrowing old river beds at the land-side.

2.10 Recommendations for the structure: Swojczyce - the new embankment (WFS structure no. 44.12)

- 2.10.1 At the section at km 0+000 - 1+300 of the Channel within the mid-embankment, within the patch of the habitat - Cnidium meadows 6440 (identified as h-57 in the

- Report) - do not conduct building / construction works, do not locate storage sites and technological routes. Perform the construction of the embankment from its land-side.
- 2.10.2 At the section at km 20+100 - 20+250 of the Widawa river, at the direct vicinity of the position of Dusky Large Blue and Scarce Large Blue (identified as o-11 in the Report), perform building / construction works only at the land-side of the embankment (alternatively - at its front). Do not occupy land within the mid-embankment. Locate storage sites and technological routes beyond the area of the above-specified position.
- 2.10.3 At the section at km 20+100 - 20+400 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-82 in the Report), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.10.4 At the section at km 20+100 - 20+400 of the Widawa river, within the place of occurrence of reptiles (identified as the habitat no. g-5 in the Report), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.10.5 At the sections at km 0+500 of the Channel and at km 20+200, 20+400, 20+500, 20+600 of the Widawa river, do not perform works within brushwood constituting the breeding habitat of Red-backed Shrike, do not locate technological routes and parking lots of machines and equipment, do not store materials.

2.11 Recommendations for the structure: Kowale - the new embankment (WFS structure no. 44.13)

- 2.11.1 At the section at km 17+250 - 19+400 of the Widawa river, within the patch of the habitat - Cnidium meadows 6440 (identified as h-63 in the Report) and the position of Fen Violet (identified as f-8 in the Report), execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological

routes at the sections intersecting the above-specified habitats at the embankment crest; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitats.

- 2.11.2 At km around 17+400 of the Widawa river, in the direct vicinity of the position of Hermit Beetle (identified as o-14 in the Report) building / construction works should be conducted beyond the projection area of tree crests. Do not locate storage sites and technological routes within the boundaries of the area.
- 2.11.3 Do not clear melioration ditches at the sections at km 19+500 - 20+000, 19+100 - 19+300, 19+000 - 19+100, 17+500 - 19+000 of the Widawa river.
- 2.11.4 At the section at km 19+100 - 19+300 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-55 in the Report), building / construction works should be performed beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat.
- 2.11.5 At the section of the embankment at 17+200 - 19+400 of the Widawa river, within the places of occurrence of amphibians (identified as the habitat no. p-87 in the Report) and reptiles (identified as the habitat no. g-11 of the Report) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) towards the embankment base. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.11.6 At the section at km 19+200 - 19+400 of the Widawa river, within the place of occurrence of reptiles (identified as the habitat no. g-7 in the Report), building / construction works should be performed beyond the above-specified position. No storage sites and technological routes should be located within the boundaries of the position.
- 2.11.7 Do not locate technological routes and parking lots of machines and equipment, do not store materials within meadows and shrubs constituting the breeding habitat of Red-backed Shrike, Great Reed Warbler and Stone-chat within the places of occurrence of

birds identified in the Report as: p-68 (at km 18+200 of the river), p-71 (at km 17+700 of the river), p-67 (at km 18+300 of the river), p-66 (at km 18+500 of the river), p-69 (at km 18+100 of the river), p-70 (at km 18+000 of the river). Perform all the works at the land-side within a line not exceeding 30 m from the embankment.

2.12 Recommendations for the structure: Kowale - modernisation of the embankment (WFS structure no. 45.6).

- 2.12.1 At the section at km 19+500 - 20+200 of the Widawa river, within the patch of the habitat - Cnidium meadows 6440 (identified as h-62 in the Report) and the positions of Fen Violet (identified as f-5 in the Report) - perform all the works within the mid-embankment only at a line of the existing ground road running at the route of the projected embankment. Locate places of storage of materials as well as technological routes only at the land-side of the embankment.
- 2.12.2 At the section at km 20+100 - 20+250 of the Widawa river, at the direct vicinity of the position of Dusky Large Blue and Scarce Large Blue (identified as o-11 in the Report), perform building / construction works only at the land-side of the embankment (alternatively - at its front). Do not occupy land within the mid-embankment. Locate storage sites and technological routes beyond the area of the above-specified position.
- 2.12.3 Do not clear melioration ditches at the sections at km 19+500 - 20+000, 19+100 - 19+300, 19+000 - 19+100, 17+500 - 19+000 of the Widawa river.
- 2.12.4 At the section at km 19+500 - 20+400 of the Widawa river, within the places of occurrence of amphibians (identified as the habitats no. p-49 and p-82 in the Report) and reptiles (identified as the habitats no. g-5 and g-6 in the Report) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.12.5 At the sections at km 20+100, 19+800, 19+600 of the Widawa river - do not locate technological routes and parking lots of machines and equipment, do not store materials within meadows and bushes constituting the breeding habitats of Red-backed Shrike and Grasshopper Warbler.

2.13 Recommendations for the structure: Wilczyce - the new embankment (WFS structure no. 44.2).

- 2.13.1 At the sections at km 22+100 - 22+300 and 22+800 - 23+000 of the Widawa river, within the place of occurrence of Ray-finned fish *Sabanejewia aurata* (identified as the habitat no. r-2 in the Report) - do not perform any works within the river-bed, even to secure concave river-banks in order to protect the embankments. Securing the embankments should be made with no interference within these river-banks (at their current state). Perform earth works and building / construction activities from the land only. Designate technological routes outside the mid-embankment only.
- 2.13.2 At the section at 23+000 - 24+000 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-41 in the Report) and reptiles (identified as the habitat no. g-46 of the Report) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front, at the same time limiting the area used in the course of building / construction works to lines of land with their width not exceeding 5 m from the embankment base. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.13.3 At the section at km 22+300 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-43 in the Report) and reptiles (identified as the habitat no. g-48), building / construction works should be conducted beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat.
- 2.13.4 At the sections at km 23+000, 20+700, 18+100 of the Widawa river, within the future mid-embankment, do not locate technological routes and parking lots of machines and equipment, do not store materials within the boundaries of the breeding habitats of Corn Crake and Grasshopper Warbler.
- 2.13.5 At the section at km 23+000 of the Widawa river, within the breeding habitat of Red-backed Shrike, do not locate technological routes and parking lots of machines and equipment, do not store materials. At the section of the embankment crossing the above-specified habitat, limit all the works together with felling / cutting down of trees and shrubs to the width of the embankment base (footing).

2.14 Recommendations for the structure: Modernisation of the embankment (WFS structure no. 45.5).

- 2.14.1 At the section at km 2+600 - 3+000 of the Channel, conduct building (construction) works at the opposite side of the over-flow in relation to the land patch being a mosaic of habitats - Cnidium meadows (*Cnidium dubii*, habitat code - 6440) and low-land and mountain fresh meadows used extensively (*Arrhenatherion elatioris*) (6510) (identified as h-54 in the report) as well as the position of Fen Violet (identified as f-1 in the report). Locate technological routes and storage places beyond within and in the direct vicinity of the above-specified habitats. It is allowed to conduct works required to build a flow-over at the side of the habitat, within a line up to 10 m from the structure under consideration.
- 2.14.2 At the section at km 2+500 - 2+600 of the Channel, do not conduct works within and in the direct vicinity of the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-55 in the Report).
- 2.14.3 At the section at km 2+700 - 3+000 of the Channel, within the place of occurrence of amphibians (identified as the habitat no. p-74 in the Report) and reptiles (identified as the habitat no. g-42 and g-43 in the Report), building / construction works should be conducted beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat.
- 2.14.4 At the sections at km 2+700, km 2+500, km 2+800 - 2+900, km 3+000 of the Channel, do not locate technological routes and parking lots of machines and equipment, do not store materials in the direct vicinity of water reservoirs and brushwood as well as at meadows constituting the breeding habitats of Grasshopper Warbler, Great Reed Warbler and Red-backed Shrike. Conduct all the works at the land-side of the embankment.

2.15 Recommendations for the structure: Wilczyce - modernisation of the embankment (WFS structure no. 45.2).

- 2.15.1 At the section at km 21+500 - 21+900 of the Widawa river, within the habitat patch - Cnidium meadows 6440 (identified as h-1 in the Report) - conduct all the works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified habitat.

- 2.15.2 At the section at km 21+500 - 21+750 of the Widawa river, within the position of Common Snowdrop (identified as f-3 in the Report), limit felling / cutting down of riverine trees and brushwood to the width of the embankment base. Locate technological routes only at the land-side of the embankment making use of the existing network of mid-field paths (roads) to the furthest possible extent. Locate places of storage of materials at the land-side of the embankment beyond the area of forest habitats.
- 2.15.3 At the sections at km 21+750, 21+700, 19+300 - 21+700 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-19, o-20 and o-27 in the Report). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.15.4 At the section at km 21+000 - 21+500 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-77 in the Report) and reptiles (identified as the habitat no. g-52 in the Report), building / construction works should be conducted beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat.
- 2.15.5 At the section at km 20+800 - 21+900 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-76 in the Report) and reptiles (identified as the habitat no. g-51 in the Report) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.15.6 At the sections at km 21+700 and 21+800 of the Widawa river, within the mid-embankment, do not locate technological routes and parking lots of machines and equipment, do not store materials in the breeding habitats of Grasshopper Warbler and River Warbler. Conduct all the works at the land-side of the embankment.

2.16 Recommendations for the structure: Modernisation of the embankment (WFS structure no. 45.1).

- 2.16.1 At km 0+000 - 1+300 of the Channel within the mid-embankment, within the patch of the habitat - Cnidium meadows 6440 (identified as h-57 in the Report) and the position of Fen Violet (identified as f-2 in the Report) - do not perform building / construction works, do not locate storage sites and technological routes. Conduct the construction of the embankment at the land-side of the embankment and beyond the area of the above-specified habitats.
- 2.16.2 At the section at km 0+000 - 1+300 of the Channel - plan refurbishment and transportation works in such a manner to bypass the position of French rose (*Rosa Gallica*).
- 2.16.3 At the sections at km 21+500, 21+700 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-9, o-8 in the Report). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.16.4 At the sections at km 0+500 of the channel and at km 21+400 of the Widawa river, within the mid-embankment, do not locate technological routes and parking lots of machines and equipment, do not store materials in the breeding habitats of Grasshopper Warbler and Corn Crake. Conduct works at the land-side of the embankment.

2.17 Recommendations for the structure: Demolition of the embankment (WFS structure no. 46.1)

- 2.17.1 At the section at km 1+900 of the Channel, within the place of occurrence of amphibians (identified as the habitat no. p-5 in the Report), building / construction works should be performed beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat.
- 2.17.2 At the section at km 1+700 of the Channel, within the place of occurrence of amphibians (identified as the habitat no. p-6 in the Report), perform building / construction works only within the embankment base, making use of the technology

of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.

- 2.17.3 At the section at km 2+000 of the Channel, within the place of occurrence of reptiles (identified as the habitat no. p-44 in the Report), building / construction works should be performed beyond the above-specified position. No storage sites and technological routes should be located within the boundaries of the position.
- 2.17.4 At the section of the embankment at km 1+800 of the Channel, within the place of occurrence of reptiles (identified as the habitat no. p-3 in the Report), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.17.5 At the section of the embankment at km 0+800 of the Channel, conduct the demolition of the embankment from the embankment front leaving shrubs at the land-side. Locate access roads and places of storage of materials at the land-side of the embankment beyond the boundaries of shrubs constituting the habitat of Red-backed Shrike.

2.18 Recommendations for the structure: Zgorzelisko (up to B. Krzywoustego Street) - the new embankment (the WFS structure no. 44.3).

- 2.18.1 At the section at km 20+500 - 21+000 of the Widawa river - do not perform building / construction works within and in the direct proximity of the habitat patch - old river beds and natural eutrophic water reservoirs 3150 (identified as h-3 in the Report).
- 2.18.2 At the sections at km 18+700 - 19+600 and 19+800 - 21+900 of the Widawa river, within the habitat patches - Cnidium meadows 6440 (identified respectively as h-7 and h-1 in the Report) - do not conduct building / construction works, do not locate storage sites and technological routes. Conduct the construction of the embankment at the land-side of the embankment and beyond the area of the above-specified habitats.
- 2.18.3 At the section at km 17+300 - 19+200 of the Widawa river, within the habitat patch - Cnidium meadows 6440 (identified as h-8 in the Report) - execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological

routes at the sections intersecting the above-specified habitat at the embankment crest; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.

- 2.18.4 At the section at km 20+400 - 21+200 of the Widawa river, within the habitat patch - willow, poplar, alder and ash carr (identified as h-2 in the Report), limit felling / cutting down of riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the embankment crest; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.18.5 At the section at km 17+300 - 17+500 of the Widawa river - conduct works at a distance exceeding 20 m from the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-9 in the Report).
- 2.18.6 At the section at km 19+500 - 20+700 of the Widawa river, within the habitat patch - low-land and mountain fresh meadows used extensively 6510 (identified as h-4 in the Report) - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the embankment crest; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.18.7 At the sections at km 19+200 - 19+400 and 20+500 - 21+000 of the Widawa river - locate all the building / construction works as well as storages of materials and technological routes at a distance not exceeding 15 m from the embankment so that not to cause damage at the positions of Yellow Water-lily and White Water-lily (identified as f-4 and f-7 in the Report).
- 2.18.8 At the section at km 19+500 - 20+000 of the Widawa river - locate all the building / construction works as well as storages of materials and technological routes at a

- distance not exceeding 20 m from the embankment so that not to cause damage at the position of Broad-leaved Helleborine (identified as f-6 in the Report).
- 2.18.9 At the sections at km 18+000, 19+500, 19+300 - 21+700 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified respectively as o-29, o-28 and o-27 in the Report). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.18.10 At the section at km 18+800 - 19+200 of the Widawa river, at the direct vicinity of the position of Dusky Large Blue and Scarce Large Blue (identified as o-33 in the Report), perform building / construction works only at the land-side of the embankment (alternatively - at its front). Do not occupy land within the mid-embankment. Locate storage sites and technological routes beyond the area of the above-specified position.
- 2.18.11 Do not clear melioration ditches at the sections at km 16+500, 16+200, 16+100 and 18+000 - 19+500 of the Widawa river.
- 2.18.12 Within the places of occurrence of amphibians identified in the Report as follows: p-125 (km 18+700 - 19+300 within the river), p-86 (km 19+300 - 19+800 within the river), p-8 (km 20+600 - 20+900 within the river), p-84 (km 19+700 - 20+600 within the river), p-51 (km 19+500 within the river), p-52 (km 19+400 within the river), p-54 (km 18+000 - 19+000 within the river), p-90 (km 17+300 - 17+500 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.18.13 Within the places of occurrence of amphibians identified in the Report as follows: p-76 (km 20+900 - 21+900 within the river), p-77 (km 21+000 - 21+500 within the river), p-79 (km 20+900 - 21+400 within the river), p-78 (km 20+400 - 21+400 within the river), p-9 (km 20+400 within the river), p-83 (km 20+000 - 20+400 within the river), p-85 (km 19+500 - 20+000 within the river), p-50 (km 19+000 - 19+100 within the river), p-53 (km 19+100 - 19+500 within the river), p-10 (km 18+800 - 19+100 within the river), p-88 (km 17+600 - 19+100 within the river), p-89 (km 17+200 -

18+000 within the river), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.

2.18.14 Within the places of occurrence of reptiles identified in the Report as follows: g-29 (km 18+700 - 19+300 within the river), g-30 (km 19+300 - 19+800 within the river), g-58 (km 20+600 - 20+900 within the river), g-60 (km 19+800 - 20+800 within the river), g-13 (km 19+600 within the river), g-14 (km 19+300 - 19+400 within the river), g-17 (km 18+000 - 19+000 within the river), g-20 (km 17+300 - 17+500 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.

2.18.15 Within the places of occurrence of reptiles identified in the Report as follows: g-51 (km 20+800 - 21+900 within the river), g-52 (km 21+000 - 21+500 within the river), g-53 (km 20+400 - 21+500 within the river), g-54 (km 20+400 - 21+500 within the river), g-59 (km 20+400 within the river), g-61 (km 19+800 - 20+800 within the river), g-63 (km 19+500 - 20+000 within the river), g-12 (km 19+600 within the river), g-15 (km 19+000 - 19+500 within the river), g-16 (km 19+000 within the river), g-18 (km 17+600 - 19+100 within the river), g-19 (km 17+200 - 18+000 within the river), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.

- 2.18.16 At the sections at km 23+000, 20+700, 18+100 of the Widawa river, within the mid-embankment, do not locate technological routes and parking lots of machines and equipment and do not store materials in the breeding habitat of Corn Crane.
- 2.18.17 At the section at km 20+100 of the Widawa river crossing the habitat of Grasshopper Warbler (identified as p-48 in the Report) - do not locate technological routes and parking lots of machines and equipment and do not store materials within the meadow habitat. Limit the territory used in the course of building / construction works to the embankment base area. At the remaining section of the embankment, in the region of crossing potential habitats of Grasshopper Warbler and Red-backed Shrike (at km 21+300, 20+400, 20+100, 19+000, 18+700, 18+200, 18+600 within the river) - conduct works at the land-side and perform felling / cutting down shrubs growing in the neighbourhood of the embankment only within a line of the embankment base.
- 2.18.18 At the section at km 20+600 of the Widawa river - conduct felling / cutting down trees within the habitat of Grey-headed Woodpecker (identified as p-38 in the Report) only within a line of the embankment.
- 2.18.19 At the section at km 20+700 of the Widawa river - do not locate technological routes and parking lots of machines and equipment, do not store materials and do not perform building / construction works within and in the direct vicinity of the old river-bed being the breeding habitat of Moorhen.
- 2.18.20 At the section at km 17+400 of the Widawa river - locate places of storage of materials, technological routes and parking lots of machines and equipment at the land-side of the embankment.

2.19 Recommendations for the structure: Reconstruction of the road bridge in the location of Widawa (the WFS structure no. 42.2)

- 2.19.1 Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge and possibly within a line not exceeding 10 m from the temporary bridge.
- 2.19.2 Do not locate storage sites and parking lots of building / construction machines in the mid-embankment.
- 2.19.3 Execute the strengthening of the channel bottom and slopes with gabions only at the projection of a road lane. Apply stone coverage at other sections.
- 2.19.4 All the earth works should be conducted within retaining walls.

- 2.19.5 Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.
- 2.19.6 Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, waters should be pre-cleaned in the settler with its capacity of 3.5 m³ and lamella separator (clarifier) with its flow from 10 up to 100 dm³/s.

2.20 Recommendations for the structure: Reconstruction of the Pegowski road bridge (the WFS structure no. 42.3)

- 2.20.1 At km 3+800 - 4+000 of the Widawa river, within and in the direct vicinity of patches of natural habitats - oak, elm, ash riverine forests 91F0 (identified as h-34, h-87, h-88 in the Report), willow, poplar, alder and ash carr *91E0 (identified as h-35 in the Report) and the positions of Broad-leaved Helleborine (identified as f-21 in the Report) - design technological routes in such a manner so that not to damage the above-specified patches making use of the existing network of roads to the furthest possible extent. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works at the area of the present mid-embankment (including possible felling / cutting down trees and shrubs) at a distance not exceeding 10 m from the reconstructed bridge. All the works should be performed in a manner which do not required to construct temporary bridges.
- 2.20.2 At the section at km 3+600 - 3+800 of the Widawa river - plan the access to the place of works in such a manner which does not destroy the breeding habitats of Red-backed Shrike. Locate all the storage sites beyond the area of these habitats as well as beyond the area of the current mid-embankment. Conduct all the works (apart from possible felling / cutting down trees and shrubs) within a line with its width not exceeding 10 m from the rebuilt bridge.
- 2.20.3 At km 3+800 - 4+000 of the Widawa river - conduct earth works within retaining walls.
- 2.20.4 Bridge abutments footed at piles should be executed in chambers made of sheet piling. The ordinate of sheet piles embedded into cohesive soils should ensure the tightness of a particular chamber.
- 2.20.5 Catch rainfall waters through rainwater drains with the tight (sealed) drainage system. Prior to discharging to the receiver, waters should be pre-cleaned in the settler with its

capacity of 3.5 m³ and lamella separator (clarifier) with its flow from 10 up to 100 dm³/s.

2.21 Recommendations for the structure: Reconstruction of the Pegowski railway bridge (the WFS structure no. 42.3.1).

- 2.21.1 At km 3+800 - 4+000 of the Widawa river, within and in the direct vicinity of patches of natural habitats - oak, elm, ash riverine forests 91F0 (identified as h-88, h-89), willow, poplar, alder and ash carr *91E0 (identified as h-35 in the Report) - design technological routes in such a manner so that not to damage the above-specified patches making use of the existing network of roads to the furthest possible extent. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works at the area of the present mid-embankment (including possible felling / cutting down trees and shrubs) at a distance not exceeding 10 m from the reconstructed bridge. All the works should be performed in a manner which do not required to construct temporary bridges.
- 2.21.2 At the section at km 3+600 - 3+900 of the Widawa river - project an access to the construction site in such a manner that not to damage the breeding habitats of Red-backed Shrike and Middle Spotted Woodpecker. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. Conduct works (including possible felling / cutting down trees and shrubs) within a line with its width not exceeding 10 m from the reconstructed bridge.
- 2.21.3 All the earth works should be conducted within retaining walls.

2.22 Recommendations for the structure: Increasing the capacity of the bridge over the Widawa river at the location of Psary (the WFS structure no. 43)

- 2.22.1 Conduct works (including: felling / cutting down trees and shrubs) only within a line not exceeding 10 m from the bridge and possibly within a line not exceeding 10 m from the temporary bridge.
- 2.22.2 Do not use mattresses and gabions to strengthen the bottom and slopes of the Old Widawa river.

2.23 Recommendations for the structure: Krzywoustego - the railway lines - the new embankment (the WFS structure no. 44.14)

- 2.23.1 At the section at km 16+900 - 17+200 of the Widawa river, within the place of occurrence of reptiles (identified as the habitat no. g-22 in the Report), perform building / construction works only within the embankment base, making use of the

technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.

- 2.23.2 At the section at km 16+900 - 17+100 of the Widawa river, locate storage sites, technological routes and parking lots beyond the area of meadows constituting the breeding habitat of Grasshopper Warbler. Conduct works at the land-side of the projected embankment in order to preserve these meadows at their intact state within the future mid-embankment.

2.24 Recommendations for the structure: Soltysowice (the embankment along the Inner-city Ring-road) (the WFS structure no. 44.15)

- 2.24.1 At the section at km 15+300 - 15+900 of the Widawa river within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of natural habitats - oak, elm, ash riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified as h-69 in the Report) as well as the positions of Broad-leaved Helleborine and Common Snowdrop - limit felling / cutting down of riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.24.2 At the section at km 15+300 - 16+300 of the Widawa river - execute culverts in the embankment to enable an inflow of water to the areas separated by the embankments so that not to change the existing ground and water conditions at riverine habitats. All the technological solutions should also allow a free outflow of water so as not to make the habitat swampy.
- 2.24.3 At the section of the Widawa river at km 16+300 - 16+500 - conduct works at a distance exceeding 20 m from the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-66 in the Report).
- 2.24.4 At the section at km 14+500 - 14+700 of the Widawa river, within and in the direct vicinity of the patch of the natural habitat - willow, poplar, alder and ash carr *91E0

(identified as h-70 in the Report) - limit felling / cutting down of riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.

- 2.24.5 At the section at km 13+400 - 14+100 of the Widawa river within and in the direct vicinity of the patch of a mosaic of natural habitats - low-land and mountain fresh meadows used extensively 6510 and Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 (identified as h-72 in the Report) as well as the positions of Southern adders-tongue - conduct the construction of the embankment at the land-side of the embankment. Organise technological routes and storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.24.6 At the section at km 13+000 - 13+400 of the Widawa river within and in the direct vicinity of the patch of a mosaic of natural habitats - low-land and mountain fresh meadows used extensively 6510 and Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 (identified as h-72 in the Report) - conduct the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.24.7 At the sections at km 14+000 - 14+500 and 16+000 - 16+800 of the Widawa river, within and in the direct vicinity of the patches of the following natural habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-71 and h-64 in the Report) - conduct the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified patches at the line of the embankment; then at the remaining

- section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified patches.
- 2.24.8 At the section at km 15+300 - 16+500 of the Widawa river within the future mid-embankment (within and in the direct vicinity of the positions of Grass Lily, Common Snowdrop and Scarlet cup) - limit felling / cutting down of riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified positions at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified positions (at a distance exceeding 20 m from the positions).
- 2.24.9 At the section at km 15+300 - 16+500 of the Widawa river, within the position of Scarlet cup - apply tolerably efficient protection of tree trunks (e.g. by means of the so-called geo-textile). All the earth works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time (any exposure of trees for drying or freezing of their root system elements should be avoided).
- 2.24.10 At the section at km 14+000 - 14+500 of the Widawa river - conduct works at a distance exceeding 10 m from the position of Giant puffball (identified as m-3 in the Report).
- 2.24.11 At the sections at km around 16+500 and at km around 15+650 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-43, o-44 in the Report). Building / construction works should be performed beyond the projection area of tree crests. Within the boundaries of the area no storage sites and technological routes should be located as well. It is permitted only to make use of the existing roads (even if they are located within the projection area of tree crest). Then it is required to apply protection of tree trunks (execute by-trunk shields made of planks).
- 2.24.12 Within the places of occurrence of amphibians identified in the Report as follows: p-60 (km 16+200 within the river), p-17 (km 16+100 within the river), p-16 (km 16+200 within the river), p-14 (km 16+700 within the river), p-15 (km 16+500 within the

river), p-59 (km 16+700 within the river), p-95 (km 15+300 - 16+900 within the river), p-63 (km 15+300 - 15+500 within the river), p-19 (km 15+700 within the river), p-18 (km 15+700 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.

- 2.24.13 Within the places of occurrence of amphibians identified in the Report as follows: p-59 (km 16+700 within the river), p-96 (km 15+000 - 16+100 within the river) and p-99 (km 13+000 - 14+500 within the river), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitats - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.24.14 Within the places of occurrence of reptiles identified in the Report as follows: g-64 (km 16+200 within the river), g-65 (km 16+100 within the river), g-66 (km 16+200 within the river), g-67 (km 16+600 - 16+800 within the river), g-68 (km 16+500 within the river), g-71 (km 16+500 - 16+700 within the river), g-72 (km 15+300 - 16+900 within the river), g-77 (km 15+600 within the river), g-78 (km 15+800 within the river), g-79 (km 15+800 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.24.15 Within the places of occurrence of amphibians identified in the Report as follows: g-69 (km 16+000 - 16+800 within the river), g-70 (km 16+600 - 16+800 within the river), g-80 (km 15+000 - 16+000 within the river), g-81 (km 12+900 - 14+500 within the river), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate

storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.

- 2.24.16 At the sections at km 16+700 and at km 16+600 of the Widawa river, within the habitats of Blue-throat and Great Reed Warbler, conduct all the works within a line of the embankment base or at the land-side of the future embankment. Locate technological routes, storage sites and parking lots at the land-side of the embankment.
- 2.24.17 At the section at km 16+500 of the Widawa river at the course of the embankment through the habitat of Common Rose-finch - conduct all the works within a line of the embankment base and locate storage sites and technological routes beyond the area of the above-specified habitat.
- 2.24.18 At the section at km 16+500 - 16+600 of the Widawa river, in the proximity of the breeding habitats of Western Marsh Harrier, Little Ringed Plover and Blue-throat, conduct building / construction works of the eastern part of the embankment at the settlers in Soltysowice in the period from 15 October up to the end of February.
- 2.24.19 Within the places of occurrence of Red-backed Shrike identified in the Report as follows: p-113 (km 13+500 within the river), p-122 (km 14+100 within the river), p-124 (km 13+500 within the river), p-126 (km 13+300 within the river), p-127 (km 13+200 within the river), p-128 (km 13+200 within the river), p-129 (km 13+300 within the river), p-132 (km 12+900 within the river), p-151 (km 14+000 within the river), p-78 (km 16+900 within the river), p-142 (km 11+500 within the river), p-143 (km 11+000 within the river), p-144 (km 10+800 within the river), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front. At the section of the embankment crossing the meadow habitat - conduct felling / cutting off trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.
- 2.24.20 At the section at km 13+300 - 13+400 of the Widawa river - do not conduct works, do not locate technological routes and parking lots of machines and equipment, do not store materials within meadows and bushes constituting the breeding habitat of Barred Warbler.

2.25 Recommendations for the structure: Polanowice - the new embankment (WFS structure no. 44.16)

- 2.25.1 At the section at km 12+500 - 12+600 of the Widawa river, within the patch of the following habitat - oak, elm, ash riverine forests 91F0 (identified as h-76) - conduct works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the water-side of the embankment and beyond the area of the above-specified habitat.
- 2.25.2 At the section at km 10+300 - 10+400 of the Widawa river, within the habitat patch - Cnidium meadows 6440 (identified as h-78 in the Report) - conduct all the works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified habitat.
- 2.25.3 At the section at km 9+900 - 10+200 of the Widawa river, within the patch of the following habitat - low-land and mountain fresh meadows used extensively 6510 (identified as h-79 in the Report) - conduct all the works at the water-side of the embankment. Locate places of storage of materials and technological routes beyond the area of the above-specified habitat.
- 2.25.4 Within the places of occurrence of amphibians identified in the Report as the following habitats: p-21 (km 12+200 - 12+700 within the river), p-105 (km 9+700 - 10+500 within the river) and reptiles identified in the Report as the following habitats: g-87 (km 12+200 - 12+600 within the river) and g-91 (km 9+800 - 10+500 within the river) - conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.25.5 At the section at km 10+300 and 17+200 of the Widawa river, within the breeding habitats of Great Reed Warbler, conduct works at the water-side within a line with its width not exceeding 30 m from the embankment.
- 2.25.6 Within the places of occurrence of Red-backed Shrike identified in the Report as follows: p-113 (km 13+500 within the river), p-122 (km 14+100 within the river), p-124 (km 13+500 within the river), p-126 (km 13+300 within the river), p-127 (km 13+200 within the river), p-128 (km 13+200 within the river), p-129 (km 13+300 within the river), p-132 (km 12+900 within the river), p-151 (km 14+000 within the river), p-78 (km 16+900 within the river), p-142 (km 11+500 within the river), p-143 (km 11+000 within the river), p-144 (km 10+800 within the river), perform building / construction works only within the embankment base area, making use of the technology of work from the embankment front. At the section of the embankment

crossing the meadow habitat - conduct felling / cutting off trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.

2.26 Recommendations for the structure: Prace Widawskie - the new embankment (WFS structure no. 44.17)

- 2.26.1 At the sections at km 8+700 and 9+000 - 9+500 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-66, o-71 and o-72 in the Report). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.26.2 At the sections at km 8+700, 9+000 - 9+500 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as o-67, o-68 in the Report). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.26.3 Within the places of occurrence of Red-backed Shrike and Barred Warbler identified in the Report as the following habitats: p-157 (km 8+700 within the river), p-158 (km 8+500 within the river), p-159 (km 7+700 within the river), p-161 (km 7+200 within the river), p-162 (km 7+250 within the river), p-156 (km 8+700 within the river) - perform felling / cutting down trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.

2.27 Recommendations for the structure: Prace Widawskie - demolition of the embankment (WFS structure no. 46.2).

- 2.27.1 At the sections at km 7+500 - 7+700, 7+200 - 7+300, 7+100, 7+200, 8+300 - 8+600, 8+700 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-74, o-75, o-76, o-60, o-61, o-63, o-64). Conduct all the building / construction works beyond the area of

shrubs and their direct vicinity. Within the boundaries of the area no storage sites and technological routes should be located as well.

2.28 Recommendations for the structure: Swiniary - modernisation of the embankment (the WFS structure no. 44.18)

- 2.28.1 At the section at km 3+900 - 4+200 of the Widawa river, within the patch of the following habitat - oak, elm, ash riverine forests 91F0 (identified in the Report as h-87) as well as the positions of Common Snowdrop - conduct all the works at the land-side of the embankment. Locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified habitat. Conduct all the works related to temporary occupation of land at the land-side of the embankment. Limit possible felling / cutting down of trees and shrubs to the width of the embankment base.
- 2.28.2 At the section at km 4+600 - 7+000 of the Widawa river within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of the following natural habitats - oak, elm, ash riverine forests 91F0 and oak-hornbeam forests 9170 (identified in the Report as h-82) as well as the positions of Common Snowdrop, Lily of the Valley and Broad-leaved Helleborine - limit felling / cutting down of riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.28.3 At the sections at km: 3+900, 4+600, 8+300 - 8+600, 8+700, 7+100 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-113, o-79, o-63, o-64, o-66, o-60 and o-76). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity. Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.28.4 In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions

- (identified in the Report as o-60 and o-76) located at km 7+100 of the Widawa river and transfer to a habitat being appropriate for the species.
- 2.28.5 At the section at km 5+500 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified as the habitats no. o-120 in the Report). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.28.6 Within the places of occurrence of amphibians identified in the Report as the following habitats: p-108 (km 4+000 - 6+100 within the river), p-24 (km 5+300 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.28.7 At the section at km 4+600 - 6+700 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-107 in the Report) and reptiles (identified as the habitat no. g-98 in the Report) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.28.8 Within the places of occurrence of reptiles identified in the Report as the following habitats: p-97 (km 4+000 - 6+000 within the river), p-99 (km 5+200 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.28.9 At the section at km 6+500 of the Widawa, within the breeding habitat of Lapwing - locate access roads and places of storage of materials at the water-side of the embankment.
- 2.28.10 At the section at km 4+600 - 6+100 of the Widawa river - conduct felling / cutting down trees within the habitat of Grey-headed Woodpecker, Black Woodpecker, Middle Spotted Woodpecker only within a line of the embankment base. At the

section at which the embankment runs through forest areas (at km 4+600 - 5+600 within the river) - conduct all the modernisation works from the embankment crest, then at the section where the embankment adheres the forest - at the water-side of the embankment (at km 5+600 - 6+100 of the river) - conduct works at the land-side of the embankment.

2.29 Recommendations for the structure: Krzywoustego - the railway lines, modernisation of the embankment (the WFS structure no. 45.3).

- 2.29.1 At the section at km 16+900 - 17+200 of the Widawa river, within and in the direct vicinity of the patch of the following habitat - willow, poplar, alder and ash carr *91E0 (identified in the Report as h-10) and the patch of a mosaic of the following habitats - low-land and mountain fresh meadows used extensively 6510 and Cnidium meadows 6440 (identified in the Report as h-11) - execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitats within a line of the embankment. Organise storage sites beyond the boundaries and beyond the vicinity of the above-specified habitats. Limit felling / cutting down of riparian trees and shrubs to the width of the projected embankment base.
- 2.29.2 At the section at km 16+900 - 17+200 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-92 in the Report) and reptiles (identified as the habitat no. g-22 in the Report) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.29.3 At the section at km 16+900 - 17+100 of the Widawa river, within the breeding habitat of Grasshopper Warbler - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front.

2.30 Recommendations for the structure: Psie Pole - the new embankment (the WFS structure no. 44.4).

- 2.30.1 At the section at km 16+600 - 16+800 of the Widawa river - do not perform building / construction works within and in the direct proximity of the patch of the following

habitat - Old river beds and natural eutrophic water reservoirs 3150 (identified as h-14 in the Report).

- 2.30.2 At the section at km 16+500 - 16+900 of the Widawa river, within the habitat patch - low-land and mountain fresh meadows used extensively 6510 (identified as h-4 in the Report) - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the section crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.30.3 At the section at km 16+500 - 16+900 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-93 in the Report) and reptiles (identified as the habitat no. g-25 in the Report) - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.30.4 At the section at km 16+500 - 16+700 of the Widawa river, within the breeding habitat of Grasshopper Warbler - perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Within the boundaries of the habitat - do not locate storage sites, parking lots of machines and equipment as well as technological routes.

2.31 Recommendations for the structure: Klokoczyce - the new embankment (the WFS structure no. 44.5).

- 2.31.1 At the section at km 15+100 - 16+500 of the Widawa river, within the patch of the following habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-18 in the Report) - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the section crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.

- 2.31.2 At the section at km 20+500 - 21+000 of the Widawa river - do not perform building / construction works within and in the direct proximity of the habitat patch - old river beds and natural eutrophic water reservoirs 3150 (identified as h-3 in the Report).
- 2.31.3 At the section at km 13+000 - 14+200 of the Widawa river, within and in the vicinity of the patch of the following habitat - Low-land and mountain fresh meadows used extensively 6510 (identified as h-19 in the Report) - do not locate technological routes and storage sites.
- 2.31.4 At the section at km 14+250 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-89). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.31.5 Within the places of occurrence of amphibians identified in the Report as follows: p-97 (km 14+600 - 16+500 within the river), p-101 (km 14+500 - 14+800 within the river), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological road designated at the route of the embankment should be used for transportation purposes.
- 2.31.6 Within the places of occurrence of amphibians identified in the Report as the following habitats: p-98 (km 16+000 - 16+400 within the river) p-61 (km 16+000 within the river) p-62 (km 15+900 within the river), p-102 (km 13+400 - 14+200 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.31.7 Within the places of occurrence of reptiles identified in the Report as follows: g-76 (km 15+100 - 16+500 within the river), g-82 (km 14+600 - 15+200 within the river), g-83 (km 14+500 - 14+800 within the river), conduct building / construction works only within the embankment base, making use of the technology of work from the

embankment front or from either side of the embankment (land-side or water-side) - not colliding with the habitat. At the section of the embankment crossing the habitat - perform building / construction works from the embankment front (at the same time reducing the area used in the course of building / construction works) to the embankment base area. Do not locate storage sites and technological routes within the boundaries of the habitats. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.

- 2.31.8 At the section at km 14+200 of the Widawa river - do not locate the places of storage of materials, technological routes and parking lots of machines and equipment within shrubs constituting the breeding habitat of Red-backed Shrike. The western end of the embankment should be executed in a manner which does not damage the above-specified habitat.
- 2.31.9 At the section at km 15+400 - 16+400 of the Widawa river, within the breeding habitats of Grasshopper Warbler and Corn Crake - conduct all the works within a line of the embankment base. Locate technological routes, storage sites and parking lots at the land-side of the embankment and beyond the above-specified habitats.
- 2.31.10 At the construction of the western end of the projected embankment - do not allow to damage the river banks and the existing water and rush vegetation being the breeding habitat of Great Reed Warbler (at km 14+300 - 14+500 within the river).
- 2.31.11 At the section at km 16+300 of the Widawa river, within the boundaries of a forest being the breeding habitat of Grey-headed Woodpecker - do not locate the places of storage of materials and parking lots of machines and equipment. Execute felling / cutting down of riparian trees and shrubs only within a line of the embankment base.

2.32 Recommendations for the structure: Krzyzanowice - the new embankment (the WFS structure no. 44.6)

- 2.32.1 At the section at km 12+200 - 12+500 of the Widawa river, within and in the direct vicinity of the patch of the following natural habitat - willow, poplar, alder and ash carr *91E0 (identified as h-20 in the Report) - execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct

vicinity of the above-specified habitat. Limit felling / cutting down of riparian trees and shrubs to the width of the projected embankment base.

2.32.2 At the section at km 13+100 of the Widawa river, within the habitat of Blue-throat - do not locate technological routes and parking lots of machines and equipment, do not store materials.

2.32.3 At the section at km 12+900 of the Widawa river, within the habitat of Red-backed Shrike - do not locate technological routes and parking lots of machines and equipment, do not store materials. Execute felling / cutting down of trees and shrubs only within a line of the embankment base.

2.33 Recommendations for the structure: Krzyzanowice - modernisation of the embankment (the WFS structure no. 45.4).

2.33.1 At the section at km 12+200 of the Widawa river, within the habitat of Red-backed Shrike (identified in the Report as p-133), conduct all the modernisation works at the land-side within a line with its width not exceeding 20 m from the embankment. Locate places of storage of materials and technological routes beyond the habitat.

2.34 Recommendations for the structure: Psary - the new embankment (the WFS structure no. 44.7)

2.34.1 At the section at km 11+300 - 11+400 of the Widawa river, within the future mid-embankment - do not conduct building and construction works within and in the direct vicinity of the patch of a mosaic of the following habitats - Old river beds and natural eutrophic water reservoirs 3150 and willow, poplar, alder and ash carr *91E0 (identified in the Report as h-22) as well as the positions of Common Snowdrop, Broad-leaved Helleborine, Yellow Water-lily and White Water-lily. Organise technological routes and storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified patch. For the duration of the construction it is required to secure shrubs and trees within banks of the above-specified old river-bed against damage.

2.34.2 At the section at km 10+700 - 10+800 of the Widawa river, within the patch of the following habitat - oak, elm, ash riverine forests 91F0 (identified in the Report as h-25) - limit felling / cutting down of riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections intersecting

- the above-specified habitat at the line of the embankment; then at the remaining section - at the land-side. Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.34.3 At the sections at km 10+000 - 10+700 and 11+600 - 11+800 of the Widawa river - conduct works at a distance exceeding 20 m from the patches of the habitat - willow, poplar, alder and ash carr *91E0 (identified as h-21 and h-26 in the Report).
- 2.34.4 At the sections at km 10+800 - 11+000 and 11+100 - 11+300 of the Widawa river, within the patches of the habitat - Low-land and mountain fresh meadows used extensively 6510 (identified respectively in the Report as h-24 and h-23) as well as the positions of Grass Lily - execute the construction of the embankment at the section running through the habitat from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified patches within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified patches.
- 2.34.5 At the sections of the embankment at km: 10+800, 10+700, 9+700, 10+600 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-90, o-91, o-94, o-98, o-99). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.34.6 At the section at km 10+700 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified in the Report as o-92). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.34.7 At the sections at km: 10+000, 10+500 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-95, o-96 and o-97). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests).

Within the boundaries of the area no storage sites and technological routes should be located as well.

- 2.34.8 At the section at km 11+300 of the Widawa river, within the place of occurrence of amphibians (identified in the Report as the habitat no. p-22) and reptiles (identified in the Report as the habitat no. g-88), building / construction works should be conducted beyond the above-specified habitat. Do not locate storage sites and technological routes within the boundaries of the habitat.
- 2.34.9 At the section at km 11+000 - 11+400 of the Widawa river, within the place of occurrence of amphibians (identified in the Report as the habitat no. p-104), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.34.10 Within the places of occurrence of reptiles identified in the Report as the following habitats: g-32 (km 11+200 - 11+500 within the river), g-33 (km 11+200 - 11+500 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.34.11 At the section at km 11+000 - 11+500 of the Widawa river, within the place of occurrence of reptiles (identified as the habitat no. g-90 in the Report), perform building / construction works only within the embankment base, making use of the technology of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological route designated at the route of the embankment should be used for transportation purposes.
- 2.34.12 At the section at km 11+100 of the Widawa river, within the habitat of Corn Crake (identified as p-139 in the Report) - conduct works only within a line of the embankment base (footing).
- 2.34.13 Within the places of occurrence of Red-backed Shrike, Corn Crake, Middle Spotted Woodpecker identified in the Report as the following habitats: p-135 (km 11+600 within the river), p-137 (km 11+400 within the river), p-138 (km 11+300 within the river), p-140 (km 11+000 within the river), p-141 (km 10+900 within the river), p-145

(km 10+800 within the river), p-146 (km 10+800 within the river) - perform felling / cutting down trees and shrubs only within a line of the embankment base. Within the boundaries of the habitats - do not locate storage sites, parking lots of machines and equipment as well as technological routes.

- 2.34.14 At the sections at km 9+700 - 10+000, 11+700 of the Widawa river, within the habitats of Grey-headed Woodpecker and Red-backed Shrike (identified respectively in the Report as p-150, p-134 and p-151) - do not locate any places of storage of materials and technological routes at the right bank of the river. Do not fell / cut down trees in the tree stand located east off the bridge as well as bushes located northern-east off the bridge (km 9+800 within the river).

2.35 Recommendations for the structure B3.34 - Psary - the island embankment (the WFS structure no. 44.8).

- 2.35.1 At the section at km 8+400 - 8+700 of the Widawa river, within and in the direct vicinity of the patch of the following natural habitat - oak, elm, ash riverine forests 91F0 (identified in the Report as h-30) - limit felling / cutting down of riverine trees and brushwood to the width of the embankment base and execute the construction of the embankment from its front (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Locate technological routes at the sections crossing the above-specified habitat within a line of the embankment. Organise storage sites beyond the boundaries and beyond the direct vicinity of the above-specified habitat.
- 2.35.2 At the section at km 8+400 - 8+700 of the Widawa - do not perform building / construction works as well as do not locate technological routes and storage sites within the patch of the following habitat - low-land and mountain fresh meadows used extensively 6510 - identified as h-29.
- 2.35.3 At the sections at km: 8+500, 8+400 - 8+500, 8+600 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-100, o-101, o-102 and o-103). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.35.4 At the section at km 9+700 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified in the Report

as o-94). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.

- 2.35.5 At the section at km 9+000 of the Widawa, within the habitat of Red-backed Shrike (identified in the Report as p-152) - do not locate technological routes, storage sites and parking lots of machines and equipment.

2.36 Recommendations for the structure: Szymanow - the new embankment (the WFS structure no. 44.9).

- 2.36.1 At the section at km 8+200 - 8+400 of the Widawa river - conduct works at a distance exceeding 10 m from the habitat patch - willow, poplar, alder and ash carr *91E0 (identified as h-31 in the Report). Locate technological routes and storage sites at the land-side of the embankment.
- 2.36.2 At the sections at km: 7+200 - 7+300, 8+500, 8+400 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-77, o-100, o-101 and o-104). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.36.3 At the section at km 7+800 and 8+600 of the Widawa river - do not fell / cut down trees constituting the habitat of Great Capricorn (identified as the habitats no. o-103, o-78 in the Report). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.36.4 Within the places of occurrence of amphibians and reptiles identified respectively in the Report as the following habitats: p-106 and g-94 (km 8+200 - 8+400 within the river), p-65 and g-93 (km 8+200 - 8+400 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.36.5 At the section at km 8+000 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-66 in the Report) and reptiles (identified as the habitat no. g-96 in the Report) - perform building / construction works only within

the embankment base, making use of the technology of work from the embankment front or from the embankment water-side. Do not locate storage sites and technological routes within the boundaries of the habitat. The existing network of roads and the technological road designated at the route of the embankment should be used for transportation purposes.

- 2.36.6 At the section at km 8+300 - 8+400 of the Widawa river, within the habitats of Red-backed Shrike - do not locate technological routes and parking lots of machines and equipment, do not store materials. Perform works including felling / cutting down of trees and shrubs only within a line of the embankment base.

2.37 Recommendations for the structure: Szewce - the new embankment (the WFS structure no. 44.10).

- 2.37.1 At the section at km 4+000 - 6+000 of the Widawa river within the future mid-embankment, within and in the direct vicinity of the patch of a mosaic of the following natural habitats - oak, elm, ash riverine forests 91F0 and oak-hornbeam forests 9170 (identified in the Report as h-34) as well as the positions of Common Snowdrop, Lily of the Valley and Broad-leaved Helleborine - execute the construction of the embankment from its land-side (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing). Organise technological routes and storage sites at the land-side of the embankment and beyond the area of the above-specified patch.
- 2.37.2 At the section at km 4+000 - 6+000 of the Widawa river - conduct felling / cutting down of trees and shrubs only within 50-m section of the embankment - within the road in the direction of Oborniki Slaskie. Limit the felling / cutting down to the width of the embankment base.
- 2.37.3 At the section at km 3+000 - 3+600 of the Widawa river at which the route of the embankment is adjacent to the patch of a mosaic of the following habitats - oak, elm, ash riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified in the Report as h-36) as well as the positions of Common Snowdrop and Broad-leaved Helleborine - locate places of storage of materials and technological routes only at the land-side of the embankment and beyond the area of the above-specified patch. Conduct all the works related to temporary occupation of land at the land-side of the embankment.

- 2.37.4 At the section at km 6+600 - 7+000 of the Widawa river, within the future mid-embankment (within and in the direct vicinity of the patch of the following habitat - willow, poplar, alder and ash carr *91E0 (identified as h-32 in the Report) - execute the construction of the embankment at the land-side of the embankment (at the same time with limiting the occupation of land down to the projected width of the embankment base (footing)). Organise technological routes and storage sites at the land-side of the embankment and beyond the area of the above-specified patch.
- 2.37.5 At the sections at km: 6+400 and 5+200 - 5+700 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of Caterpillar Moth (identified in the Report as o-108 and o-112). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.37.6 At the section at km 6+500 of the Widawa river - do not fell / cut down trees constituting the habitats of Great Capricorn (identified in the Report as o-107). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.37.7 At the sections at km 3+900 and 5+200 - 5+700 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified in the Report as o-38, o-112). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.37.8 In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions of Caterpillar Moth (identified in the Report as o-37, o-38, o-105, o-106, o-110, o-111, o-112) located at km 3+200 - 3+400, 3+900, 7+200, 6+700, 6+000 - 6+400, 5+200 - 5+700 of the Widawa river and transfer to a habitat being appropriate for the species.
- 2.37.9 At the sections at km: 3+000 - 3+100, 3+300 - 3+500 and 4+100 - 4+900 of the Widawa river - do not fell / cut down blackthorn brushwood constituting the habitat of

- Caterpillar Moth (identified in the Report as o-34, o-35, o-36 and o-111). Conduct all the building / construction works beyond the area of shrubs and their direct vicinity (beyond the projection area of shrub crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.37.10 In the period from February to the end of April under the supervision of a specialist - entomologist - collect eggs and cocoons of first larval stages from the positions of Caterpillar Moth (identified in the Report as o-37, o-38, o-105, o-106, o-110, o-111, o-112) located at km 3+200 - 3+400, 3+900, 7+200, 6+700, 6+000 - 6+400, 4+900 - 5+100, 5+200 - 5+700 of the Widawa river and transfer to a habitat being appropriate for the species.
- 2.37.11 At the sections at km 4+600 - 5+300 of the Widawa river - do not fell / cut down trees constituting the habitat of Hermit Beetle and Great Capricorn (identified in the Report as o-111). It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February).
- 2.37.12 At the section at km 3+400, 3+300, 3+050 - 3+200, 3+500 of the Widawa river - do not fell / cut down trees constituting the habitat of Great Capricorn (identified respectively in the Report as o-39, o-40, o-41, o-42). All the building / construction works should be conducted beyond the area of trees and their direct vicinity (beyond the projection area of tree crests). Within the boundaries of the area no storage sites and technological routes should be located as well.
- 2.37.13 Within the places of occurrence of amphibians identified in the Report as the following habitats: p-68 (km 3+800 - 4+000 within the river), p-126 (km 6+700 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.37.14 At the section at km 4+000 - 6+100 of the Widawa river, within the place of occurrence of amphibians (identified as the habitat no. p-108 in the Report) and reptiles (identified as the habitat no. g-97 in the Report) - perform building / construction works only within the embankment base, making use of the technology

of work from the embankment front or from the embankment land-side. Do not locate storage sites and technological routes within the boundaries of the habitat. Use the existing network of roads and the technological road designated at the route of the embankment for transportation purposes.

- 2.37.15 Within the places of occurrence of reptiles identified in the Report as the following habitats: g-107 (km 4+000 within the river), g-126 (km 6+800 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.37.16 At the sections at km 3+400 - 4+000, 4+900 - 5+900 and 7+100 of the Widawa river within the habitats of Red-backed Shrike (identified in the Report as p-160, p-170, p-173, p-178, p-179) - conduct works at the land-side of the embankment and do not locate technological routes, parking lots for machines and equipment as well as storage sites at the land-side of the embankment.

2.38 Recommendations for the structure: Paniowice - demolition of the flood-protection embankment (the WFS structure no. 19).

- 2.38.1 Conduct the demolition of fences at km around 2+700 of the Widawa river with no interference in the patches of the following habitat - Old river beds and natural eutrophic water reservoirs 3150 (identified in the Report as h-39 and h-40).
- 2.38.2 Limit places of the demolition within the embankment to the areas in the proximity of which mid-forest paths go (as they will serve as access roads as well as routes of transportation of materials from the demolition site).
- 2.38.3 Conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.05 m³).
- 2.38.4 Limit all the required felling / cutting only to trees and shrubs growing at the embankment at places of its demolition, without disturbing the habitat, including trees being adjacent to the embankment.
- 2.38.5 Exclude sections of the embankment at km around 0+500, 1+600, 2+200, 2+250 of the Widawa river within and in the direct vicinity of the positions of Lily of the Valley and Yellow Water-lily out of the demolition.
- 2.38.6 Within the places of occurrence of amphibians identified in the Report as the following habitats: p-25 (km 2+700 within the river), p-31 (km 1+600 - 1+300 within

the river), p-33 (km 0+000 within the river), p-28 (km 0+000 within the river), p-29 (km 0+000 within the river), p-116 (km 0+000 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.

- 2.38.7 Within the places of occurrence of amphibians identified in the Report as the following habitats: p-111 (km 2+100 - 3+000 within the river), p-113 (km 0+000 - 1+300 within the river), p-114 (km 0+000 - 1+800 within the river), p-115 (km 0+000 within the river), conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.05 m³).
- 2.38.8 Within the places of occurrence of reptiles identified in the Report as the following habitats: g-34 (km 1+600 - 1+ 700 within the river), g-37 (km 2+700 within the river), g-109 (km 0+000 within the river), g-110 (km 0+000 within the river), g-113 (km 0+000 within the river), conduct building / construction works beyond the above-specified habitats. Do not locate storage sites and technological routes within the boundaries of the habitats.
- 2.38.9 Within the places of occurrence of reptiles identified in the Report as the following habitats: g-102 (km 0+000 - 1+800 within the river), g-103 (km 0+000 - 1+300 within the river), g-104 (km 0+000 within the river), g-106 (km 2+000 - 3+000 within the river), conduct all the works at the demolition of the embankment by means of light building / construction machines and equipment, e.g. mini excavator (with the capacity of its loading bucket up to 0.06 m³), means of transport (with their capacity up to 10 tonnes), mini excavator (with the capacity of its loading bucket up to 0.05 m³).
- 2.38.10 At the section of the embankment at km 0+000 - 2+000 of the Widawa river - leave sections of the embankment located within old trees (the oldest tree stand) as well as over-grown with older tree units. Limit felling / cutting off trees and shrubs to the sections covered by the demolition. Do not remove greenery in the direct vicinity of the embankment.

3. Requirements concerning the environmental protection required to consider in the documentation to issue a decision specified in article 72, clause 1 of the act *on sharing*

information about the environment and its conservation, public participation in environmental protection and environmental impact assessments:

3.1 General Recommendations

- 3.1.1 Do not locate the background facilities of construction sites and manoeuvring places at the areas at which the occurrence of protected natural habitats is inventoried, within mid-embankments and at a distance not shorter than 100 m from the existing water reservoirs and ponds, oxbow lakes and wetland areas.
- 3.1.2 Organise the construction site taking into account the principles of minimising the occupation of lands.
- 3.1.3 Locate technological routes at a distance not shorter than 100 m from water reservoirs, ponds and oxbow lakes.
- 3.1.4 Plan all the works consisting in the regulation, streamlining and strengthening the river-bed of the Widawa river only at sections under the re-built bridges and 50-m sections below and above the bridges.
- 3.1.5 Determine the manner of dealing with wastes and earth masses generated at the stage of implementation of the investment considering the terms and conditions included in point I.2.1.48-I.2.1.50 of the present decision.
- 3.1.6 Determine the manner of drainage of foundation ditches under the embankment culverts considering the recommendations indicated in point I.2.1.55.
- 3.1.7 Apply the so-called "quiet surface" at the re-constructed bridge structures ensuring the reduction of the level of noise.
- 3.1.8 Determine the manner of drainage of bridge structures considering the conditions indicated in point I.2.3.7, I.2.4.6, I.2.6.5, I.2.19.6, I.2.20.5.
- 3.1.9 Determine the manner of conducting works at the bridge structures, minimising their negative impact onto the adjacent areas - considering the terms and conditions specified in point I.2.3.4, I.2.4.4, I.2.6.2, I.2.7.2, I.2.19.4, I.2.20.3, I.2.21.3.
- 3.1.10 Determine the manner of embedding / seating of bridge structures considering the terms and conditions specified in point I.2.3.5, I.2.4.5, I.2.6.3, I.2.7.3, I.2.19.5, I.2.20.4.
- 3.1.11 Determine the manner of dealing with pumped-out waters considering the terms and conditions specified in I.2.2.8, I.2.3.6, I.2.4.6, I.2.6.4, I.2.7.40.

3.2 Recommendations for the structure: Szewce - the new embankment (the WFS structure no. 44.10)

- 3.2.1 At the section at km 4+000 up to km 6+100 of the Widawa river - design the embankment route north off the patch of a mosaic of the following habitats: oak-hornbeam forests 91F0 and oak, elm, ash riverine forests 91F0 (identified in the Report as h-34) at a distance exceeding 5 m off the edge of the above-specified habitat.
- 3.2.2 At the section at km 3+200 up to 3+500 of the Widawa river - design the route of the embankment north off the patch of a mosaic of the following habitats: oak, elm, ash riverine forests 91F0 and willow, poplar, alder and ash carr *91E0 (identified in the Report as h-36) at a distance exceeding 5 m off the edge of the above-specified habitat.

3.3 Recommendations for the structure: Wilczyce - modernisation of the embankment (WFS structure no. 45.2).

- 3.3.1 At the sections at km 21+750, 21+700, 19+300 - 21+700 of the Widawa river in order to protect the habitats of Hermit Beetle and Great Capricorn (identified in the Report as o-19, o-20 and o-27) - apply prefabricated walls made of T or L elements for the construction of the embankment.

3.4 Recommendations for the structure: Modernisation of the embankment (WFS structure no. 45.1).

- 3.4.1 At the sections at km 21+500, 21+700 of the Widawa river in order to protect the habitats of Hermit Beetle and Great Capricorn (identified in the Report as o-9, o-8) - apply prefabricated walls made of T or L elements for the construction of the embankment.

3.5 Recommendations for the structure: Zgorzelisko (up to B. Krzywoustego Street) - the new embankment (the WFS structure no. 44.3).

- 3.5.1 At the sections at km 18+000, 19+500 - 19+600, 19+300 - 21+700 of the Widawa river in order to protect the habitats of Hermit Beetle and Great Capricorn (identified in the Report as o-29, o-28 and o-27) - apply prefabricated walls made of T or L elements for the construction of the embankment.

3.6 Recommendations for the structure: Prace Widawskie - the new embankment (WFS structure no. 44.17)

- 3.6.1 At the sections at km 8+700 and 9+000 - 9+500 of the Widawa river in order to protect the habitats of Hermit Beetle and Great Capricorn (identified in the Report as

o-66, o-71, o-72, o-67, o-68) - apply prefabricated walls made of T or L elements for the construction of the embankment.

3.7 Recommendations for the structure: Swiniary - modernisation of the embankment (the WFS structure no. 44.18).

3.7.1 At the section at km 5+500 of the Widawa river in order to protect the habitats of Hermit Beetle and Great Capricorn (identified in the Report as o-120) - apply prefabricated walls made of T or L elements for the construction of the embankment.

3.8 Recommendations for the structure: Psary - the new embankment (the WFS structure no. 44.7)

3.8.1 At the section at km 10+700 of the Widawa river in order to protect the habitats of Hermit Beetle and Great Capricorn (identified in the Report as o-92) - apply prefabricated walls made of T or L elements for the construction of the embankment.

3.9 Recommendations for the structure: Szewce - the new embankment (the WFS structure no. 44.10)

3.9.1 At the sections at km 4+600 - 5+300, 3+900 and 5+200 - 5+700 of the Widawa river in order to protect the habitats of Hermit Beetle and Great Capricorn (identified in the Report as o-111, o-38 and o-112) - apply prefabricated walls made of T or L elements for the construction of the embankment.

III. I state it necessary:

1. to conduct environmental compensation:

- 1.1 For the destruction of the habitats of butterflies: Dusky Large Blue *Maculinea nausitous* and Scarce Large Blue *Maculinea teleius* with its total area of 1,04 ha - at the land plot no. 3, Precinct of Swiniary, AM-23 - restore meadows with their area not lower than 2 ha. The restored meadows should have appropriate species composition (for the above-specified species) similar to flora composition of the damaged habitats, considering flood plants both for caterpillars as well as nectar-giving plants for adults of the above-specified butterflies.
- 1.2 For the destruction of the habitats of amphibians with their total area of around 0,71 ha - at the land plots no. 7/2, 10 and 11, Precinct of Swojczyce, AM-24 - execute new water reservoirs with their total area of water surface not lower than 1 ha. The reservoirs should have favourable parameters for the breeding of amphibians: their depth - up to 1-1,5 metre at the deepest place, so that once per several years they get dry, tilt of their slopes - around 1:3 - 1:5 both over the water surface as well as under the water surface. There should be

shallows made at one of the banks and the opposite bank(s) should be planted with shrubs.
Do not fish the reservoirs.

- 1.3 For the destruction of patches of the natural habitat - low-land and mountain fresh meadows used extensively (code - 6510) with their area of around 14,2 ha - at the land plots no. 2/1, Precinct of Psie Pole AM-16, no. 5, Precinct of Psie Pole, AM-2, no. 1, Precinct of Widawa, AM-1, no. 3, Precinct of Widawa, AM-1, no. 10, Precinct of Zgorzelisko, AM-12, no. 15, Precinct of Zgorzelisko AM-12 - conduct activities consisting in annual, at least once, mowing and removing of mowed biomass, removing foreign species of plants aimed to improve the state of conservation of patches of fresh meadows located in the valley of the Widawa river at the area not lower than 29 ha.
Perform the activities for the period of 5 years.
- 1.4 For the destruction of patches of the natural habitat - oak, elm, ash riverine forests (code - 91F0) with their area of 1.6 ha - at the land plot no. 3, Precinct of Swiniary, AM-23 - restore riparian forests with their area of 1.5 ha. The compensation should be conducted through forestation of the area taking into account appropriate tree species (for the type of natural habitats). The basic principles of forest cultivation should be maintained. All the detailed solutions should be implemented under the guidance of a specialist - phyto-sociologist.
- 1.5 Start the performance of the activities specified in point II.1.1, II.1.3 and II.1.4 (prepare the surface for the restoration of meadows, mow with a mixture of grasses and dicotyledonous plants, conduct at least one mowing with biomass collection and prepare the surface and plant with tree seedlings) prior to the start of commencement of the considered structures.
- 1.6 Finish the performance of the activities specified in point II.1.2 (execute the reservoirs together with managing their vegetation) prior to the commencement of the considered structures.
- 2. Monitoring the impact of the Works Contract onto the environment:**
 - 3.1 At the performance of the investment - conduct - with the participation of specialists - constant natural supervision considering the proper accomplishment of preventive and minimising measures in reference to the protected natural habitats as well as the species of fauna and flora. The supervision should include:

- 3.1.1 Pre-implementation monitoring conducted by an entomologist in terms of the location of occurrence of (among others) places and populations of the protected species of insects.
- 3.1.2 Pre-implementation monitoring conducted by a chiropterologist in order to identify the potential living places of bats.
- 3.1.3 Monitoring (by specialists in the field of zoology and botany) of the occupation of the area and the correctness of the executed works within and in the direct vicinity of the protected natural habitats as well as the habitats of the species of plants and animals.
- 3.1.4 Supervision of an ichthyologist at the conduct of works at the section in the proximity of the habitat of occurrence of Ray-finned fish *Sabanejewia aurata* (1146).
- 3.1.5 Supervision of a zoologist or herpetologist covering the monitoring of occurrence of amphibians and reptiles at the area(s) of the conducted building / construction works.
- 3.1.6 In case of statement of low effectiveness of the introduced minimising measures in the course of such supervision, immediately develop appropriate modifications with the participation of specialists and implement them.
- 3.2 Every year at the peaks of growing seasons of the species - within 2 years from the time of moving plants - with the participation of a botanist - examine the state of the protected plants moved from the area of the investment.
- 3.3 For a period of 5 years at least from the completion of works at particular WFS structures - with the involvement of a specialist - phyto-sociologist - conduct the monitoring of the natural habitats. The monitoring should include: spatial range of these habitats, extent of their structure formation, state of their preservation, forms of degeneration, presence of characteristic species and observed changes of these features.
- 3.4 For a period of at least 5 years from the completion of works at particular WFS structures - with the involvement of specialists in the field of botany and zoology - conduct the monitoring of the protected species of plants and animals covering the occurrence of the species and the conservation status of their populations. The monitoring should be conducted at growing seasons.

- 3.5 For a period of at least 5 years from the completion of works at particular WFS structures within the investment - conduct - by trained people - annual monitoring of the occurrence of invasive plants, including thickets of Knot-weed (*Reynourtia spp*). In case of observing the occurrence of any positions of invasive plants (shoots and seedlings) - take appropriate remedial measures to eliminate the identified positions and to prevent its further spread.
- 3.6 Submit the results of the monitoring with the assessment and analysis carried out by specialists to the Regional Director of the Environmental Protection in Wroclaw till 31 January of every year following the year of observation.

IV. I do not impose an obligation

- 1. to conduct the assessment of the impact of the Works Contract onto the environment within the proceedings on issuing a decision specified in article 72, clause 1 of the act *on sharing information about the environment and its conservation, public participation in environmental protection and environmental impact assessments*;**
- 2. to conduct the proceedings in the scope of the cross-border impact of the Works Contract on the environment**

(...)

In the course of the conducted proceedings on issuing the considered decision, the environmental authority take anything as evidence which contribute to the proper resolution of the case, in essence, and the assessment of the whole evidence material gathered in the course of the proceedings is the grounds for its resolution. Through that the authority has met the provisions of article 75, paragraph 1 and article 80 of the Code of Administrative proceedings.

Given the above, it was declared as stated in the sentence of the decision.

Notice

The present decision can be appealed to the General Director for Environmental Protection, made through the Regional Director of Environmental Protection in Wroclaw, within 14 days from the date of delivery of the present decision.

To be received by:

1. Michal Lenartowski (the proxy of the investor) - EKOCENTRUM LTD. - 62 Podwale Street, room 103, Wroclaw
2. Lower Silesia Board of Amelioration and Water Structures in Wroclaw - 5 Jana Matejki Alley, 50-333 Wroclaw
3. "WWF Poland - World Wide Fund for Nature"
4. "My Paniowce" - Association for the Development of Paniowce
5. Other parties to the proceedings on the basis set out in article 49 of the act - Code of Administrative Proceedings
6. files

APPENDIX 5. LOCALITY MAP

APPENDIX 6 - DESCRIPTION, LOCATION AND SIGNIFICANCE OF NATURAL OBJECTS

Place of occurrence	Description of the environment	Description of occurring species
Flora		
WFS structure 44.15 Object no. f-9 at km 16+000 - 16+800 of the river	A complex of irregularly-used, over-growing fresh meadows with Arrhenatherion-based communities, represented a protected type of 6510 habitats. A part of the area is characterised by a good state of preservation. The object with its area of 8.85 ha.	Plants: a habitat of potential occurrence of the following protected habitat: Ornithogalum umbellatum - Grass Lily.
WFS structure 44.15 Object no. f-10 at km 15+300 - 16+500 of the river	A complex of fresh meadows with Arrhenatherion-based communities, represented a protected type of 6510 habitats. It occurs in a mosaic with sedge rushes. The state of preservation of the habitats is varied" ranging from areas at their good state up to heavily degenerated fragments. The object with its area of 10.99 ha.	
WFS structure 44.15 Object no. f-11 at km 15+300 - 16+500 of the river	The area is occupied by a well-preserved oak - elm - ash carr representing 91F0 habitats. At some places there are also small patches of willow carr representing 91E0 habitats. The area of the object is equal to 28.20 ha.	Plants: a habitat of occurrence of the following protected habitat: Ornithogalum umbellatum - Grass Lily as well as potential occurrence of the protected species: Epipactis helleborine - Broad-leaved Helleborine, Galanthus nivalis - Common Snowdrop. There is one position of Sarcoscypha coccinea - Scarlet cup (rare strictly-protected fungus) recorded.
WFS structure 44.15 Object no. f-12 at km 13+400 - 14+100 of the river	The area is located within lands with high natural values and with the participation of protected and endangered plants. There is a mosaic of two types of habitats: Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 and fresh meadows (6510). Their state of preservation is very good. The object is located within a land with its area of 21.55 ha.	Plants: a habitat of occurrence of the following protected habitat: Ophioglossum vulgatum - Southern adderstongue as well as the habitat of occurrence of the endangered species: Ophioglossum vulgatum - Marsh cnidium (the species in Poland endangered with extinction - fifth (V) category), Carex tomentosa - Sedge (the species in Lower Silesia endangered with extinction - LC category).
WFS structure 44.7 Object no. f-13 at km 11+300 - 11+400 of the river	A small area with its surface of 1.03 ha covers a minor over-growing old river-bed (the habitat no. 3150) surrounded with willow carr (the priority habitat no. 91E0). It is characterised by a good state of preservation.	Plants: a habitat of potential occurrence of the protected species - Yellow Water-lily Nuphar lutea and White Water-lily Nymphaea alba as well as the potential habitat of the endangered species - Water Pineapple Stratiotes aloides (the species is fairly endangered with extinction at the Lower Silesia - LC category).
WFS structure 44.7 Object no. f-14 at km 11+100 - 11+300 of the river	The object with its surface of 10.40 ha covered a complex of well-preserved of fresh meadows representing a type of 6510 habitats. Currently there have also been rushes at wet places.	Plants: a habitat of potential occurrence of the following protected habitat: Ornithogalum umbellatum - Grass Lily.
WFS structure 44.7 Object no. f-15 at km 10+800 - 11+000 of the river	The object with its surface of 1.72 ha covered a complex of well-preserved of fresh meadows representing a type of 6510 habitats. Currently there have also been rushes at wet places.	
WFS structure 44.7	A minor forest patch.	Plants: a habitat of potential occurrence of the following protected habitat: Epipactis

Place of occurrence	Description of the environment	Description of occurring species
Object no. f-16 at km 10+700 of the river		helleborine - Broad-leaved Helleborine, Galanthus nivalis - Common Snowdrop.
WFS structures 44.18, 44.10 Object no. f-17 at km 4+600 - 7+000 of the river	A large patch at the left bank of the Widawa river with its area of 48.62 ha. It covers a forest complex with its transitional nature between oak-hornbeam forests (Galio-Carpinetum– habitat code 9170) and oak-elm-ash riverine forests (Ficario-Ulmetum- habitat code 91F0). It is characterised by a good state of preservation.	Plants: a habitat of occurrence of the following protected habitat: Convallaria majalis - Lily of the Valley, Epipactis helleborine - Broad-leaved Helleborine, Galanthus nivalis - Common Snowdrop.
WFS structure 44.10 Object no. f-18 at km 6+400 - 6+600 of the river	A small patch with its area of 2.07 ha with well-preserved fragments of fresh meadows representing 6510 habitats.	Plants: a habitat of potential occurrence of the following protected habitat: Ornithogalum umbellatum - Grass Lily.
WFS structure 44.18 Object no. f-19 at km 4+600 - 4+700 of the river	A small patch with its area of 0.79 ha with well-preserved fragments of fresh meadows representing 6510 habitats.	
WFS structure 44.10 Object no. f-20 at km 4+000 - 6+000 of the river	The area covers well-preserved forest collections with their transitional nature between oak-hornbeam forests (Galio-Carpinetum– habitat code 9170) and oak-elm-ash riverine forests (Ficario-Ulmetum- habitat code 91F0). The area of the object – 11.93 ha.	Plants: a habitat of potential occurrence of the following protected habitat: Convallaria majalis - Lily of the Valley, Epipactis helleborine - Broad-leaved Helleborine, Galanthus nivalis - Common Snowdrop.
WFS structures 44.18, 42.3 Object no. f-21 at km 3+900 - 4+200 of the river	A small fragment of oak-elm-ash riverine forests (Ficario-Ulmetum- habitat code 91F0). Preserved in good state. It covers the area of 1.10 ha.	Plants: a habitat of potential occurrence of the following protected habitat: Epipactis helleborine - Broad-leaved Helleborine, Galanthus nivalis - Common Snowdrop. A position of Yellow Water-lily Nuphar lutea (protected species) was recorded.
WFS structure 44.10 Object no. f-22 at km 3+000 - 3+600 of the river	A forest complex at the right bank of the Widawa river; it covers a well-preserved patch of oak-elm-ash riverine forests (91F0) with minor patches of ash and willow carr (91E0). The area of the object – 5.03 ha.	Plants: a habitat of potential occurrence of the following protected habitat: Epipactis helleborine - Broad-leaved Helleborine, Galanthus nivalis - Common Snowdrop.
WFS structure 19 Object no. f-23 at km 0+000 - 3+000 of the river (a forest complex of habitats)	The area covers forest collections with their transitional nature between oak-hornbeam forests (Galio-Carpinetum– habitat code 9170) and oak-elm-ash riverine forests (Ficario-Ulmetum- habitat code 91F0) or neighbouring and penetrating patches of these habitats.	Plants: a habitat of occurrence of a partially protected species - Convallaria majalis - Lily of the Valley.
WFS structure 19 Object no. f-24 at km	The area covers a minor mid-forest depression probably constituting a vanishing old river-bed.	Plants: a habitat of occurrence of a partially protected species - Yellow Water-lily Nuphar lutea.

Place of occurrence	Description of the environment	Description of occurring species
1+600 of the river		
Natural habitats		
WFS structure 44.4 Object no. h-12 at km 16+500 - 16+800 of the river	The object covers a patch of a fresh meadow at poor state of preservation. The area of the patch is large and is equal to 20.48 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats - low-land and mountain fresh meadows used extensively (<i>Arrhenatherion elatioris</i>). Habitat Code - 6510.
WFS structure 44.4 Object no. h-13 at km 15+900 - 16+800 of the river	The object covers a patch of a degenerated fresh meadow with canary grass at poor state of preservation. The surface of the patch is equal to 1.77 ha.	
WFS structure 44.4 Object no. h-14 at km 16+200 - 16+300 of the river	The area covers old river-beds characterised by a poor state of preservation located at the mid-embankment. The area of the habitat is equal to 0.15 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats - Old river-beds and natural eutrophic water reservoirs with gatherings of <i>Nymphaeion</i> , <i>Potamion</i> . Habitat Code - 3150.
WFS structure 44.4 Object no. h-15 at km 16+500 - 16+700 of the river	The area covers a regenerating form of willow carr characterised by a poor state of conservation. The area of the habitat is equal as little as 0.79 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - willow, poplar, alder and ash carr (<i>Salicetum albo-fragilis</i> , <i>Popule-tum albae</i> , <i>Alnenion</i>) - there are willow carr here. Habitat code - 91E0.
WFS structure 44.4 Object no. h-16 at km 16+500 - 16+700 of the river	The area covers old river-beds characterised by a poor state of preservation located at the mid-embankment. The surface of the habitat is equal to 0.33 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats - Old river-beds and natural eutrophic water reservoirs with gatherings of <i>Nymphaeion</i> , <i>Potamion</i> . Habitat Code - 3150.
WFS structure 44.4 Object no. h-17 at km 16+500 - 16+600 of the river	The area covers a small forest complex. This is a willow carr characterised by a good state of preservation. The surface of the habitat is equal to 0.56 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - willow, poplar, alder and ash carr (<i>Salicetum albo-fragilis</i> , <i>Popule-tum albae</i> , <i>Alnenion</i>) - there are willow carr here. Habitat code - 91E0.
WFS structure 44.5 Object no. h-18 at km 15+100 - 16+500 of the river	The object covers a large patch of a fresh meadow at its bad state of preservation, in a mosaic made of sedge rushes. The surface of the patch is equal to 50.06 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats - low-land and mountain fresh meadows used extensively (<i>Arrhenatherion elatioris</i>). Habitat Code - 6510.
WFS structure 44.5 Object no. h-19 at km 13+000 - 14+200 of the river	The object covers a large patch of a degenerated fresh meadow at poor state of preservation. The surface of the patch is equal to 19.3 ha.	
WFS structure 44.6 Object no. h-20 at km 12+000 - 12+500 of the river	The area covers a small forest complex in the form of a line of willow tree strand. This is a fragmented willow carr characterised by a bad state of preservation. The surface of the habitat is equal to 1.26 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - willow, poplar, alder and ash carr (<i>Salicetum albo-fragilis</i> , <i>Popule-tum albae</i> , <i>Alnenion</i>) - there are willow carr here. Habitat code - 91E0.

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 44.7 Object no. h-21 at km 11+600 - 11+800 of the river	The area covers a minor forest complex - willow carr characterised by a good state of conservation. The surface of the habitat is equal to 0.93 ha.	
WFS structure 44.7 Object no. h-22 at km 11+300 - 11+400 of the river	A small area with its surface of 1.03 ha covers a minor over-growing old river-bed (the habitat no. 3150) surrounded with willow carr (the priority habitat no. 91E0). It is characterised by a good state of preservation.	Natural habitats: Old river beds and natural eutrophic water reservoirs with gatherings of Nympeion, Potamion (habitat code 3150), Willow, poplar, alder and ash carr (Salicetum albae, Populetum albae, Alnenion glutinoso-incanae (the habitat code - 91E0*) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 44.7 Object no. h-23 at km 11+100 - 11+300 of the river	The object with its surface of 10.40 ha covered a complex of well-preserved of fresh meadows representing a type of 6510 habitats. Currently there have also been rushes at wet places.	Natural habitats: Low-land and mountain fresh meadows used extensively (Arrhenatherion elatioris - the habitat code 6510) - the natural habitat from the First (I) Appendix of the Habitats Directive.
WFS structure 44.7 Object no. h-24 at km 10+800 - 11+000 of the river	The object with its surface of 1.72 ha covered a complex of well-preserved of fresh meadows representing a type of 6510 habitats. Currently there have also been rushes at wet places.	
WFS structure 44.7 Object no. h-25 at km 10+700 - 10+800 of the river	A small patch of well-preserved oak-elm-ash riverine forests representing 91F0 habitats. The object with its area of 1.58 ha.	Natural habitats: Oak-elm-ash riverine forests Ficario-Ulmetum (the habitat code 91F0) - the natural habitat from the First (I) Appendix of the Habitats Directive.
WFS structure 44.7 Object no. h-26 at km 10+000 - 10+700 of the river	The area covers a small complex in the form of a line of willow, ash and alder tree stand characterised by a bad state of preservation. The surface of the habitat is equal to 2.96 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - willow, poplar, alder and ash carr (Salicetum albo-fragilis, Popule-tum albae, Alnenion) - the habitat code no. 91E0.
WFS structure 44.16 Object no. h-27 at km 12+000 - 12+500 of the river	The area covers a degenerated ash carr characterised by a poor state of conservation. The surface of the habitat is equal to 7.06 ha.	
WFS structure 44.8 Object no. h-31 at km 8+200 - 8+400 of the river	The area covers a line of willow carr tree stand at the river-bed of the Widawa river characterised by a bad state of preservation. The surface of the habitat is equal to 0.29 ha.	
WFS structure 44.10 Object no. h-32 at km 6+600 - 7+000 of the river	The area covers a small patch of willow carr at the river-bed of the Widawa river characterised by a very good state of preservation. The surface of the habitat is equal to 1.51 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - willow, poplar, alder and ash carr (Salicetum albo-fragilis, Popule-tum albae, Alnenion). Habitat code - 91E0.

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 44.10 Object no. h-33 at km 6+100 - 6+600 of the river	The area covers a line of willow carr tree stand at the river-bed of the Widawa river characterised by a bad state of preservation. The surface of the habitat is equal to 0.41 ha.	
WFS structures 42.3, 42.3.1 Object no. h-35 at km 3+800 - 3+900 of the river	The area covers a very small patch of willow carr at the river-bed of the Widawa river characterised by a good state of preservation. The surface of the habitat is equal to 0.19 ha.	
WFS structure 44.15 Object no. h-65 at km 16+500 - 16+700 of the river	The area is occupied by a well-preserved willow carr - the 91E0 habitat. The area of the object is equal to 0.81 ha.	
WFS structure 44.15 Object no. h-66 at km 16+300 - 16+500 of the river	The area covers a very small forest complex. This is a fragmented willow carr characterised by a bad state of preservation. The surface of the habitat is equal to 0.66 ha.	
WFS structure 44.15 Object no. h-68 at km 15+800 - 16+000 of the river	The area covers a very small forest complex. This is a willow carr characterised by a good state of preservation. The surface of the habitat is equal to 0.60 ha.	
WFS structure 44.15 Object no. h-70 at km 14+500 - 14+700 of the river	The area covers a forest complex - ash-alder carr characterised by state of conservation. The surface of the habitat is equal to 3.92 ha.	
WFS structure 44.15 Object no. h-73 at km 13+800 - 14+100 of the river	The area covers a patch of ash-alder and willow carr by the river-bed of the Widawa river characterised by a state of preservation. The surface of the habitat is equal to 3.58 ha.	
WFS structure 44.15 Object no. h-75 at km 12+900 - 13+400 of the river	The area covers a patch of ash-alder and willow carr by the river-bed of the Widawa river characterised by a state of preservation. The surface of the habitat is equal to 2.89 ha.	
WFS structure 44.17 Object no. h-80 at km 8+700 - 8+800 of the river	The area covers a small path of willow carr at the river-bed of the Widawa river characterised by a bad state of preservation. The surface of the habitat is equal to 0.34 ha.	
		Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - willow, poplar, alder and ash carr (<i>Salicetum albo-fragilis</i> , <i>Popule-tum albae</i> , <i>Alnenion</i>). Habitat code - 91E0.

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 44.9 Object no. h-81 at km 8+200 - 8+500 of the river	The area covers a patch of ash-alder and willow carr by the river-bed of the Widawa river characterised by a state of preservation. The surface of the habitat is equal to 2.22 ha.	
WFS structure 44.10 Object no. h-84 at km 6+100 - 6+600 of the river	The area covers a line of willow carr tree stand at the river-bed of the Widawa river characterised by a bad state of preservation. The surface of the habitat is equal to 0.58 ha.	
WFS structure 19 Object no. h-92 at km 0+600 - 0+800 of the river	The area covers a line of willow carr tree stand at the river-bed of the Widawa river characterised by a good state of preservation. The surface of the habitat is equal to 1.25 ha.	
WFS structure 19 Object no. h-95 at km 0+000 - 0+100 of the river	The area covers willow carr tree stand characterised by a good state of preservation. The surface of the habitat is equal to 0.35 ha.	
WFS structure 44.17 Object no. h-28 at km 9+000 - 9+400 of the river	The area covers a regenerating oak-elm-ash carr characterised by a bad state of preservation. The surface of the patch is equal to 2.91 ha.	Natural habitats: the natural habitats from the First (I) Appendix of the Habitats Directive - oak-elm-ash riverine forests (Ficario-Ulmetum minoris). The habitat Code - 91F0.
WFS structure 44.8 Object no. h-30 at km 8+400 - 8+700 of the river	The area covers a degenerated oak-elm-ash carr characterised by a bad state of preservation. The surface of the patch is equal to 2.15 ha.	
WFS structure 44.16 Object no. h-76 at km 12+500 - 12+600 of the river	The area covers an oak-elm-ash forest characterised by a good state of preservation. The surface of the patch is equal to 1.32 ha.	
WFS structures 44.18, 42.3 Object no. h-87 at km 3+900 - 4+200 of the river	A small fragment of oak-elm-ash riverine forests (Ficario-Ulmetum- habitat code 91F0). Preserved in good state. It covers the area of 1.10 ha.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 44.8 Object no. h-29 at km 8+400 - 8+700 of the river	The object covers a patch of a fresh meadow with its state being bad. The surface of the patch is equal to 2.42 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats - low-land and mountain fresh meadows used extensively (<i>Arrhenatherion elatioris</i>). The habitat code - 6510.
WFS structure 19 Object no. h-48 at km 0+100 - 1+200 of the river	The patch of fresh meadows, representing 6510 habitats, at its bad state of preservation.	
WFS structure 44.15 Object no. h-64 at km 16+000 - 16+800 of the river	A complex of irregularly-used, over-growing fresh meadows with <i>Arrhenatherion</i> -based communities, represented a protected type of 6510 habitats. A part of the area is characterised by a good state of preservation. The object with its area of 8.85 ha.	
WFS structure 44.16 Object no. h-71 at km 13+500 - 14+500 of the river	The object covers a large patch of a degenerated fresh meadow, wet at some places, at poor state of preservation. The surface of the patch is equal to 23.12 ha.	
WFS structure 44.16 Object no. h-79 at km 9+900 - 10+200 of the river	The object covers a patch of a degenerated fresh meadow with Reed canary-grass as well as sedges the state of preservation is bad. The surface of the patch is equal to 0.72 ha.	
WFS structure 44.10 Object no. h-85 at km 6+100 - 6+400 of the river	A patch of fresh meadows representing 6510 habitat with its area of 1.39 ha. The habitat is specified by a bad state of preservation.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - Low-land and mountain fresh meadows used extensively (<i>Arrhenatherion elatioris</i>) (the habitat code - 6510).
WFS structure 44.15 Object no. h-67 at km 15+300 - 16+500 of the river	A complex of fresh meadows with <i>Arrhenatherion</i> -based communities, represented a protected type of 6510 habitats. It occurs in a mosaic with sedge rushes. The state of preservation of the habitats is varied" ranging from areas at their good state up to heavily degenerated fragments. The object with its area of 10.99 ha.	
WFS structure 44.10 Object no. h-83 at km 6+400 - 6+600 of the river	A small patch with its area of 2.07 ha with well-preserved fragments of fresh meadows representing 6510 habitats.	
WFS structure 44.18 Object no. h-86 at km 4+600 - 4+700 of the river	A small patch with its area of 0.79 ha with well-preserved fragments of fresh meadows representing 6510 habitats.	

Place of occurrence	Description of the environment	Description of occurring species
river		
WFS structure 19 Object no. h-94 at km 0+000 - 0+100 of the river	A patch with its area of 4.45 ha of fresh meadows representing 6510 habitat specified by a bad state of preservation.	
WFS structure 44.10 Object no. h-34 at km 4+000 - 6+000 of the river	The area covers well-preserved forest collections with their transitional nature between oak-hornbeam forests (Galio-Carpinetum – habitat code 9170) and oak-elm-ash riverine forests (Ficario-Ulmetum- habitat code 91F0). The area of the object – 11.93 ha.	
WFS structures 44.18, 44.10 Object no. h-82 at km 4+600 - 7+000 of the river	A large patch at the left bank of the Widawa river with its area of 48.62 ha. It covers a forest complex with its transitional nature between oak-hornbeam forests (Galio-Carpinetum – habitat code 9170) and oak-elm-ash riverine forests (Ficario-Ulmetum- habitat code 91F0). It is characterised by a good state of preservation.	Natural habitats: Oak-elm-ash riverine forests Ficario-Ulmetum (the habitat code 91F0), oak-hornbeam forests Galio-Carpinetum (the habitat code 9170) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 44.10 Object no. h-36 at km 3+000 - 3+600 of the river	A forest complex at the right bank of the Widawa river; it covers a well-preserved patch of oak-elm-ash riverine forests (91F0) with minor patches of ash and willow carr (91E0). The area of the object – 5.03 ha.	Natural habitats: Oak-elm-ash riverine forests Ficario-Ulmetum (the habitat code 91F0), Willow and ash Salicetum albae, Populetum albae, Alnenion glutinoso-incanae (the habitat code 91E0) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 44.15 Object no. h-69 at km 15+300 - 16+500 of the river	The area is occupied by a well-preserved oak - elm - ash carr representing 91F0 habitats. At some places there are also small patches of willow carr representing 91E0 habitats. The area of the object is equal to 28.20 ha.	
WFS structure 44.16 Object no. h-77 at km 11+000 - 11+200 of the river	The area covered with degenerated oak-elm-ash carr representing 91F0 habitats within the complex with willow carr - the 91E0 habitat. The area of the object is equal to 1.64 ha.	
WFS structures 42.3, 42.3.1 Object no. h-88 at km 3+800 - 3+900 of the river	The area covers a very small complex of willow and oak-elm-ash carr constituting the complex by the river-bed of the Widawa river characterised by a bad state of preservation. The surface of the habitat is equal to 0.26 ha.	
WFS structure 42.3.1	The area occupies a wide forest area in the form of oak-	
		Natural habitats: Oak-elm-ash riverine carr forests Ficario-Ulmetum (the habitat code

Place of occurrence	Description of the environment	Description of occurring species
Object no. h-89 at km 1+900 - 3+800 of the river	elm-ash carr characterised by a very good state of preservation. The surface of the habitat is equal to 24.59 ha.	91F0) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 19 Object no. h-37 at km 2+100 - 3+000 of the river	The area covers forest collection in the form of oak planting at the habitat of oak-elm-ash riverine carr forests (91F0). The habitat is characterised by a bad state of preservation. Its surface is equal to 19.72 ha.	
WFS structure 19 Object no. h-42 at km 1+900 - 2+000 of the river	The area covers forest collection in the form of oak planting at the habitat of oak-elm-ash riverine carr forests (91F0). The habitat is characterised by a bad state of preservation. Its surface is equal to 2.07 ha.	
WFS structure 19 Object no. h-52 at km 0+000 - 0+600 of the river	The area is occupied by forest communities with their character of well-preserved oak-elm-ash riverine carr forests (91F0). The surface of the habitat is equal to 17.13 ha.	
WFS structure 19 Object no. h-38 at km 1+900 - 2+900 of the river	The area covers forest communities with their transitional nature between oak-hornbeam forests (9170) and oak-elm-ash riverine carr forests (91F0). The habitats are at their good state of preservation and the area of the patch is equal to 13.22 ha.	Natural habitats: Oak-elm-ash riverine forests Ficario-Ulmetum (the habitat code 91F0), oak-hornbeam forests Galio-Carpinetum (the habitat code 9170) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 19 Object no. h-43 at km 0+000 - 1+800 of the river	The area covers forest communities with their transitional nature between oak-hornbeam forests (9170) and oak-elm-ash riverine carr forests (91F0). The habitats are at their very good state of preservation and the area of the patch is equal to 20.57 ha.	
WFS structure 19 Object no. h-46 at km 0+500 - 1+500 of the river	The area covers forest communities with their transitional nature between oak-hornbeam forests (9170) and oak-elm-ash riverine carr forests (91F0). The habitats are at their good state of preservation. The surface of the patch is equal to 14.38 ha.	
WFS structure 19 Object no. h-90 at km 0+100 - 1+900 of the river	The area covers a large complex of willow and oak-elm-ash riverine carr forests constituting the forest complex with low hornbeam forests characterised by a good state of preservation. The surface of the habitat is equal to 78.12 ha.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 19 Object no. h-39 at km 2+700 of the river	The area is occupied by over-growing old river-bank (the 3150 habitat) surrounded by forest habitats located in the mid-embankment. The old river-bank is characterised by a good state of preservation.	Natural habitats: old river-bed and natural eutrophic water reservoirs with communities of Nympheion, Potamion (the habitat code 3150) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 19 Object no. h-40 at km 2+700 of the river	The area covers small over-growing old river-bed (the 3150 habitat) surrounded with forest habitats located in the behind-embankment. The old river-beds are characterised by a good state of preservation.	
WFS structure 19 Object no. h-47 at km 16+500 - 16+700 of the river	The area includes over-growing old river-beds with rushes characterised by a good state of preservation. The surface of the habitat is equal to 0.99 ha.	
WFS structure 19 Object no. h-41 at km 2+100 - 2+500 of the river	The area covers forest communities with their character of oak-hornbeam forests (9170). The habitat is characterised by a bad state of preservation, especially if this is a cultivation of oaks at the habitat of riverine carr forests. The surface of the habitat is equal to 7.91 ha.	Natural habitats: Oak-hornbeam forests Galio-Carpinetum (the habitat code 9170) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 19 Object no. h-44 at km 1+000 - 1+800 of the river	The area covers forest communities with their character of oak-hornbeam forests (9170). The habitat is specified by a good state of preservation. The surface of the habitat is equal to 5.06 ha.	
WFS structure 19 Object no. h-45 at km 1+500 - 1+700 of the river	The area covers forest communities with their character of oak-hornbeam forests (9170). The habitat is characterised by a bad state of preservation, especially if this is a cultivation of oaks at the habitat of riverine carr forests. The surface of the habitat is equal to 3.10 ha.	
WFS structure 19 Object no. h-50 at km 0+000 - 1+000 of the river	The area covers forest communities with their character of oak-hornbeam forests (9170). The habitat is specified by a bad state of preservation. The surface of the habitat is significant – 38.25 ha.	
WFS structure 19 Object no. h-51 at km 0+000 - 1+000 of the river	The area covers forest communities with their nature of a mosaic between oak-hornbeam forests (9170) and oak-elm-ash riverine carr forests (91F0). The state of preservation of the habitat is very good and its area is equal to 19.53 ha.	
WFS structure 19 Object no. h-49 at km	A patch with its area of 9.17 ha. It includes a gathering of transitional nature between flood-plain meadows (Cnidion)	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - a complex of Cnidium meadows (Cnidion dubii) and fresh meadows (Arrhenatherion)

Place of occurrence	Description of the environment	Description of occurring species
0+000 - 1+000 of the river	and fresh meadows (Arrhenatherion) and is characterised by a good state of preservation.	elatoris) - the habitat code 6440/6510.
WFS structure 19 Object no. h-91 at km 0+800 - 1+600 of the river	A patch with its area of 7.59 ha with a well-preserved fragment of fresh meadows representing 6510 habitats at a mosaic with wet flood-plain meadows with Cnidion-based communities - the 6440 habitat.	
WFS structure 44.15 Object no. h-72 at km 13+400 - 14+100 of the river	The area is located within lands with high natural values and with the participation of protected and endangered plants. There is a mosaic of two types of habitats: Molinia meadows on calcareous, peaty or clayey-silt-laden soils 6410 and fresh meadows (6510). Their state of preservation is very good. The object is located within a land with its area of 21.55 ha.	Natural habitats: Low-land and mountain fresh meadows used extensively Arrhenatherion elatoris (the habitat code 6510), Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion) (6410) - the natural habitats from the First (I) Appendix of the Habitats Directive.
WFS structure 44.15 Object no. h-74 at km 13+000 - 13+500 of the river	The object covers a patch of a degenerated, over-growing fresh meadow with patches of Molinia meadows the state of preservation is bad. The surface of the patch is equal to 24.99 ha.	
WFS structure 44.16 Object no. h-78 at km 10+300 - 10+400 of the river	The object covers a patch of a flood-plain meadow with canary grass, at poor state of preservation. The surface of the patch is equal to 0.83 ha.	Natural habitats: a natural habitat from the First (I) Appendix of the Habitats Directive - Cnidium meadows (Cnidion dubii, habitat code - 6440).
WFS structure 19 Object no. h-93 at km 0+600 - 0+800 of the river	A patch with its area of 1.17 ha with a well-preserved fragment of flood-plain meadows with Cnidion-based communities - the 6440 habitat.	
Fungi (mycoflora)		
WFS structure 44.4 Object no. m-1 at km 16+900 of the river	An area of meadows and grasslands.	There is one position of Giant puffball - Langermannia gigantea (strictly-protected, quite often occurring fungus) recorded.
WFS structure 44.15 Object no. m-3 at km 14+000 - 14+500 of the river		
WFS structure 44.18 Object no. m-4 at km 6+000 of the river	There is one position recorded by the embankment.	
WFS structure 44.10	At the old embankment between the forest complex and	

Place of occurrence	Description of the environment	Description of occurring species
Object no. m-5 at km 3+400 of the river	agricultural lands: the position beyond the impact.	
WFS structure 44.15 Object no. m-2 at km 15+300 - 16+500 of the river	The area is occupied by a well-preserved oak - elm - ash carr representing 91F0 habitats. At some places there are also small patches of willow carr representing 91E0 habitats. There is one position of Scarlet cup recorded within the forest. The area of the object is equal to 28.20 ha.	There is one position of <i>Sarcoscypha coccinea</i> - Scarlet cup (rare strictly-protected fungus) recorded.
Insects		
WFS structure 42.3.1 Object no. o-34 at km 3+300 - 3+500 of the river	A linear tree standing within blackthorn.	The habitat of the following protected species: Caterpillar Moth <i>Eriogaster catax</i> (species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structures 42.3.1, 44.10 Object no. o-35 at km 3+000 - 3+100 of the river		
WFS structures 42.3.1, 44.10 Object no. o-36 at km 3+000 of the river	A linear tree standing within blackthorn at the fore-embankment, by concrete fencing. Another cluster is located behind the embankment, along the trench, directed perpendicular to the fencing.	
WFS structures 42.3.1, 44.10 Object no. o-37 at km 3+200 - 3+400 of the river	A linear tree standing of blackthorn at the fore-embankment (with oaks) reaching railway tracks.	
WFS structure 44.15 Object no. o-43 at km 16+500 of the river	A cluster of blackthorn at the back-embankment with its length of 30 m and width of 5 m, perpendicular to the embankment.	
WFS structure 44.15 Object no. o-44 at km 15+650 of the river	A cluster of blackthorn at meadows, 15 m from the embankment, with its length of 32 m and width of 23 m.	
WFS structures 44.17, 44.18 Object no. o-60 at km 7+100 of the river	A beginning of the embankment at the western, connection with the old embankment; sloes along the embankment and goes further over the trench towards the fields.	
WFS structure 44.17 Object no. o-61 at km	Sloes along the trench, among fields.	

Place of occurrence	Description of the environment	Description of occurring species
7+200 of the river		The habitat of the following protected species: Caterpillar Moth <i>Eriogaster catax</i> (species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.17 Object no. o-62 at km 7+600 - 8+500 of the river	A beginning of mid-field blackthorn along the trench.	
WFS structure 44.17 Object no. o-63 at km 8+300 - 8+600 of the river	An edge of the western forest, by the field road, narrow blackthorn with its length of 20 m and more further in the field.	
WFS structure 44.17 Object no. o-64 at km 8+700 of the river	An edge of the eastern forest, blackthorn with its length of 53 m.	
WFS structure 44.17 Object no. o-65 at km 8+700 of the river	Blackthorn along the field road with its length of 95 m.	
WFS structure 44.17 Object no. o-74 at km 7+500 - 7+700 of the river	Blackthorn with its length of 200 m, along the field, trench and the embankment.	
WFS structure 44.17 Object no. o-75 at km 7+200 - 7+300 of the river	Blackthorn with its length of 100 m, perpendicular to the embankment, the eastern edge of the mid-field forest.	
WFS structures 44.17, 44.18 Object no. o-76 at km 7+100 of the river	Blackthorn along the embankment at its footing and further perpendicular to it at the western edge of the mid-field forest.	
WFS structure 44.9 Object no. o-77 at km 7+200 - 7+300 of the river	Blackthorn around the mid-field forest, 200 m from the Widawa river.	
WFS structure 44.18 Object no. o-79 at km 4+600 of the river	A beginning of blackthorn (old river-bed), perpendicular to the Widawa river.	
WFS structure 44.10 Object no. o-81 at km 5+300 of the river	A small cluster of young blackthorn at the behind- embankment of the Widawa river.	
WFS structure 44.10 Object no. o-82 at km		

Place of occurrence	Description of the environment	Description of occurring species
5+600 of the river		
WFS structure 44.10 Object no. o-83 at km 5+700 of the river		
WFS structure 44.10 Object no. o-84 at km 6+100 of the river		
WFS structure 44.10 Object no. o-85 at km 5+900 - 6+200 of the river	Two clusters of blackthorn at the edge of the forest and field, 50-200 m from the river.	The habitat of the following protected species: Caterpillar Moth <i>Eriogaster catax</i> (species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.9 Object no. o-86 at km 6+700 - 6+800 of the river	A cluster of blackthorn at the fore-embankment of the Widawa river.	
WFS structure 44.5 Object no. o-89 at km 14+250 of the river	A large cluster of blackthorn with its length of 30 m at the embankment over the Widawa river by the western edge of land plots by the Soltysowicki bridge.	
WFS structure 44.7 Object no. o-95 at km 10+000 of the river	A linear tree stand of blackthorn, the right bank of the Widawa river.	
WFS structure 44.7 Object no. o-96 at km 10+100 of the river	A cluster of blackthorn with its length of 31 m.	
WFS structure 44.7 Object no. o-97 at km 10+500 of the river	A cluster of blackthorn with its length of 83 m.	
WFS structure 44.8 Object no. o-100 t km 8+500 of the river	A narrow cluster of blackthorn with its length of 30 m at the very Old (Stara) Widawa river.	
WFS structure 44.8 Object no. o-101 at km 8+500 of the river	A narrow cluster of blackthorn with its length of 13 m at the very Old (Stara) Widawa river.	
WFS structure 44.8 Object no. o-102 at km 8+400 - 8+500 of the river	Blackthorn running (at the beginning in the northern direction) curved and reaching the Widawa river below he Stara (Old) Widawa entering it.	
WFS structure 44.9 Object no. o-104 at km	A linear tree standing within blackthorn.	

Place of occurrence	Description of the environment	Description of occurring species
8+400 of the river		
WFS structure 44.9 Object no. o-105 at km 7+200 of the river	A small cluster of blackthorn with its length of 10 m over the field trench.	
WFS structure 44.10 Object no. o-106 at km 6+700 of the river	A small cluster of blackthorn with its length of 9 m over the old river-bed.	
WFS structure 44.10 Object no. o-108 at km 6+400 of the river	A small cluster of blackthorn with its length of 10 m over the Widawa itself.	
WFS structure 44.10 Object no. o-110 at km 6+000 - 6+400 of the river	Large mid-field refuges with blackthorn (Corydalis at the ground-cover) - around 100-150 m from the Widawa river.	The habitat of the following protected species: Caterpillar Moth Eriogaster catax (species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 19 Object no. o-115 at km 0+000 - 1+200 of the river	Patches and lines (around 500-metre) of growing thickets of blackthorn at the land-side of the embankment.	
WFS structures 42.3.1, 44.10 Object no. o-38 at km 3+900 of the river	A cluster of blackthorn and a dry oak neighbouring with a road to Oborniki.	
WFS structure 44.17 Object no. o-73 at km 8+100 - 8+300 of the river	The blackthorn and oak - parallel to the embankment, 6 oaks at the embankment.	
WFS structure 44.18 Object no. o-80 at km 4+700 of the river	Oak forest, long blackthorn at the edge of the forest, perpendicular to the Widawa river.	The habitat of the following protected species: Caterpillar Moth Eriogaster catax (species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive). The potential breeding habitat (including: feeding and breeding base) of Hermit beetle Osmoderma eremita (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive). A habitat of Great Capricorn Beetle Cerambyx cerdo (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.10 Object no. o-112 at km 5+200 - 5+700 of the river	A long and wide line of blackthorn with individual oaks (Corydalis at the ground-cover) separated with an arable field from the Widawa river.	
WFS structure 44.17 Object no. o-66 at km 8+700 of the river	Blackthorn along the field road, crossing with the trench and further runs along it.	
WFS structure 44.10 Object no. o-111 at km 4+600 - 5+300 of the	A line of blackthorn with individual oaks (a lot of Corydalis at the ground-cover) reaching the Widawa river.	

Place of occurrence	Description of the environment	Description of occurring species
river		
WFS structure 42.3.1 Object no. o-39 at km 3+400 of the river	A oak with Great Capricorn Beetles at the embankment crest.	A habitat of Great Capricorn Beetle <i>Cerambyx cerdo</i> (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.15 Object no. o-50 at km 15+300 of the river	Burnt-out oak, 849 m from the Soltysowicki bridge.	
WFS structure 44.15 Object no. o-52 at km 15+800 of the river	A healthy oak at the behind-embankment, second one - further at the meadow.	
WFS structure 44.15 Object no. o-53 at km 15+900 of the river	Old, dry, burnt-out oak.	
WFS structure 44.17 Object no. o-69 at km 8+700 of the river	Burnt-out oak, partially with no bark.	
WFS structure 44.17 Object no. o-71 at km 9+000 - 9+500 of the river	A cluster of oaks at the right side of the Widawa river.	
WFS structure 44.17 Object no. o-78 at km 7+800 of the river	An individual oak close to the Szymanow bridge.	A habitat of Great Capricorn Beetle <i>Cerambyx cerdo</i> (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.7 Object no. o-91 at km 10+700 of the river	An oak burnt out at the bottom.	
WFS structures 44.7, 44.8 Object no. o-94 at km 9+700 of the river	An oak by Trzebnicka Road, almost all dry, 151 m from the bridge at the Widawa river.	
WFS structure 44.7 Object no. o-98 at km 10+600 of the river	An oak by Trzebnicka Road, almost all dry, 151 m from the bridge at the Widawa river.	
WFS structure 44.9 Object no. o-103 at km 8+600 of the river	A group of 5 oaks.	
WFS structure 19 Object no. o-116 at km 0+000 - 0+200 of the	a section (around 200 metres long) of tree stand together with several old pedunculate oaks growing at the water-side of the embankment side.	

Place of occurrence	Description of the environment	Description of occurring species
river		The potential breeding habitat (including: feeding and breeding base) of Hermit beetle <i>Osmoderma eremita</i> (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive). A habitat of Great Capricorn Beetle <i>Cerambyx cerdo</i> (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.18 Object no. o-117a at km 5+500 of the river	A oak by the road.	
WFS structure 42.3.1 Object no. o-40 at km 3+300 of the river	An oak with Great Capricorn Beetles growing around 25 metres from the concrete road.	
WFS structure 42.3.1 Object no. o-41 at km 3+050 - 3+200 of the river	A forest (with a participation of oaks) by the concrete road.	
WFS structure 44.15 Object no. o-45 at km 16+200 of the river	An edge of land plots, an individual oak.	
WFS structure 44.15 Object no. o-46 at km 16+200 of the river	An edge of land plots, the right bank of the trench, a thin individual oak.	
WFS structure 44.15 Object no. o-47 at km 15+500 of the river	Three oaks in the forest between the meadows and the "Lesna Polana" Family Allotment Gardens.	
WFS structure 44.15 Object no. o-48 at km 15+650 of the river	An oak at the right bank of the trench at the forest side between meadows and "Lesna Polana" Family Allotment Gardens.	
WFS structure 44.15 Object no. o-49 at km 15+000 of the river	A group of oaks in the forest close to the trench, bridge, asphalt road - Soltysowicka Street.	
WFS structure 44.15 Object no. o-51 at km 15+400 of the river	An oak rotten at its base.	
WFS structure 44.15 Object no. o-54 at km 16+000 of the river	An oak at the fore-embankment, rotten wood fragments at the height from 1.80 m up to 2.50 m.	
WFS structure 44.17 Object no. o-68 at km 8+700 of the river	An individual oak.	
WFS structure 44.5 Object no. o-88 at km 13+700 of the river	A oak in the group of 4 oaks at the Widawa river.	
WFS structure 44.18	A oak in the group of other impressive oaks, in the line of	The potential breeding habitat (including: feeding and breeding base) of Hermit beetle

Place of occurrence	Description of the environment	Description of occurring species
Object no. o-113 at km 3+900 of the river	blackthorn.	Osmoderma eremita (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive). A habitat of Great Capricorn Beetle Cerambyx cerdo (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.7 Object no. o-92 at km 10+700 of the river	An oak with its empty and burnt-out base, a group of monumental oaks located in the proximity - to be preserved.	
WFS structure 44.7 Object no. o-99 at km 10+600 of the river	An oak - rotten by the base and burnt-out, in the proximity of a stand-alone, large house.	
WFS structure 44.10 Object no. o-107 at km 6+500 of the river	A nearly dry oak, two live branches only.	
WFS structure 42.3.1 Object no. o-42 at km 3+500 of the river	An individual oak with a hollow at the fork.	The potential breeding habitat (including: feeding and breeding base) of Hermit beetle Osmoderma eremita (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.15 Object no. o-55 at km 13+000 of the river	An under-cut willow with rotten wood fragments from the base up to the height of 4 m, droppings (Cetoninae).	
WFS structure 44.15 Object no. o-56 at km 12+700 of the river	A curve by Redycka Street, heavily rotten willow.	
WFS structure 44.15 Object no. o-57 at km 15+800 of the river	A rotten willow from the base up to the height of 4 m, located 10 m from the embankment.	
WFS structure 44.14 Object no. o-58 at km 15+900 of the river	Fore-embankment - 15 from the embankment, nearly lying, partially rotten willow.	
WFS structure 44.15 Object no. o-59 at km 16+700 of the river	A rotten poplar, from the base up to the height of 3 m with a group of willows and poplars located further in the field.	
WFS structure 44.7 Object no. o-90 at km 10+800 of the river	An oak at the fore-embankment, rotten from the base up to the height of 4.5 m, 2 oaks at the behind-embankment.	
WFS structure 44.17 Object no. o-70 at km 8+750 of the river	An oak with a hollow at the height from 2 up to 3 m at the fore-embankment, over the Widawa river.	The potential breeding habitat (including: feeding and breeding base) of Hermit beetle Osmoderma eremita (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.17 Object no. o-72 at km 9+000 of the river	A lime with no top, rotten at all over its height with a narrow gap and empty at its base.	
WFS structure 44.17	An oak with rotten parts from the base up to 1.5 m.	The breeding habitat (including: feeding and breeding base) of Hermit beetle

Place of occurrence	Description of the environment	Description of occurring species
Object no. o-67 at km 8+700 of the river		Osmoderma eremita (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.9 Object no. o-87 at km 6+800 - 6+900 of the river	Among the fields a small meadow with numerous Great Burnet over the Widawa river.	The habitat of the following protected species: Caterpillar Moth Eriogaster catax (species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive). The habitat of Dusky Large Blue Maculinea nausitous and Scarce Large Blue Maculinea teleius (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.7 Object no. o-93 at km 10+200 of the river	A group of ashes, an edge of the forest, at the behind-embankment of the Widawa river.	A habitat of Scarce Fritillary Euphydryas maturna (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 19 Object no. o-117 at km 0+000 of the river	A section of the embankment (with its length of 1800 metres) with tree stand (being adjacent at both its sides) made of elm-ash riverine carr trees and oak-hornbeam trees with a large participation of European ash.	A habitat of Scarce Fritillary Euphydryas maturna (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.10 Object no. o-109 at km 6+000 - 6+400 of the river	A meadow with (a lot of) Great Burnet between the embankment and slopes.	The habitat of Dusky Large Blue Maculinea nausitous and Scarce Large Blue Maculinea teleius (the species from the Second (II) and Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.7 Object no. o-118 at km 10+800 - 11+000 of the river	A meadow with grown Great Burnet.	
WFS structure 44.7 Object no. o-119 at km 11+100 - 11+300 of the river		
WFS structure 19 Object no. o-114 at km 0+600 - 1+800 of the river	A section of the embankment (with its length of around 1300 metres) with several tens of pedunculate oaks growing at the embankment crest or within its close proximity (several metres on average) at both its sides.	A position of occurrence of Hermit Beetle and Great Capricorn - the species from the Second (II) Appendix of the Habitats Directive (a breeding place of adult insects and feeding of larvae). A potential breeding habitat of 2 protected species: Hermit Beetle from the Second (II) Appendix of the Habitats Directive and Grand Rose-Chafer (advanced stages of trunk decay with open access through birds' hollows).
Mammals - without bats		
WFS structures 19, 42.3, 42.3.1, 44.18, 44.10, 44.9, 44.16, 44.6, 45.4, Object no. s-3 at km 0+000 - 23+000 of the	The Widawa river together with its bank-side area.	The place of occurrence of the species from the Second (II) Appendix of the Habitats Directive: European Otter Lutra lutra and Eurasian Beaver Castor fiber as well as the species covered by full species protection: Common Shrew Sorex araneus, Eurasian Pygmy Shrew Sorex minutus, Eurasian Water Shrew Neomys fodiens, Hedgehog Erinaceus europaeus, Ermine Mustela erminea, Least weasel Mustela nivalis as well as the species covered by partial protection: European Water Vole Arvicola

Place of occurrence	Description of the environment	Description of occurring species
river		amphibius, European Mole <i>Talpa europaea</i> .
WFS structure 44.4 Object no. s-7 at km 16+500 - 16+700 of the river	Open flood-plains in the valley of the Widawa river with minor drying and old river-beds and trees.	The place of occurrence of mammals from the Second (II) Appendix of the Habitats Directive: the presence of Eurasian Beaver <i>Castor fiber</i> - indicated. The old river-bed can be a periodic feeding place of European Otter <i>Lutra lutra</i> . A potential position of Water Shrew <i>Neomys fodiens</i> and European Water Vole <i>Arvicola amphibius</i> .
WFS structures 44.4, 44.5 Object no. s-8 at km 14+500 - 16+900 of the river	Open flood-plains in the valley of the Widawa river with minor drying and old river-beds and trees.	The place of occurrence of mammals covered by full species protection: Common Shrew <i>Sorex araneus</i> , Eurasian Pygmy Shrew <i>Sorex minutus</i> , Hedgehog <i>Erinaceus</i> as well as covered by partial species protection: European Water Vole <i>Arvicola amphibius</i> , European Mole <i>Talpa europaea</i> . Probably the place of occurrence of Least weasel <i>Mustela nivalis</i> and Ermine <i>Mustela erminea</i> . All the old river-beds can be periodically (at the breeding time of amphibians) can be a breeding place of European Otter <i>Lutra lutra</i> .
WFS structure 44.15 Object no. s-9 at km 14+500 - 16+000 of the river	The Soltysowicki Forest close to the location of Soltysowice.	The place of occurrence of mammals covered by full species protection: Common Shrew <i>Sorex araneus</i> , Eurasian Pygmy Shrew <i>Sorex minutus</i> , Hedgehog <i>Erinaceus</i> as well as covered by partial species protection: European Water Vole <i>Arvicola amphibius</i> , European Mole <i>Talpa europaea</i> . There are also habitats of Ermine <i>Mustela erminea</i> and Least weasel <i>Mustela nivalis</i> .
WFS structure 44.15 Object no. s-10 at km 12+900 - 14+500 of the river	Open flood-plains in the valley of the Widawa river with minor drying and old river-beds and trees.	
WFS structure 44.7 Object no. s-11 at km 9+900 - 10+700 of the river	The river-bed of the old Widawa river together with its bank-based trees and shrubs.	The place of occurrence of two species of mammals from the Second (II) Appendix of the Habitats Directive: the presence of the following species was indicated: European Otter <i>Lutra lutra</i> and Eurasian Beaver <i>Castor fiber</i> and the species covered by full species protection: Common Shrew <i>Sorex araneus</i> , Eurasian Pygmy Shrew <i>Sorex minutus</i> as well as the species covered by partial species protection: European Water Vole <i>Arvicola amphibius</i> , European Mole <i>Talpa europaea</i> . The river-bed of the Old Widawa river is probably the place of occurrence of Least weasel <i>Mustela nivalis</i> , Ermine <i>Mustela erminea</i> and Water Shrew <i>Neomys fodiens</i> .
WFS structure 44.10 Object no. s-12 at km 6+600 - 7+000 of the river	Trees at the Widawa river, northern-west off Szymanow.	The place of occurrence of two species of mammals from the Second (II) Appendix of the Habitats Directive: the presence of the following species was indicated: European Otter <i>Lutra lutra</i> and Eurasian Beaver <i>Castor fiber</i> and the species covered by full species protection: Common Shrew <i>Sorex araneus</i> , Eurasian Pygmy Shrew <i>Sorex minutus</i> as well as the species covered by partial species protection: European Water Vole <i>Arvicola amphibius</i> , European Mole <i>Talpa europaea</i> . There are also habitats of Ermine <i>Mustela erminea</i> and Least weasel <i>Mustela nivalis</i> .
WFS structure 44.18 Object no. s-13 at km 4+600 - 6+700 of the river	Trees northern-east off the location of Swiniary close to the Mlynowsks stream.	The place of occurrence of the species from the Second (II) Appendix of the Habitats Directive: European Otter <i>Lutra lutra</i> and Eurasian Beaver <i>Castor fiber</i> as well as the species covered by full species protection: Common Shrew <i>Sorex araneus</i> , Eurasian Pygmy Shrew <i>Sorex minutus</i> , Eurasian Water Shrew <i>Neomys fodiens</i> , Hedgehog

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 19 Object no. s-15 at km 0+000 - 3+000 of the river	A forest in the proximity of the flood-protection embankment projected for demolition, within the outlet of the Widawar iver to the Odra river.	Erinaceus europaeus, Ermine Mustela erminea, Least weasel Mustela nivalis as well as the species covered by partial protection: European Water Vole Arvicola amphibius, European Mole Talpa europaea.
WFS structure 44.10 Object no. s-14 at km 3+900 - 6+100 of the river	A line of trees at the Widawa river, around 0.5 km northern-east off Swiniary - the left bank of the Widawa river.	The place of occurrence of two species covered by full species protection: Common Shrew Sorex araneus, Eurasian Pygmy Shrew Sorex minutus as well as covered by the partial species protection: European Water Vole Arvicola amphibius, European Mole Talpa europaea. There are also habitats of Ermine Mustela erminea and Least weasel Mustela nivalis. Trees in the close proximity of the Widawa river can be used by European Otter Lutra lutra and Eurasian Beaver Castor fiber as their resting, feeding place etc.
WFS structure 19 Object no. s-16 at km 2+800 of the river	Open flood-plains in the valley of the Widawa river with minor drying and old river-beds and trees.	The place of occurrence of mammals from the Second (II) Appendix of the Habitats Directive: the presence of the following species was indicated: European Otter Lutra lutra and Eurasian Beaver Castor fiber and the species covered by full species protection: Common Shrew Sorex araneus, Eurasian Pygmy Shrew Sorex minutus as well as the species covered by partial species protection: European Water Vole Arvicola amphibius, European Mole Talpa europaea. Probably the habitat of Water Shrew Neomys fodiens.
WFS structure 19 Object no. s-17 at km 0+000 of the river	The Odra river - a section close to the outlet of the Widawa river. The Odra river with trees at the close proximity of the river-bed.	The place of occurrence of two species of mammals from the Second (II) Appendix of the Habitats Directive: the presence of the following species was indicated: European Otter Lutra lutra and Eurasian Beaver Castor fiber and the species covered by full species protection: Common Shrew Sorex araneus, Eurasian Pygmy Shrew Sorex minutus as well as the species covered by partial species protection: European Water Vole Arvicola amphibius. There are also habitats of Ermine Mustela erminea, Least weasel Mustela nivalis and Water Shrew Neomys fodiens.
Bats		
WFS structure 44.4 Object no. n-21 at km 16+500 - 16+900 of the river	Open areas at both sides of the projected embankment - meadows.	The potential breeding place of Greater mouse-eared bat (the species from the Second (II) Appendix of the Habitats Directive) and Natterer's bat, Serotine bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Common Noctule (the species from the Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.5 Object no. n-27 at km 14+500 - 16+500 of the river		
WFS structure 44.15 Object no. n-23 at km 14+500 - 16+900 of the	Open areas between the railway tracks and the Soltysowski Forest.	

Place of occurrence	Description of the environment	Description of occurring species
river		
WFS structure 44.15 Object no. n-30 at km 13+300 - 14+500 of the river	Open areas from the Soltysowicki Forest to Polanowice.	The potential breeding place of Greater mouse-eared bat (the species from the Second (II) Appendix of the Habitats Directive) and Natterer's bat, Serotine bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Common Noctule (the species from the Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.7 Object no. n-33 at km 10+800 - 11+400 of the river	Open areas around the projected embankment - a meadow.	
WFS structure 44.9 Object no. n-39 at km 8+400 - 8+200 of the river	Open areas located at the area of the planned embankment located in the zone of the impact of the Works Contract.	
WFS structure 42.3.1 Object no. n-49 at km 3+500 - 3+800 of the river	Open areas located in the zone of the impact of the Works Contract.	
WFS structure 44.5 Object no. n-22 at km 16+500 of the river	A fragment of the Dobra river being a component of the impact of the Works Contract.	The potential feeding place of Pond Bat, Bechstein's Bat and Barbastelle (the species from the Second (II) Appendix of the Habitats Directive) as well as Whiskered bat / Brandt's Bat, Daubenton's Bat, Serotine bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Common Noctule, Brown long-eared bat (the species from the Fourth (IV) Appendix of the Habitats Directive).
WFS structure 19 Object no. n-52 at km 2+800 of the river	Two ponds (larger and smaller) located in a forest at both sides of the embankment at its terminal section, being a component of the scope of the impact of the Works Contract.	
WFS structure 19 Object no. n-53 at km 1+700 of the river	Two ponds (larger and smaller) located in a forest at the land-side of the embankment being a component of the scope of the impact of the Works Contract.	
WFS structure 44.15 Object no. n-24 at km 16+600 - 16+800 of the river	A fragment of the water reservoir at Kanonierska Alley.	
WFS structure 44.5 Object no. p-29 at km 15+700 of the river	The water reservoir at the level of Złotej Lili Street.	
WFS structure 44.17 Object no. n-37 at km 9+000 - 10+000 of the river	A fragment of the Old Widawa river.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 44.9 Object no. n-38 at km 8+300 - 8+800 of the river	A fragment of the Old Widawa river being a component of the impact of the Works Contract.	
WFS structure 44.10 Object no. n-46 at km 4+000 of the river	The water reservoir located close to the 342 road located in the zone of the impact of the Works Contract.	The potential feeding place of Pond Bat, Bechstein's Bat and Barbastelle (the species from the Second (II) Appendix of the Habitats Directive) as well as Whiskered bat / Brandt's Bat, Daubenton's Bat, Serotine bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Common Noctule, Brown long-eared bat (the species from the Fourth (IV) Appendix of the Habitats Directive).
WFS structure 19 Object no. n-55 at km 1+000 of the river	A pond located between the river-bed of the Widawa river and the Lesicki Forest being a component of the impact of the Works Contract.	
WFS structure 44.15 Object no. n-25 at km 14+200 - 16+000 of the river	The Soltysowicki Forest.	The potential breeding place of Bechstein's Bat and Barbastelle (the species from the Second (II) Appendix of the Habitats Directive) as well as Natterer's Bat, Whiskered Bat / Brandt's Bat, Daubenton's Bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Common Noctule, Lesser Noctule, Brown long-eared bat (the species from the Fourth (IV) Appendix of the Habitats Directive); potential mating positions of Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Common Noctule (the species from the Fourth (IV) Appendix of the Habitats Directive); potential shelter of Greater mouse-eared bat, Bechstein's Bat and Barbastelle (the species from the Second (II) Appendix of the Habitats Directive) as well as Natterer's bat, Whiskered bat / Brandt's Bat, Daubenton's Bat, Nathusius's Pipistrelle, Brown long-eared bat (the species from the Fourth (IV) Appendix of the Habitats Directive); potential overwintering area for Common Noctule (species from the 4th (IV) Appendix of the Environmental Directive); potential feeding place of Greater mouse-eared bat, Bechstein's Bat and Barbastelle (the species from the Second (II) Appendix of the Habitats Directive) as well as Natterer's bat, Whiskered bat / Brandt's Bat, Daubenton's Bat, Brown long-eared bat (the species from the Fourth (IV) Appendix of the Habitats Directive).
WFS structure 42.3.1 Object no. n-50 at km 0+000 - 3+800 of the river	A forest at the left side of the Widawa river being a component of the impact of the Works Contract.	
WFS structure 19 Object no. n-51 at km 0+000 - 3+100 of the river	Fragments of the Lesicki Forest around the existing embankment, southern-west off the village of Paniowice, located in the zone of the impact of the Works Contract.	
WFS structure 44.10 Object no. n-47 at km 3+000 - 3+900 of the river	Trees at both sides of the Wroclaw - Szewce railway tracks located in the zone of the impact of the Works Contract.	
WFS structures 44.18, 42.3 Object no. n-48 at km 3+800 - 4+200 of the river	Trees located west off Swiniary being adjacent to the modernised embankment located in the zone of the impact of the Works Contract.	
WFS structure 44.17 Object no. n-36 at km 9+000 - 9+500 of the river	Trees located east off the river-bed of the Widawa river located in the zone of the impact of the Works Contract.	
WFS structure 44.17 Object no. n-40 at km 7+100 - 7+800 of the river	Trees along the road running across the projected embankment as well as along the existing embankment.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 44.7 Object no. n-34 at km 10+700 - 11+000 of the river	Trees at the land-side of the projected embankment.	
WFS structure 44.18 Object no. n-41 at km 4+500 - 6+700 of the river	Trees located northern east off Swiniary being adjacent to the modernised embankment located in the zone of the impact of the Works Contract.	
WFS structure 44.9 Object no. n-42 at km 6+600 - 6+900 of the river	Fragments of trees being a component of the impact of the Works Contract.	
WFS structure 44.10 Object no. n-43 at km 3+900 - 6+100 of the river	Trees located at the area of the planned embankment located in the zone of the impact of the Works Contract.	
WFS structure 44.16 Object no. n-35 at km 9+800 - 10+500 of the river	A forest complex located northern east off the city district of Widawa.	
WFS structure 44.5 Object no. n-28 at km 15+800 - 16+300 of the river	Trees between the embankment and buldings of the city district of Klokoczyce.	
WFS structure 44.16 Object no. n-31 at km 12+500 - 12+800 of the river	A forest at the level of Starocinska Street (the city district of Polanowice).	
WFS structure 44.7 Object no. n-32 at km 11+200 - 11+400 of the river	Trees located at the water-side of the projected embankment, close to the Widawa river.	
WFS structure 44.15 Object no. n-26 at km 16+000 of the river	A bunker at the Lisia Gora (Foxy Hill).	The potential overwintering area for Greater mouse-eared bat, Barbastelle (the species from the Second (II) Appendix of the Habitats Directive), Brown long-eared bat, Daubenton's Bat, Natterer's bat (the species from the Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.18 Object no. n-44 at km 5+200 - 5+800 of the	Open areas being bunker being adjacent to the modernised embankment located in the zone of the impact of the Works Contract.	The potential breeding place of Greater mouse-eared bat (the species from the Second (II) Appendix of the Habitats Directive) and Natterer's bat, Serotine bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Common Noctule

Place of occurrence	Description of the environment	Description of occurring species
river		(the species from the Fourth (IV) Appendix of the Habitats Directive).
WFS structure 42.2 Object no. n-56 at km 9+600 - 10+200 of the river	Open areas along the river-bed of the Widawa river.	
WFS structures 42.3, 44.10 Object no. n-45 at km 4+900 of the river	Open areas located in the zone of the impact of the Works Contract.	
WFS structure 19 Object no. n-54 at km 0+000 - 1+600 of the river		
Fish		
r-2 (Widawa) WFS structures 42.2, 42.3, 42.3.1, 43	The Widawa river is a natural object. This is a clay and sand based river, settled (regulated), with its levelled width (around 15 m) and minor depth (around 0,6 m on average). The river banks are strengthened with loose sand coverage overgrown with rush communities. In the river there are numerous submerged macrophytes constituting up to 50% of the bottom coverage - mainly made of Pondweed Potamogeton and aqueous forms of Flowering rush Butomus umbellatus and Bur-reed Sparganium. In corridors between clusters of plants the bottom is gravel-based, in other places - sandy or muddy. At the bottom there are numerous mussels from Unionidae family which determine the presence of European Bitterling Rhodeus sericeus amarus (it lays eggs in the body of mussels).	Within the Widawa river there are favourable spawning grounds for fish of all their breeding groups. The area of the specified objects is the habitat of Spined loach, European weather loach, European bitterling and Stone loach. Above the connection with the traffic channel (the Piskorna river) in the Widawa river (the area of the WFS Object no. 42) there is a position of Ray-finned fish Sabanejewia aurata which, in spite of numerous studies, has never been found below the outlet of the Piskorna river. The position of Ray-finned fish Sabanejewia aurata is the only one in the catchment of the Widawa river and one of several within the whole basin of the Odra river. The position of the species covers a very short, several-metre section of the Widawa river. The planned Works Contract borders with the lower area of occurrence of the species in the Widawa river. Spined loach Cobitis taenia, Ray-finned fish Sabanejewia aurata, European weather loach and European Bitterling Rhodeus sericeus amarus are the species from the Second (II) Appendix of the Habitats Directive, covered by species protection in Poland. Stone Loach Barbatula barbatula is a species covered by species protection in Poland.
Amphibians and reptiles		
WFS structure 45.3 Object no. p-11 at km 17+200	Small water ponds and backwaters at the right bank of the Widawa river, between the railway lines leading to Psie Pole and the road over-pass leading traffic to Psie Pole.	The breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - European Fire-bellied Toad Bombina bombina and Great Crested Newt Triturus cristatus. Moreover, the occurrence of Edible Frog Pelophylax esculentus and Smooth Newt Lissotriton vulgaris was identified.
WFS structure 44.5 Object no. p-12 at km 16+700 of the river	The old river-bed of the Widawa, at the mid-embankment of the Widawa river, at the right bank of the river, by the outlet of the Dobra river to the Widawa river.	

Place of occurrence	Description of the environment	Description of occurring species
	The old river-bed over-growing with reed and other rush plants.	
WFS structure 44.4 Object no. p-13 at km 16+500 of the river	The old river-bed of the Widawa, at the mid-embankment of the Widawa river, at the right bank of the river, by the outlet of the Dobra river to the Widawa river.	
WFS 44.15, 44.16 Object no. p-14 at km 16+700 of the river	Settlers of the closed sugar factory, at the left bank of the Widawa river, east off Soltysowice.	The breeding place of Edible Frog <i>Pelophylax esculentus</i> . The potential breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - European Fire-bellied Toad <i>Bombina bombina</i> as well as Common Spade-foot <i>Pelobates fuscus</i> (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Common Toad <i>Bufo bufo</i> and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structures 44.15, 44.16 Object no. p-15 at km 16+500 of the river		The breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - European Fire-bellied Toad <i>Bombina bombina</i> and Common Toad <i>Bufo bufo</i> as well as the potential breeding place of European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) and European green toad <i>Pseudepipedeia viridis</i> (the Fourth (IV) Appendix of the Habitats Directive).
WFS structures 44.15, 44.16 Object no. p-16 at km 16+200 of the river		The breeding place of European green toad <i>Pseudepipedeia viridis</i> (the Fourth (IV) Appendix of the Habitats Directive).
WFS structures 44.15, 44.16 Object no. p-17 at km 16+100 of the river		The breeding place of Common Frog <i>Rana temporaria</i> .
WFS structures 44.15, 44.16 Object no. p-21 at km 12+200 - 12+700 of the river		
WFS structures 44.15, 44.16 Object no. p-21 at km 12+200 - 12+700 of the river	Backwaters of the melioration ditch by the Kamienskigo Street.	
WFS structures 44.15, 44.16 Object no. p-18 at km 15+700 of the river	A pond at the border of the Soltysowicki Forest and garden allotments, the pond which is moved most to the east.	The breeding place of Edible Frog <i>Pelophylax esculentus</i> and Common Toad <i>Bufo bufo</i> . The potential breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - European Fire-bellied Toad <i>Bombina bombina</i> and Great Crested Newt <i>Triturus cristatus</i> . Moreover, at this position the following species can breed: Common Spadefoot <i>Pelobates fuscus</i> (the Fourth (IV) Appendix of the Habitats Directive), Moor Frog <i>Rana arvalis</i> (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) and Smooth Newt <i>Lissotriton vulgaris</i> .

Place of occurrence	Description of the environment	Description of occurring species
WFS structures 44.15, 44.16 Object no. p-19 at km 15+700 of the river	A pond at the border of the Soltysowicki Forest and garden allotments, the middle pond.	The breeding place of Edible Frog <i>Pelophylax esculentus</i> and Common Toad <i>Bufo bufo</i> . Moreover, at this position the following species can breed: Common Spadefoot <i>Pelobates fuscus</i> (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structures 44.15, 44.16 Object no. p-20 at km 13+300 of the river	Backwaters of the Widawa river at the left bank of the river by the road made of concrete slabs running from Redycka Street up to the military area at Soltysowice.	
WFS structure 44.7 Object no. p-22 at km 11+300 of the river	Old river-bed of the Widawa river, at the right bank of the river, at the land-side of the flood-protection embankment, west off Krzyzanowice.	The breeding place of several species of amphibians, including Moor Frog <i>Rana arvalis</i> (the 4th (IV) Appendix of the Habitats Directive) and Edible Frog <i>Pelophylax esculentus</i> .
WFS structures 44.15, 44.16 Object no. p-23 at km 11+000 - 11+200 of the river	Backwaters of the Widawa river, at the left bank of the river, at the land-side of the flood-protection embankment, west off Krzyzanowice.	The breeding place of European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive), Moor Frog <i>Rana arvalis</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Common Frog <i>Rana temporaria</i> .
WFS structure 44.18 Object no. p-24 at km 5+300 of the river	Mansion ponds in Swiniary.	The breeding place of several species of amphibians, including the species from the Second Appendix of the Habitats Directive - Great Crested Newt <i>Triturus cristatus</i> . Moreover, at this position the following species breed: European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive), Pool Frog <i>Pelophylax lessonae</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Edible Frog <i>Pelophylax esculentus</i> and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structure 19 Object no. p-25 at km 2+700 of the river	Two water reservoirs north off the Widawa river, south off Paniowice, by the gravel-based road leading to the mining pits in Paniowice.	
WFS structure 19 Object no. p-26 at km 0+000 of the river	A complex of wet and over-growing meadows, land depressions, reed areas, north of the mining pits in Paniowice, north off the Widawa river-bed.	
WFS structure 19 Object no. p-27 at km 0+000 of the river	Backwaters / old river-beds of the melioration ditch west off Paniowice, around 50 metres from the flood-protection embankment, at its water-land side.	The breeding place of Edible Frog <i>Pelophylax esculentus</i> and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structure 44.9 Object no. p-66 at km 8+000 of the river	Breeding ponds, south off the village of Szymanow, at the complex of three ponds - the pond which is the closest to the Widawa river.	
WFS structure 19 Object no. p-28 at km 0+000 of the river	A small water pond surrounded by a forest, at the edge of this forest, by a meadow, west off Paniowice and south off Kotowice.	The breeding place of the species from the Second Appendix of the Habitats Directive - Great Crested Newt <i>Triturus cristatus</i> .
WFS structure 19 Object no. p-29 at km 0+000 of the river	Ruts at the mid-field meadow, northern-east off the Odra river bay, at the right river bank, south off Kotowice.	The ephemeral breeding place of the species from the Second Appendix of the Habitats Directive - European Fire-bellied Toad <i>Bombina orientalis</i> .

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 19 Object no. p-30 at km 0+000 of the river	Old river-beds of the Odra river, northern-east off the Odra river bay, at the right river bank, south off Kotowice.	The breeding place of the species from the Second Appendix of the Habitats Directive - European Fire-bellied Toad <i>Bombina orientalis</i> . The potential breeding place of Great Crested Newt <i>Triturus cristatus</i> (the Second Appendix of the Habitats Directive). Moreover, at this position the following species can breed: Common Spadefoot <i>Pelobates fuscus</i> (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive), Common Toad <i>Bufo bufo</i> , Edible Frog <i>Pelophylax esculentus</i> and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structure 19 Object no. p-31 at km 1+600 - 1+300 of the river	Two water reservoirs, around 100 metres east off the mining pits in Paniowice, surrounded by a forest.	The breeding place of the following species: Great Crested Newt <i>Triturus cristatus</i> (the Second Appendix of the Habitats Directive) as well as Edible Frog <i>Pelophylax esculentus</i> . Moreover, at this position the following species can breed: Common Spadefoot <i>Pelobates fuscus</i> (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive), Common Toad <i>Bufo bufo</i> and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structure 19 Object no. p-32 at km 1+000 of the river	A meadow being adjacent to the left bank of the Widawa river, surrounded by the Lesicki Forest. A pond at the meadow between the Widawa river and the edge of the forest.	A living and breeding place of amphibians. At brushwood by the bank of the Widawa river, the presence of European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) was identified (probably breeding in the water reservoir). At the reservoir the presence of large populations of Pool Frog <i>Pelophylax lessonae</i> and Edible Frog <i>Pelophylax esculentus</i> were identified. Adult and juvenile specimen were estimated at the level of 100 - 200.
WFS structure 19 Object no. p-33 at km 0+000 of the river	A small water reservoir surrounded by the forest, around 50 metres northern-east off the Odra river curve, at the right bank of the river south off Kotowice.	The breeding place of the following species from the Second Appendix of the Habitats Directive: Great Crested Newt <i>Triturus cristatus</i> as well as Smooth Newt <i>Lissotriton vulgaris</i> . Moreover, at this position the following species can breed: Common Spadefoot <i>Pelobates fuscus</i> (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) and Edible Frog <i>Pelophylax esculentus</i> .
WFS structure 19 Object no. p-36 at km 0+000 of the river	A water pond surrounded by a grove, by the flood-protection embankment of the Odra river, at its land-side, southern-east off Rakow.	The breeding place of the species from the Second Appendix of the Habitats Directive: Great Crested Newt <i>Triturus cristatus</i> as well as Edible Frog <i>Pelophylax esculentus</i> . Moreover, this is the potential breeding place of Common Spade-foot <i>Pelobates fuscus</i> (the 4th (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the 4th (IV) Appendix of the Habitats Directive) as well as Common Toad <i>Bufo bufo</i> and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structure 19 Object no. p-37 at km 0+000 of the river		
WFS structure 19 Object no. p-34 at km 0+000 of the river	The old river-bed of the Mienica river, by the outlet of the Odra river, southern-west off Kotowice.	The breeding place of Edible Frog <i>Pelophylax esculentus</i> . The potential breeding place of Common Spade-foot <i>Pelobates fuscus</i> (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Common Toad <i>Bufo bufo</i> .
WFS structure 19 Object no. p-35 at km 0+000 of the river	Backwaters of the melioration ditch being adjacent to the flood-protection embankment of the Odra river, at the water-side of the embankment, southern-east off the	The breeding and living place of several species of amphibians, including the species from the Second Appendix of the Habitats Directive - Great Crested Newt <i>Triturus cristatus</i> . Moreover, the following species breed at this position: Smooth Newt

Place of occurrence	Description of the environment	Description of occurring species
	village of Rakow.	Lissotriton vulgaris and Edible Frog Pelophylax esculentus. Moreover, this is the potential breeding place of: European Fire-bellied Toad Bombina bombina (the Second (II) Appendix of the Habitats Directive), Common Spade-foot Pelobates fuscus (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog Hyla arborea (the Fourth (IV) Appendix of the Habitats Directive), Moor Frog Rana arvalis (the Fourth (IV) Appendix of the Habitats Directive) as well as Common Toad Bufo bufo and Common Frog Rana temporaria.
WFS structure 19 Object no. p-38 at km 0+000 of the river	A water reservoir, backwaters, sedges and thickets (willows) at the former curve of the Odra river being adjacent to the eastern part of the village of Rakow.	The breeding place of Edible Frog Pelophylax esculentus. This is the potential breeding place of the following species: European Fire-bellied Toad Bombina bombina (the Second (II) Appendix of the Habitats Directive) as well as Common Spade-foot Pelobates fuscus (the Fourth (IV) Appendix of the Habitats Directive), European Tree Frog Hyla arborea (the Fourth (IV) Appendix of the Habitats Directive), Moor Frog Rana arvalis (the Fourth (IV) Appendix of the Habitats Directive) as well as Common Toad Bufo bufo and Common Frog Rana temporaria.
WFS structures 44.15, 44.16 Object no. p-59 at km 16+700 of the river	Settlers of the closed sugar factory, at the left bank of the Widawa river, east off Soltysowice.	The potential breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - Great Crested Newt Triturus cristatus and European Fire-bellied Toad Bombina bombina, from the 4th (IV) Appendix of the Habitats Directive - Common Spade-foot Pelobates fuscus, European Tree Frog Hyla arborea, Moor Frog Rana arvalis as well as the species covered under the national law - Smooth Newt Lissotriton vulgaris, Common Toad Bufo bufo and Edible Frog Pelophylax esculentus.
WFS structure 44.14 Object no. p-58 at km 17+000 of the river	A small water pond / backwaters at the left bank of the Widawa river between the railway lines leading to Psie Pole and the road over-pass leading traffic to Psie Pole.	
WFS structures 44.15, 44.16 Object no. p-60 at km 16+200 of the river	Settlers of the closed sugar factory, at the left bank of the Widawa river, east off Soltysowice.	The potential breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - European Fire-bellied Toad Bombina bombina and from the Fourth (IV) Appendix of the Habitats Directive - European Tree Frog Hyla arborea and European green toad Pseudepipedeia viridis as well as the species protected under the national law - Common Frog Rana temporaria.
WFS structure 44.5 Object no. p-61 at km 16+000 of the river	Sedges by the melioration ditch south off Klokoczyce.	
WFS structure 44.5 Object no. p-62 at km 15+900 of the river	A pond located south off Klokoczyce.	The potential breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - Great Crested Newt Triturus cristatus and European Fire-bellied Toad Bombina bombina, from the 4th (IV) Appendix of the Habitats Directive - Common Spade-foot Pelobates fuscus, European Tree Frog Hyla arborea as well as the species covered under the national law - Smooth Newt Lissotriton vulgaris, Common Toad Bufo bufo and Edible Frog Pelophylax esculentus.
WFS structures 44.15,	A longitudinal water reservoir at the border of the	The potential breeding place of Smooth Newt Lissotriton vulgaris, Common Toad Bufo

Place of occurrence	Description of the environment	Description of occurring species
44.16 Object no. p-63 at km 15+300 - 15+500 of the river	Soltysowicki Forest, by the flood-protection embankment.	bufo and Edible Frog <i>Pelophylax esculentus</i> .
WFS structure 44.16 Object no. p-64 at km 9+700 of the river	A melioration ditch located between the Widawa river and the channel - the Old Widawa river, west off the national road no. 5 between the locations of Widawa and Psary.	The potential breeding place of several species of amphibians, including European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Smooth Newt <i>Lissotriton vulgaris</i> , Common Frog <i>Rana temporaria</i> and Edible Frog <i>Pelophylax esculentus</i> .
WFS structure 44.17 Object no. p-65 at km 8+200 - 8+400 of the river	The Widawa old river-bed, at the left bank of the river, south off Szymanow.	
WFS structure 44.9 Object no. p-67 at km 8+100 of the river	Breeding farms, south off the village of Szymanow, at the complex of three ponds - two ponds at the eastern side of the complex of the ponds.	The potential breeding place of several species of amphibians, including European Tree Frog <i>Hyla arborea</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Smooth Newt <i>Lissotriton vulgaris</i> , Common Toad <i>Bufo bufo</i> and Edible Frog <i>Pelophylax esculentus</i> .
WFS structure 44.10 Object no. p-68 at km 3+800 - 4+000 of the river	A house-hold pond at the exit off the national road no. 5 at the east, between Swiniary and Szewce, the exit is located at around 100 metres north of the bridge at the Widawa river.	
WFS structure 19 Object no. p-69 at km 1+300 - 1+700 of the river	Excavations flooded with water at the mining pits in Paniowice.	The potential breeding place of European green toad <i>Pseudopoda viridis</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Common Toad <i>Bufo bufo</i> and Edible Frog <i>Pelophylax esculentus</i> .
WFS structure 19 Object no. p-70 at km 0+000 of the river	Backwaters of the melioration ditch being adjacent to the flood-protection embankment of the Odra river, at the water-side of the embankment, south off the village of Rakow.	The potential breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - Great Crested Newt <i>Triturus cristatus</i> and European Fire-bellied Toad <i>Bombina orientalis</i> , from the 4th (IV) Appendix of the Habitats Directive - European Tree Frog <i>Hyla arborea</i> , Moor Frog <i>Rana arvalis</i> as well as the species protected under national law - Smooth Newt <i>Lissotriton vulgaris</i> , Common Frog <i>Rana temporaria</i> and Edible Frog <i>Pelophylax esculentus</i> .
WFS structure 19 Object no. p-71, 72 at km 0+000 of the river	A water reservoir located at the extension of the melioration ditch being adjacent to the flood-protection embankment of the Odra river, at the water-side of the embankment, south off the village of Rakow.	The potential breeding place of several species of amphibians, including the species from the Second (II) Appendix of the Habitats Directive - Great Crested Newt <i>Triturus cristatus</i> and European Fire-bellied Toad <i>Bombina orientalis</i> , from the 4th (IV) Appendix of the Habitats Directive - Common Spade-foot <i>Pelobates fuscus</i> , European Tree Frog <i>Hyla arborea</i> , Moor Frog <i>Rana arvalis</i> as well as the species covered under the national law - Smooth Newt <i>Lissotriton vulgaris</i> , Common Toad <i>Bufo bufo</i> , Common Frog <i>Rana temporaria</i> and Edible Frog <i>Pelophylax esculentus</i> .
WFS structure 19	A deciduous forest being adjacent to the Odra river-bed	The potential feeding and over-wintering place of amphibians, including the species

Place of occurrence	Description of the environment	Description of occurring species
Object no. p-119 at km 0+000 of the river	between the Odra river-bed and the flood-protection embankment, southern-east off Rakow.	from the Second (II) Appendix of the Habitats Directive - European Fire-bellied Toad <i>Bombina orientalis</i> and Great Crested Newt <i>Triturus cristatus</i> as well as European Tree Frog <i>Hyla arborea</i> (the 4th (IV) Appendix of the Habitats Directive), Moor Frog <i>Rana lessonae</i> (the 4th (IV) Appendix of the Habitats Directive), Common Frog <i>Rana temporaria</i> , Common Toad <i>Bufo bufo</i> , and Smooth Newt <i>Lissotriton vulgaris</i> .
WFS structure 19 Object no. p-120 at km 0+000 of the river	Meadows being adjacent to sedges and backwaters of the melioration ditch running at the water-side of the flood-protection embankment of the Odra river, southern-east off Rakow.	
WFS structure 19 Object no. p-121 at km 0+000 of the river	A mid-field meadow surrounded by a forest at all its sides located at the right bank of the Odra river, in the mid-embankment, southern-east off Rakow.	
WFS structure 19 Object no. p-122 at km 0+000 of the river	A meadow being adjacent to the Odra river-bed, in the mid-embankment, at the right bank of the Odra river, south off Rakow.	
WFS structure 44.9 Object no. p-126 at km 6+700 of the river	Old river-bed of the Widawa river, at the right bank of the river, around 400 metres west off Szymanow.	
WFS structure 19 Object no. p-113 at km 0+000 - 1+300 of the river	A complex of meadows, west off the mining pits in Paniowice.	
WFS structure 19 Object no. p-114 at km 0+000 - 1+800 of the river	A deciduous forest being adjacent to the river-bed of the Widawa river, at the right bank of the river, south off the mining pits in Paniowice.	
WFS structure 19 Object no. p-115 at km 0+000 of the river	A deciduous forest being adjacent to the river-bed of the Odra river, west off the mining pits in Paniowice.	
WFS structure 19 Object no. p-116 at km 0+000 of the river	A mid-field meadow, west off the mining pits in Paniowice and south off the village of Kotowice.	
WFS structure 19 Object no. p-117 at km 0+000 of the river	Meadows, sedges and reed-covered areas of the Mienica river, spreading along the flood-protection embankment of the Odra river, at the water-side of the embankment, south off Kotowice.	
WFS structure 19 Object no. p-118 at km 0+000 of the river	A deciduous forest being adjacent to the Odra river-bed between the Odra river-bed and the Mienica river.	
WFS structure 44.18 Object no. p-107 at km 4+600 - 6+700 of the	A mansion forest in Swiniary, between the Mlynowska river and the Widawa river, at the left bank of the Widawa river.	

Place of occurrence	Description of the environment	Description of occurring species
river		
WFS structure 44.10 Object no. p-108 at km 4+000 - 6+100 of the river	A deciduous forest running along the right bank of the Widawa river, west off Szymanow.	
WFS structure 19 Object no. p-109 at km 0+000 - 3+800 of the river	A deciduous hornbeam forests and riverine forest with a considerable participation of oaks.	
WFS structure 19 Object no. p-110 at km 0+600 - 1+600 of the river	A meadow, at the left bank of the Widawa river being adjacent to the river-bed, separated by the Lesicki Forest at three sides.	
WFS structure 19 Object no. p-111 at km 2+100 - 3+000 of the river	A deciduous forest, east off the mining pits in Paniowice.	
WFS structure 19 Object no. p-112 at km 1+300 - 2+500 of the river	A deciduous forest being adjacent to the flood-protection embankment between Paniowice and the mining pits in Paniowice.	
WFS structure 44.15 Object no. p-102 at km 13+400 - 14+200 of the river	A complex of meadows, at the right bank of the Widawa river, within the military areas, north off Redycka Street.	
WFS structure 44.15 Object no. p-103 at km 12+700 - 14+000 of the river	A complex of meadows, at the right bank of the Widawa river, within the military areas, north off the Wroclaw Motorway Bypass.	
WFS structure 44.7 Object no. p-104 at km 11+000 - 11+400 of the river	A complex of meadows, at the right bank of the Widawa, at the behind-embankment, between Krzyzanowice and Psary.	
WFS structure 44.8 Object no. p-105 at km 9+700 - 10+500 of the river	A deciduous forest at the behind-embankment of the Widawa river, at the right bank of the river, between Psary and Widawa.	
WFS structure 44.9 Object no. p-106 at km	A small grove separated by the old river-bed from the flood-protection embankment of the Widawa river, at the	

Place of occurrence	Description of the environment	Description of occurring species
8+200 - 8+400 of the river	right bank of the river, south off Szymanow.	
WFS structures 44.15, 44.16 Object no. p-96 at km 15+000 - 16+100 of the river Object no. p-98 at km 16+000 - 16+400 of the river	The Soltysowicki Forest, Soltysowice.	
WFS structures 44.15, 44.16 Object no. p-99 at km 13+000 - 14+500 of the river	A complex of meadows, at the left bank of the Widawa river, west off Soltysowice, north off Redycka Street.	
WFS structure 44.15 Object no. p-100 at km 14+500 - 15+300 of the river	Meadows, at the left bank of the Widawa river, between the road running northwards from Soltysowice (Soltysowicka Street) up to the Widawa river and the Widawa river-bed.	
WFS structure 44.15 Object no. p-101 at km 14+500 - 14+800 of the river	A wet deciduous grove at the behind-embankment of the Widawa river, at the right bank of the river, east off the bridge over the Widawa river at Soltysowicka Street.	
WFS structure 44.5 Object no. p-97 at km 14+600 - 16+500 of the river	A complex of meadows, at the right bank of the Dobra river, at the outlet to the Widawa river.	
WFS structure 44.14 Object no. p-91 at km 16+900 - 17+200 of the river	Over-growing meadows and reed-covered areas at the left bank of the Widawa river between the railway lines leading to Psie Pole and the road over-pass leading traffic to Psie Pole.	
WFS structure 45.3 Object no. n-92 at km 16+900 - 17+200 of the river	Over-growing meadows and reed-covered areas at the right bank of the Widawa river between the railway lines leading to Psie Pole and the road over-pass leading traffic to Psie Pole.	
WFS structure 44.4 Object no. p-93 at km 16+500 - 16+900 of the river	A complex of meadows, at the left bank of the Dobra river, at the outlet to the Widawa river.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 44.4 Object no. n-94 at km 16+500 - 16+700 of the river	A willow riverine deciduous forest at the left behind-embankment of the Widawa river being adjacent to the area of the former sugar factory in Soltysowice.	
WFS structure 44.15 Object no. p-95 at km 15+300 - 16+900 of the river	A complex of meadows (partially over-growing, partially totally over-growing with reeds at the left bank of the Widawa river, at the mid-embankment, east off Soltysowice.	
WFS structure 45.3 Object no. g-22 at km 16+900 - 17+200 of the river WFS 44.14 Object no. g-23 at km 16+900 - 17+200 of the river	Over-growing meadows and reed-covered areas at the right bank of the Widawa river between the railway lines leading to Psie Pole and the road over-pass leading traffic to Psie Pole.	The place of occurrence of Sand Lizard <i>Lacerta agilis</i> (the Fourth (IV) Appendix of the Habitats Directive), Slow Worm <i>Anguis fragilis</i> as well as Grass Snake <i>Natrix natrix</i> .
WFS structure 44.4 Object no. g-25 at km 16+500 - 16+900 of the river	A complex of meadows, at the left bank of the Dobra river, at the outlet to the Widawa river.	The place of occurrence of Sand Lizard <i>Lacerta agilis</i> (the Fourth (IV) Appendix of the Habitats Directive), Slow Worm <i>Anguis fragilis</i> as well as Grass Snake <i>Natrix natrix</i> .
WFS structure 44.5 Object no. g-73 at km 16+000 - 16+500 of the river	Trees along the melioration ditch separating Soltysowice from meadows at the Widawa river.	The place of occurrence of Grass Snake <i>Natrix natrix</i> .
WFS structures 44.15, 44.16 Object no. g-77 at km 15+600 of the river	A longitudinal water reservoir at the border of the Soltysowicki Forest, by the flood-protection embankment.	
WFS structure 44.14 Object no. g-24 at km 16+900 - 17+200 of the river	A small water pond / backwaters at the left bank of the Widawa river between the railway lines leading to Psie Pole and the road over-pass leading traffic to Psie Pole.	
WFS structure 44.14 Object no. g-26 at km 16+500 of the river	The old river-bed of the Widawa, at the mid-embankment of the Widawa river, at the right bank of the river, by the outlet of the Dobra river to the Widawa river.	
WFS structure 44.14 Object no. g-27 at km 16+300 of the river	The old river-bed of the Widawa, at the mid-embankment of the Widawa river, at the right bank of the river, by the outlet of the Dobra river to the Widawa river.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 19 Object no. g-34 at km 1+600 - 1700 of the river	Two water reservoirs, around 100 metres east off the mining pits in Paniowice, surrounded by a forest.	
WFS structure 19 Object no. g-35 at km 1+000 of the river	A meadow being adjacent to the left bank of the Widawa river, surrounded by the Lesicki Forest.	
WFS structure 19 Object no. g-37 at km 2+700 of the river	Two water reservoirs north off the Widawa river, south off Paniowice, by the gravel-based road leading to the mining pits in Paniowice.	
WFS structures 44.15, 44.16 Object no. g-65 at km 16+100 of the river Object no. g-66 at km 16+200 of the river Object no. g-67 at km 19+600 - 16+800 of the river Object no. g-68 at km 16+500 of the river Object no. g-70 at km 16+600 - 16+800 of the river	Settlers of the closed sugar factory, at the left bank of the Widawa river, east off Soltysowice.	
WFS structure 44.15 Object no. g-31 at km 14+500 - 15+300 of the river	Meadows, at the left bank of the Widawa river, between the road running northwards from Soltysowice (Soltysowicka Street) up to the Widawa river and the Widawa river-bed.	The place of occurrence of Sand Lizard <i>Lacerta agilis</i> (the 4th (IV) Appendix of the Habitats Directive) as well as Grass Snake <i>Natrix natrix</i> .
WFS structure 19 Object no. g-38 at km 0+000 of the river	A complex of wet and over-growing meadows, land depressions, reed areas, north of the mining pits in Paniowice, north off the Widawa river-bed.	
WFS structure 44.16 Object no. g-32 at km 11+200 - 11+500 of the river	The flood-protection of the Widawa river, at the left bank of the river, west off Krzyzanowice.	The place of occurrence of Sand Lizard <i>Lacerta agilis</i> (the 4Fourth (IV) Appendix of the Habitats Directive).
WFS structure 44.8 Object no. g-33 at km 11+200 - 11+500 of the river	The flood-protection of the Widawa river, at the right bank of the river, west off Krzyzanowice.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structures 44.15, 44.16 Object no. g-69 at km 16+000 - 16+800 of the river	Settlers of the closed sugar factory, at the left bank of the Widawa river, east off Soltysowice.	
WFS structure 19 Object no. p-36 at km 0+100 - 0+500 of the river	The mid-embankment at the right bank of the Odra river between the outlet of the Trzciana river.	The occurrence of Viviparous lizard <i>Lacerta vivipara</i> , the potential place of occurrence of Sand Lizard <i>Lacerta agilis</i> (the Fourth (IV) Appendix of the Habitats Directive) as well as Slow Worm <i>Anguis fragilis</i> was identified.
WFS structure 19 Object no. g-39 at km 0+000 of the river	Backwaters of the melioration ditch being adjacent to the flood-protection embankment of the Odra river, at the water-side of the embankment, southern-east off the village of Rakow.	
WFS structures 44.15, 44.16 Object no. g-72 at km 15+300 - 16+900 of the river	A complex of meadows (partially over-growing, partially totally over-growing with reeds at the left bank of the Widawa river, at the mid-embankment, east off Soltysowice.	
WFS structures 44.15, 44.16 Object no. g-71 at km 16+500 - 16+700 of the river	A willow riverine deciduous forest at the left behind-embankment of the Widawa river being adjacent to the area of the former sugar factory in Soltysowice.	The potential place of occurrence of Slow Worm <i>Anguis fragilis</i> and Grass Snake <i>Natrix natrix</i> .
WFS structures 44.15, 44.16 Object no. g-80 at km 15+000 - 16+000 of the river	The Soltysowicki Forest, Soltysowice.	
WFS structure 44.5 Object no. g-83 at km 14+500 - 14+800 of the river	A wet deciduous grove at the behind-embankment of the Widawa river, at the right bank of the river, east off the bridge over the Widawa river at Soltysowicka Street.	
WFS structure 44.5 Object no. g-97 at km 4+000 - 6+000 of the river	A deciduous forest running along the right bank of the Widawa river, west off Szymanow.	
WFS structure 44.5 Object no. g-98 at km 4+600 - 6+700 of the	A mansion forest in Swiniary, between the Mlynowska river and the Widawa river, at the left bank of the Widawa river.	

Place of occurrence	Description of the environment	Description of occurring species
river		
WFS structure 44.5 Object no. g-101 at km 0+000 - 3+800 of the river	The Lesicki Forest.	
WFS structure 44.5 Object no. g-102 at km 0+000 - 1+800 of the river	A deciduous forest being adjacent to the river-bed of the Widawa river, at the right bank of the river, south off the mining pits in Paniowice.	
WFS structure 19 Object no. g-104 at km 0+000 of the river	A deciduous forest being adjacent to the river-bed of the Odra river, west off the mining pits in Paniowice.	
WFS structure 19 Object no. g-105 at km 1+500 - 2+500 of the river	A deciduous forest being adjacent to the flood-protection embankment between Paniowice and the mining pits in Paniowice.	
WFS structure 19 Object no. g-106 at km 2+000 - 3+000 of the river	A deciduous forest, east off the mining pits in Paniowice.	
WFS structure 19 Object no. g-114 at km 0+000 of the river	A deciduous forest being adjacent to the Odra river-bed between the Odra river-bed and the Mienica river.	
WFS structure 19 Object no. g-115 at km 20+000 of the river	A deciduous forest being adjacent to the Odra river-bed between the Odra river-bed and the flood-protection embankment, southern-east off Rakow.	
WFS structure 19 Object no. g-91 at km 9+800 - 10+500 of the river	A deciduous forest at the behind-embankment of the Widawa river, at the right bank of the river, between Psary and Widawa.	The potential place of occurrence of Sand Lizard <i>Lacerta agilis</i> (the 4th (IV) Appendix of the Habitats Directive), Viviparous Lizard <i>Lacerta vivipar</i> , Slow Worm <i>Anguis fragilis</i> and Grass Snake <i>Natrix natrix</i> .
WFS structure 19 Object no. g-103 at km 0+000 - 1+300 of the river	A complex of meadows, west off the mining pits in Paniowice.	
WFS structure 19 Object no. g-116 at km 0+000 of the river	Meadows being adjacent to sedges and backwaters of the melioration ditch running at the water-side of the flood- protection embankment of the Odra river, southern-east off Rakow.	

Place of occurrence	Description of the environment	Description of occurring species
WFS structure 19 Object no. g-117 at km 0+000 of the river	A mid-field meadow surrounded by a forest at all its sides located at the right bank of the Odra river, in the mid-embankment, southern-east off Rakow.	
WFS structure 44.7 Object no. g-90 at km 11+000 - 11+500 of the river	A complex of meadows, at the right bank of the Widawa, at the behind-embankment, between Krzyzanowice and Psary.	
WFS structure 44.7 Object no. g-100 at km 0+600 - 1+600 of the river	A meadow, at the left bank of the Widawa river being adjacent to the river-bed, separated by the Lesicki Forest at three sides.	
WFS structure 44.7 Object no. g-85 at km 12+700 - 14+000 of the river	A complex of meadows, at the right bank of the Widawa river, within the military areas, north off the Wroclaw Motorway Bypass.	
WFS structure 44.5 Object no. g-74 at km 15+800 of the river	Sedges by the melioration ditch south off Klokoczyce.	
WFS structure 44.5 Object no. g-75 at km 15+700 of the river	A pond located south off Klokoczyce.	
WFS structure 44.5 Object no. g-76 at km 15+100 - 16+500 of the river	A complex of meadows, at the right bank of the Dobra river, at the outlet to the Widawa river.	
WFS structures 44.15, 44.16 Object no. g-80 at km 12+900 - 14+500 of the river	A complex of meadows, at the left bank of the Widawa river, west off Soltysowice, north off Redycka Street.	
WFS structure 44.5 Object no. g-82 at km 14+600 - 15+200 of the river	A complex of meadows, west off the outlet of the Dobra river to the Widawa river, at the right bank of the Widawa river.	
WFS structure 44.5 Object no. g-111 at km 0+000 of the river	Meadows, sedges and reed-covered areas of the Mienica river, spreading along the flood-protection embankment of the Odra river, at the water-side of the embankment, south off Kotowice.	
WFS structure 19	A mid-field meadow, west off the mining pits in Paniowice	

Place of occurrence	Description of the environment	Description of occurring species
Object no. g-112 at km 0+000 of the river	and south off the village of Kotowice.	
WFS structure 19 Object no. g-113 at km 0+000 of the river	A water reservoir, backwaters, sedges and thickets (willows) at the former curve of the Odra river being adjacent to the eastern part of the village of Rakow.	
WFS structure 19 Object no. g-124 at km 0+000 of the river	A meadow being adjacent to the Odra river-bed, in the mid-embankment, at the right bank of the Odra river, south off Rakow.	
WFS structure 19 Object no. g-120 at km 0+000 of the river	Backwaters of the melioration ditch being adjacent to the flood-protection embankment of the Odra river, at the water-side of the embankment, south off the village of Rakow.	
WFS structure 44.5 Object no. g-84 at km 13+400 - 14+200 of the river	A complex of meadows, at the right bank of the Widawa river, within the military areas, north off Redycka Street.	
WFS structure 44.10 Object no. g-107 at km 4+000 of the river	A house-hold pond at the exit off the national road no. 5 at the east, between Swiniary and Szewce, the exit is located at around 100 metres north of the bridge at the Widawa river.	The potential place of occurrence of Grass Snake <i>Natrix natrix</i> .
WFS structure 44.10 Object no. g-93 at km 8+200 - 8+400 of the river	The Widawa old river-bed, at the left bank of the river, south off Szymanow.	
WFS structure 19 Object no. g-108 at km 0+000 of the river	Backwaters / old river-beds of the melioration ditch west off Paniowice, around 50 metres from the flood-protection embankment, at its water-land side.	
WFS structure 19 Object no. g-109 at km 0+000 of the river	A small water pond surrounded by a forest, at the edge of this forest, by a meadow, west off Paniowice and south off Kotowice.	
WFS structure 19 Object no. g-110 at km 0+000 of the river	Old river-beds of the Odra river, northern-east off the Odra river bay, at the right river bank, south off Kotowice.	
WFS structures 44.15, 44.16 Object no. g-78 at km 15+800 of the river	A pond at the border of the Soltysowicki Forest and garden allotments, the middle pond.	
WFS structure 44.18	Mansion ponds in Swiniary.	

Place of occurrence	Description of the environment	Description of occurring species
Object no. g-99 at km 5+200 of the river		
WFS structures 44.15, 44.16 Object no. g-79 at km 15+800 of the river	A pond at the border of the Soltysowicki Forest and garden allotments, the pond which is moved most to the east.	
WFS structures 44.15, 44.16 Object no. g-86 at km 13+800 of the river	Backwaters of the Widawa river at the left bank of the river by the road made of concrete slabs running from Redycka Street up to the military area at Soltysowice.	
WFS structures 44.15, 44.16 Object no. g-87 at km 12+200 - 12+600 of the river	Backwaters of the melioration ditch by the Kamienskigo Street.	
WFS structure 44.7 Object no. g-88 at km 11+300 of the river	Old river-bed of the Widawa river, at the right bank of the river, at the land-side of the flood-protection embankment, west off Krzyzanowice.	
WFS structure 44.7 Object no. g-89 at km 11+000 - 11+200 of the river	Backwaters of the Widawa river, at the left bank of the river, at the land-side of the flood-protection embankment, west off Krzyzanowice.	
WFS structure 44.7 Object no. g-92 at km 9+800 of the river	A melioration ditch located between the Widawa river and the channel - the Old Widawa river, west off the national road no. 5 between the locations of Widawa and Psary.	
WFS structure 19 Object no. g-121 at km 0+000 of the river	A water reservoir located at the extension of the melioration ditch being adjacent to the flood-protection embankment of the Odra river, at the water-side of the embankment, south off the village of Rakow.	
Object no. g-122 at km 0+000 of the river		
WFS structure 19 Object no. g-113 at km 0+000 of the river	A small water reservoir surrounded by the forest, around 50 metres northern-east off the Odra river curve, at the right bank of the river south off Kotowice.	
WFS structure 19 Object no. g-118 at km 0+000 of the river	A water pond surrounded by a grove, by the flood-protection embankment of the Odra river, at its land-side, southern-east off Rakow.	
WFS structure 19 Object no. g-119 at km 0+000 of the river	A water pond - located at the former river-bed of the Odra river - surrounded by a grove, at the flood-protection embankment of the Odra river, at its land-side, southern-	

Place of occurrence	Description of the environment	Description of occurring species
	east off Rakow.	
WFS structure 19 Object no. g-125 at km 0+000 of the river	The old river-bed of the Mienica river, by the outlet of the Odra river, southern-west off Kotowice.	
WFS structure 44.9 Object no. g-126 at km 6+800 of the river	Old river-bed of the Widawa river, at the right bank of the river, around 400 metres west off Szymanow.	
WFS structure 44.9 Object no. g-96 at km 8+000 of the river	Breeding ponds, south off the village of Szymanow, at the complex of three ponds - the pond which is the closest to the Widawa river.	
WFS structure 44.9 Object no. g-95 at km 8+000 of the river	Breeding farms, south off the village of Szymanow, at the complex of three ponds - two ponds at the eastern side of the complex of the ponds.	
Birds positions		
WFS structure 44.15 Object no. p-83 at km 16+500 of the river	The presence of only 1 pair of the species was identified in the proximity of the investment.	[A081] Western Marsh Harrier <i>Circus aeruginosus</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive as well as the Second (II) Appendix of the Bonn Convention and Berne Convention.
Object no. p-94 at km 16+200 of the river (WFS structure 44.5) Object no. p-139 at km 11+100 of the river (WFS structure 44.7) Object no. p-96 at km 15+800 of the river (WFS structure 44.5)	The presence of 7 stationary males was identified in the proximity of the investment, though taking into consideration the fact that all the inventory works were completed at the beginning of the return of birds from over-wintering periods, it should be considered that the population of the species within the area can be higher and equal at least a dozen pairs.	[A122] Corn Crake <i>Crex crex</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive as well as the Second (II) Appendix of the Bonn Convention and Berne Convention.
Object no. p-164 at km 6+500 of the river (WFS structure 44.18) Object no. p-85 at km 16+600 of the river (WFS structure 44.4)	The presence of 3 pairs of the species was identified at two positions in the proximity of the investment.	[A142] Northern Lapwing <i>Vanellus vanellus</i> The species covered by full species protection in Poland, listed at the Third (III) Appendix of the Berne Directive as well as the Second (II) Appendix of the Bonn Convention.
Object no. p-106 at km 15+300 of the river (WFS structure 44.15) Object no. p-116 at km 14+500 of the river	During the field inventory the species was found present at 4 positions in the proximity of the investment (single pairs), though the actual number of the species should be estimated at least twice as high.	[A233] Eurasian Wryneck <i>Jynx torquilla</i> The species is covered by full species protection in Poland.

Place of occurrence	Description of the environment	Description of occurring species
(WFS structure 44.5) Object no. p-123 at km 13+400 of the river (WFS structure 44.15) Object no. p-24 at km 22+300 of the river (WFS structure 44.2)		
Object no. p-109 at km 15+000 of the river (WFS structure 44.15) Object no. p-134 at km 11+700 of the river (WFS structure 44.7) Object no. p-150 at km 10+000 of the river (WFS structure 44.7) Object no. p-167 at km 6+100 of the river (WFS structure 44.18)	The presence of 5 pairs was identified in the proximity of the investment, though taking into consideration the availability of potential habitats, its actual populations can be estimated at around 10 pairs.	[A234] Grey-headed Woodpecker <i>Picus canus</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive as well as the Second (II) Appendix of the Berne Convention.
Object no. p-119 at km 14+000 of the river (WFS structure 44.5) Object no. p-184 at km 0+300 of the river (WFS structure 19) Object no. p-91 at km 16+300 of the river (WFS structure 44.5) Object no. p-98 at km 15+700 of the river (WFS structure 44.15)	The presence of the species was identified at 4 positions only, however, it must be assumed that the actual number of the species can be at least 3-fold higher.	[A235] European Green Woodpecker <i>Picus viridis</i> The species is covered by full species protection in Poland.
Object no. p-112 at km 15+000 of the river (WFS structure 44.15) Object no. p-168 at km 5+700 of the river (WFS structure 44.18) Object no. p-186 at km 0+000 of the river (WFS structure 19)	The presence of 4 pairs of the species was identified in the proximity of the investment.	[A236] Black Woodpecker <i>Dryocopus martius</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive as well as the Second (II) Appendix of the Berne Convention.

Place of occurrence	Description of the environment	Description of occurring species
Object no. p-99 at km 15+700 of the river (WFS structure 44.15) Object no. p-100 at km 15+600 of the river (WFS structure 44.15) Object no. p-107 at km 15+200 of the river (WFS structure 44.15) Object no. p-111 at km 15+000 of the river (WFS structure 44.15) Object no. p-146 at km 10+800 of the river (WFS structure 44.7) Object no. p-169 at km 5+300 of the river (WFS structure 44.18) Object no. p-171 at km 4+600 of the river (WFS structure 44.18) Object no. p-177 at km 3+700 of the river (WFS structure 42.3.1) Object no. p-180 at km 1+600 of the river (WFS structure 19) Object no. p-185 at km 0+000 of the river (WFS structure 19)	The presence of 10 pairs of the species was identified in the proximity of the investment, though the actual number of the species should be estimated at least 15 pairs.	[A238] Middle Spotted Woodpecker <i>Dendrocopos medius</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive as well as the Second (II) Appendix of the Berne Convention.
Object no. p-88, at km 16+800 of the river (WFS structure 44.4)	The presence of 2 pairs of the species was identified in the proximity of the investment.	[A276] Stone-chat <i>Saxicola rubicola</i> The species is covered by strict species protection in Poland.
Object no. p-130 at km 13+100 of the river (WFS structure 44.6) Object no. p-82 at km 16+600 of the river (WFS structure 44.15)	The occurrence of the species was identified at 2 positions in the proximity of the investment.	[A272] Bluethroat <i>Luscinia svecica</i> The species covered by strict species protection in Poland listed at the First (I) Appendix of the Birds Directive.

Place of occurrence	Description of the environment	Description of occurring species
<p>Object no. p-101 at km 15+400 of the river (WFS structure 44.5)</p> <p>Object no. p-105 at km 15+000 of the river (WFS structure 44.15)</p> <p>Object no. p-165 at km 6+500 of the river (WFS structure 44.10)</p> <p>Object no. p-174 at km 3+900 of the river (WFS structure 44.10)</p> <p>Object no. p-77 at km 17+000 of the river (WFS structure 44.14)</p> <p>Object no. p-84 at km 16+300 of the river (WFS structure 44.15)</p> <p>Object no. p-89 at km 16+700 of the river (WFS structure 44.4)</p> <p>Object no. p-92 at km 16+500 of the river (WFS structure 44.4)</p> <p>Object no. p-93 at km 16+300 of the river (WFS structure 44.5)</p> <p>Object no. p-95 at km 16+100 of the river (WFS structure 44.5)</p> <p>Object no. p-97 at km 15+600 of the river (WFS structure 44.15)</p>	<p>The presence of 35 singing males of the species was identified in the proximity of the investment, however the current population of the species is likely to be higher and can reach up to 50 stationary males.</p>	<p>[A290] Grasshopper Warbler <i>Locustella naevia</i></p> <p>The species covered by full species protection in Poland, listed at the Second (II) Appendix of the Berne Directive as well as the Second (II) Appendix of the Bonn Convention.</p>
<p>Object no. p-114 at km 14+700 of the river (WFS structure 44.5)</p> <p>Object no. p-120 at km 13+400 of the river (WFS structure 44.15)</p>	<p>The presence of the species was identified only at 5 positions, though the level is certainly significantly higher than the actual one. Taking into consideration the availability of the potential habitats of the species, its population can be estimated even at 20 stationary males.</p>	<p>[A291] River Warbler <i>Locustella fluviatilis</i></p> <p>The species covered by full species protection in Poland, listed at the Third (III) Appendix of the Berne Directive as well as the Second (II) Appendix of the Bonn Convention.</p>

Place of occurrence	Description of the environment	Description of occurring species
<p>Object no. p-10, at km 1+700 of the river (WFS structure 44.11)</p> <p>Object no. p-102 at km 15+300 of the river (WFS structure 44.5)</p> <p>Object no. p-103 at km 15+100 of the river (WFS structure 44.5)</p> <p>Object no. p-104 at km 14+900 of the river (WFS structure 44.5)</p> <p>Object no. p-117 at km 14+300 of the river (WFS structure 44.5)</p> <p>Object no. p-136 at km 11+500 of the river (WFS structure 44.7)</p> <p>Object no. p-147 at km 10+700 of the river (WFS structure 44.7)</p> <p>Object no. p-148 at km 10+600 of the river (WFS structure 44.7)</p> <p>Object no. p-149 at km 10+300 of the river (WFS structure 44.16)</p> <p>Object no p-155 at km 8+800 of the river (WFS structure 44.17)</p> <p>Object no. p-81 at km 16+700 of the river (WFS structure 44.15)</p> <p>Object no. p-87 at km 16+600 of the river (WFS structure 44.4)</p> <p>Object no. p-115 at km 14+500 of the river (WFS structure 44.5)</p>	<p>The occurrence of the species at 28 positions was identified in the proximity of the investment. In the majority of cases the presence of 1 - 2 singing males at particular positions was identified. The total population of the species can be estimated at 40 - 50 stationary males.</p>	<p>[A298] Great Reed Warbler <i>Acrocephalus arundinaceus</i></p> <p>The species covered by full species protection in Poland, listed at the Second (II) Appendix of the Berne Directive as well as the Second (II) Appendix of the Bonn Convention.</p>

Place of occurrence	Description of the environment	Description of occurring species
Object no. p-121 at km 14+000 of the river (WFS structure 44.15) Object no. p-125 at km 13+300 of the river (WFS structure 44.15) Object no. p-156 at km 8+700 of the river (WFS structure 44.17)	The presence of 3 pairs of the species was identified in the proximity of the investment, however the factual population can be considerably higher and equal to several breeding pairs.	[A307] Barred Warbler <i>Sylvia nisoria</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive, Second (II) Appendix of the Bonn Convention as well as the Third (III) Appendix of the Berne Convention.
Object no. p-108 at km 15+300 of the river (WFS structure 44.15) Object no. p-110 at km 15+000 of the river (WFS structure 44.15) Object no. p-181 at km 1+100 of the river (WFS structure 19) Object no. p-187 at km 0+500 of the river (WFS structure 19)	The presence of 4 singing males of the species was identified in the proximity of the investment, however, taking into consideration the availability of optimal habitats of the species as well as their limited detection (in particular in case of studies at larger areas), it should be considered that the population of the species can be significantly higher and equal to even several pairs.	[A321] Collared Flycatcher <i>Ficedula albicollis</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive, Second (II) Appendix of the Berne Convention as well as Second (II) Appendix of the Bonn Convention.
Object no. p-113 at km 13+500 of the river (WFS structure 44.15) Object no. p-118 at km 14+200 of the river (WFS structure 44.5) Object no. p-122 at km 14+100 of the river (WFS structure 44.15) Object no. p-124 at km 13+500 of the river (WFS structure 44.15) Object no. p-126 at km 13+300 of the river (WFS structure 44.15) Object no. p-127 at km 13+200 of the river	In the proximity of the investment the presence of 66 pairs of the species was identified, but - given the fact that the time of conducting the works did not allow to detect all the individuals located within the territories upon the return from their over-wintering period - it should be considered that the number is not full and the actual population can be much higher.	[A338] Red-backed Shrike <i>Lanius collurio</i> The species covered by full species protection in Poland, listed at the First (I) Appendix of the Birds Directive as well as the Second (II) Appendix of the Berne Convention.

Place of occurrence	Description of the environment	Description of occurring species
(WFS structure 44.15) Object no. p-128 at km 13+200 of the river (WFS structure 44.15) Object no. p-129 at km 13+300 of the river (WFS structure 44.15) Object no. p-131 at km 12+900 of the river (WFS structure 44.6) Object no. p-132 at km 12+900 of the river (WFS structure 44.15) Object no. p-133 at km 12+200 of the river (WFS structure 45.4) Object no. p-135 at km 11+600 of the river (WFS structure 44.7) Object no. p-137 at km 11+400 of the river (WFS structure 44.7) Object no. p-138 at km 11+300 of the river (WFS structure 44.7) Object no. p-140 at km 11+000 of the river (WFS structure 44.7) Object no. p-141 at km 10+900 of the river (WFS structure 44.7) Object no. p-142 at km 11+500 of the river (WFS structure 44.16) Object no. p-143 at km 11+000 of the river (WFS structure 44.16) Object no. p-144 at km 10+800 of the river (WFS structure 44.16)		

Place of occurrence	Description of the environment	Description of occurring species
Object no. p-145 at km 10+800 of the river (WFS structure 44.7) Object no. p-151 at km 14+000 of the river (WFS structures 44.15) Object no. p-152 at km 9+000 of the river (WFS structure 44.8) Object no. p-153 at km 8+300 of the river (WFS structure 44.9) Object no. p-154 at km 8+400 of the river (WFS structure 44.9) Object no. p-157 at km 8+700 of the river (WFS structure 44.17) Object no. p-158 at km 8+500 of the river (WFS structure 44.17) Object no. p-159 at km 7+700 of the river (WFS structure 44.17) Object no. p-160 at km 7+100 of the river (WFS structure 44.10) Object no. p-161 at km 7+200 of the river (WFS structure 44.17) Object no. p-162 at km 7+250 of the river (WFS structure 44.17) Object no. p-163 at km 6+900 of the river (WFS structure 44.18) Object no. p-166 at km 6+200 of the river (WFS structure 44.18) Object no. p-170 at km		

Place of occurrence	Description of the environment	Description of occurring species
5+400 of the river (WFS structure 44.10) Object no. p-172 at km 4+200 of the river (WFS structure 44.18) Object no. p-173 at km 4+500 of the river (WFS structure 44.10) Object no. p-175 at km 3+800 of the river (WFS structures 42.3, 42.3.1) Object no. p-176 at km 3+600 of the river (WFS structure 42.3.1) Object no. p-178 at km 3+400 of the river (WFS structure 44.10) Object no. p-182 at km 0+800 of the river (WFS structure 19) Object no. p-183 at km 0+100 of the river (WFS structure 19) Object no. p-179 at km 3+800 of the river (WFS structure 44.10) Object no. p-188 at km 6+400 of the river (WFS structure 44.18) Object no. p-78, at km 16+900 of the river (WFS structure 44.15) Object no. p-90, at km 16+600 of the river (WFS structure 44.4)		
Object no. p-80, at km 16+500 of the river (WFS structure 44.15) Object no. p-86 at km 16+500 of the river	The presence of individual specimen of the species was identified at 2 positions only, however taking into consideration the fact that all the field works were completed in the first decade of May (prior to the come-back of most of the specimen from over-wintering areas), it	[A371] Common Rosefinch <i>Carpodacus erythrinus</i> The species covered by full species protection in Poland listed at the Second (II) Appendix of the Berne Convention.

Place of occurrence	Description of the environment	Description of occurring species
(WFS structure 44.4)	should be considered that the population of the species in the proximity of the investment can be clearly higher. It is estimated (taking into consideration, among others, the availability of optimal habitats), that the studied area is a breeding place of at least several pairs of the species.	
Object no. p-79, at km 16+500 of the river (WFS structure 44.15)	The presence of individual pairs of the species was identified at 1 position only.	[A136] Little Ringed Plover Charadrius dubius The species covered by full species protection in Poland listed at the Second (II) Appendix of the Berne Convention.

**APPENDIX 7 - LIST AND DESCRIPTION OF HABITATS' AND SPECIES' RESOURCES
IN AREA OF WORKS CONTRACT IMPACT**

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
Natural habitats										
[91F0] Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ficario-Ulmetum)	First (I) Appendix of the Habitats Directive		quite frequent	SAC "Dolina Widawy" 376 ha	42.3 (h-87, h-87) 24.59 ha 42.3.1 (h-88, h-89)		44.15 (h-88, h-89) 44.16 (h-76) 44.17 (h-28) 2.91ha 44.18 (h-34, h-87) 44.8 (h-30) 2.15ha 44.10 (h-34, h-36)			19 (h-37, h-38, h-42, h-44, h-43, h-52, h-50, h-51)
[3150] Old river beds and natural eutrophic water reservoirs with gatherings made of Nympheion and Potamion	First (I) Appendix of the Habitats Directive	-	fairly common	SAC "Dolina Widawy" 8 ha			44.4 (h-14) 0.15ha 44.7 (h-22) 1.03ha			19 (h-39, h-40)
[6440] Cnidium meadows (Cnidion dubii)	First (I) Appendix of the	-	fairly common	SAC "Dolina Widawy" 14 ha			44.16 (h-78)			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Habitats Directive									
[9170] Oak-hornbeam forests (Galio-Carpinetum)	First (I) Appendix of the Habitats Directive	-	fairly common	SAC "Dolina Widawy" 228 ha			44.18 (h-34, h-82) 44.10 (h-34, h-82)			19 (h-37, h-38, h-42, h-44, h-43, h-52, h-50, h-51)
[*91E0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Salicetum albo-fragilis, Populetum albae, Alnenion, arge bittercress)	First (I) Appendix of the Habitats Directive	-	fairly common	SAC "Dolina Widawy" 10.5 ha	42.3 (h-35, h-88) 42.3.1 (h-35, h-88)		44.15 (h-69, h-66, h-70) 44.16 (h-27) 0.37ha 44.4 (h-17) 44.6 (h-20) 44.7 (h-22, h-21 h-26) 44.8 (h-31) (0.29 ha) 44.9 (h-81) 2.22ha 44.10 (h-36, 32, 33, 84) 1.51 ha	45.3 (h-10)		
[6510] Low-land	First (I)	-	common	SAC "Dolina			44.15 (h-	45.3 (h-11)		19 (h-48)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
and mountain fresh meadows used extensively (Arrhenatherion elatioris)	Appendix of the Habitats Directive			Widawy" 25 ha			64, 67, 72, 71) 23.12 ha h-74, 24, 99 ha 44.16 (h-79) 44.18 (h-86) 0.79ha 44.4 (h-12) 20, 48ha 44.5 (h-18) 50.06 ha (h-19) 19.3 ha 44.7 (h-23, 24) 44.8 (h-29) 2.42 ha 44.10 (h-83) 2.07 ha			
[6410] Molinia meadows on	First (I) Appendix	-	common	SAC "Dolina Widawy"			44.15 (h-72, 74)			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
calcareous, peaty or clayey-silt-laden soils (Molinion)	of the Habitats Directive			44.4 ha			24.99 ha			
Plants										
Common Snowdrop <i>Galanthus nivalis</i>	-	Strict protection	numerously	Not applicable	42.3 (f-21)		44.15 (f-11) 44.18 (f-17, 21) 44.7 (f-16) 44.10 (f-20, 22, 17)			
Yellow Water-lily <i>Nuphar lutea</i>	-	partial	numerously	Not applicable			44.7 (f-13)			19 (f-24)
White Water-lily <i>Nymphaea alba</i>	-	partial	numerously	Not applicable			44.7 (f-13)			
Lily of the Valley <i>Convallaria majalis</i>	-	partial	numerously	Not applicable			44.18 (f-17) 44.10 (f-20, 17)			19 (f-23)
Broad-leaved Helleborine <i>Epipactis helleborine</i>	-	strict protection	numerously	Not applicable	42.3 (f-21)		44.15 (f-11) 44.18 (f-17, 21) 44.7 (f-16) 44.10 (f-20, 22, 17)			
Grass Lily	-	strict	numerously	Not applicable			44.15 (f-9,			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
Ornithogalum umbellatum		protection					10, 11) 44.18 (f-19) 44.7 (f-14, 15) 44.10 (f-18)			
Southern adderstongue - Ophioglossum vulgatum	-	strict protection	numerously	Not applicable			44.15 (f-12)			
Endangered plant species										
Cnidium dubium - Marsh cnidium Carex tomentosa - Sedge		V category LC category	threatened with extinction	Not applicable			44.15 (f-22)			
Stratiotes aloides - Water Pineapple		LC category	threatened with extinction				44.7 (f-13)			
Fungi										
Scarlet cup - Sarcoscypha coccinea	-	strict protection	numerously	Not applicable			44.15 (m-2)			
Giant puffball - Langermannia gigantea	-	strict protection	numerously	Not applicable			44.15 (m-3) 44.18 (m-4) 44.4 (m-1)			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
Invertebrates										
[1052] Scarce Fritillar Euphydryas maturna	Second (II) and Fourth (IV) Appendix of the Habitats Directive	Full species protection	Fairly numerous	Valley of the Widawa River, 5000 specimen			44.7 (o-93)			19 (o-117)
[1059] Scarce Large Blue Phengaris [=Maculinea] teleius	Second (II) and Fourth (IV) Appendix of the Habitats Directive	Species protection	Fairly numerous	Valley of the Widawa River 1 position			44.18 (o-87) 44.7 (o-118, 119) 44.10 (o-109)			
[1061] Dusky Large Blue Phengaris [=Maculinea] nausithous	Protection all over the European Union	Strict protection	Fairly numerous	Valley of the Widawa River, several specimen			44.18 (o-87) 44.7 (o-118, 119) 44.10 (o-109)			
[1074] Tent Caterpillar Moth	Second (II) and	Species protection	Population number -	Valley of the Widawa River	42.3.1 (o-34, 35, 36,		44.15 (o-44, 43)		46.2 (o-74, 75,	19 (o-15)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
Eriogaster catax	Fourth (IV) Appendix of the Habitats Directive	n	not estimated	5000 specimen	37, 38)		44.17 (o-60, 61, 62, 63, 64, 65, 66, 73, 74, 75, 76) 44.18 (o-60, 76, 79, 80), 44.5 (o-89), 44.7 (77, 86, 87, 102, 104, 105, 44.10 (o-35, 36, 37, 38, 81, 82, 83, 84, 85, 106, 108, 110, 111, 112)		76, 60, 61)	
[*1084] Hermit Beetle Osmoderma eremita	Second (II) and Fourth (IV) Appendix of the Habitats	Species protection	Several thousand in number	Valley of the Widawa River 100 specimen	42.3.1 (o-42, 40, 41, 38), 44.15 (o-45, 46, 47, 48, 49, 55, 56, 51, 57, 58, 54,		44.17 (o-67, 68, 70, 72, 73), 44.18 (o-80, 113) 44.5 (o-88) 44.7 (o-90,			19 (o-114)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Directive				59)		92, 99) 44.10 (o-107, 112)			
[1088] Great Capricorn Beetle <i>Cerambyx cerdo</i>	Second (II) and Fourth (IV) Appendix of the Habitats Directive	Species protection	10 -100000	Valley of the Widawa River 500 specimen	42.3.1 (o-39, 40, 41, 38)		44.15 (o-45, 46, 47, 48, 49, 50, 51, 52, 53, 54) 44.17 (o-66, 68, 69, 71, 73, 78) 44.18 (o-80, 113, 117a) 44.5 (-88) 44.7 (o-91, 92, 98, 99) 44.8 (o-94), 44.9 (o-103) 44.10 (o-107, 111, 112)			19 (o-114, 116)
Fish										
[1134] Spined	Second	species	No data	Valley of the	42.2, 42.3,	43 (r-2)				

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
loach <i>Cobitis taenia</i>	(II) Appendix of the Habitats Directive	protection		Widawa River occurs	42.3.1 (r-2)					
[1145] European weather loach <i>Misgurnus fossilis</i>	Second (II) Appendix of the Habitats Directive	strict species protection	No data	Valley of the Widawa River occurs	42.2, 42.3, 42.3.1 (r-2)	43 (r-2)				
[1134] European Bitterling <i>Rhodeus sericeus amarus</i>	Second (II) Appendix of the Habitats Directive	strict species protection	No data	Valley of the Widawa River occurs	42.2, 42.3, 42.3.1 (r-2)	43 (r-2)				
Stone Loach <i>Barbatula barbatula</i>	-	species protection	No data	Valley of the Widawa River does not occur	42.2, 42.3, 42.3.1 (r-2)	43 (r-2)				
Amphibians										
[1166] Great Crested Newt <i>Triturus cristatus</i>	Second (II) and Fourth (IV)	Strict species protection	No data	Valley of the Widawa River 14 locations, no data on the			44.14 (p-58, 91) 44.15 (p-18, 96, 99)			19 (p-26, 28, 30, 31, 33)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Appendix of the Habitats Directive			number			44.16 (p-18, 96, 99) 44.18 (p-24) 45.3 (p-11, 92) 44.4 (p-93) 44.7 (p-104) 44.9 (p-126)			
[1188] European Fire-bellied Toad Bombina bombina	Second (II) and Fourth (IV) Appendix of the Habitats Directive	Strict species protection	No data	Valley of the Widawa River 10 locations, no data on the number			44.14 (p-58, 91) 44.15 (p-18, 96, 99) 44.16 (p-14, 15, 18, 96, 99) 45.3 (p-11, 92) 44.4 (p-93) 44.5 (p-61, 62, 98, 97) 44.7 (p-104)			19 (p-25, 26, 19, 30)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							44.9 (p-126)			
[1203] European Tree Frog <i>Hyla arborea</i>	4th (IV) Appendix of the Habitats Directive	Strict species protection	No data	Not applicable			44.14 (p-58, 91) 44.15, 44.16 (p-14, 15, 18, 1923, 59, 60, 63, 99), 44.18 (p-24), 45.3 (p-92), 44.4 (p-94), 44.5 (p-61, 62, 98, 97), 44.7 (p-104), 44.9 (p-67, 126), 44.10 (68)			19 (p-25, 30, 31, 33)
[1197] Common Spadefoot <i>Pelobates fuscus</i>	4th (IV) Appendix of the Habitats Directive	Strict species protection	No data	Not applicable			44.14 (p-58) 44.15 (p-14, 18, 19, 59), 44.16 (p-14, 18, 19, 59),			19 (p-30, 31, 33)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							44.5 (p-62), 44.9 (p-126), 44.10 (p-68)			
[1207] Pool Frog Pelophylax lessonae (= Rana lessonae)	4th (IV) Appendix of the Habitats Directive	Strict species protection	No data	Not applicable			44.18 (p-24)			19 (p-25)
[1210] Edible Frog Pelophylax esculentus (=Rana esculenta)	-	Strict species protection	No data	Not applicable			44.14 (p-58) 44.15 (p-14, 18, 19, 59, 63), 44.16 (p-14, 18, 19, 59, 63), 44.18 (p-24), 45.3 (p-11), 44.5 (p-62), 44.7 (p-22), 44.9 (p-66, 67, 126), 44.10 (p-68)			19 (26, 30, 31, 33, 27)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
[1213] Common Frog <i>Rana temporaria</i>	Third (III) Appendix of the Berne Convention	Strict protection	No data	Not applicable			44.14 (p-91), 44.15, 44.16 (p-17, 21, 23, 59, 60, 96, 99).45.3 (p-92), 44.4 (p-93), 44.5 (p-61, 98, 97), 44.7 (p-104),			
[1214] Moor Frog <i>Rana arvalis</i>	4th (IV) Appendix of the Habitats Directive	Strict species protection	No data	Not applicable			44.14 (p-58, 91), 44.15, 44.16 (p-18, 23, 59, 60, 63, 90, 99) 45.3 (p-92), 44.4 (p-93), 44.5 (p-98, 97), 44.7 (p-22, 104), 44.9 (p-			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							126)			
Common Toad Bufo bufo	Third (III) Appendix of the Berne Convention	Strict species protection	Commonly No data	Not applicable			44.14 (p-58, 91), 44.5 (p-62, 98, 97), 44.7 (p-104), 44.9 (p-66, 67, 126), 44.10 (p-68)			19 (p-30, 31)
Smooth Newt Lissotriton vulgaris	Third (III) Appendix of the Berne Convention	Strict species protection	All over the country No data	Not applicable			44.14 (p-58, 91) 44.15, 44.16 (p-14, 18, 19, 59, 63, 96, 99), 44.18 (p-24), 45.3 (p-11), 44.4 (p-93), 44.5 (p-62, 98, 97), 44.7 (p-104), 44.9 (p-67, 126), 44.10			19 (p-25, 26, 30, 31, 33, 27)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							(68)			
European green toad <i>Pseudepidalea viridis</i> previously <i>Bufo viridis</i>	4th (IV) Appendix of the Habitats Directive	Strict protection	Commonly No data	Not applicable			44.15, 44.16 (p-15, 16, 60)			
Reptiles										
[1261] Sand Lizard <i>Lacerta agilis</i>	4th (IV) Appendix of the Habitats Directive	Strict species protection	numerously No data	Not applicable			44.14 (g-23), 44.15, 44.16 (g-81) 45.3 (g-76, 74, 75) 44.7 (g-90)			
Viviparous lizard <i>Lacerta</i> (<i>Zootoca</i>) <i>vivipara</i>	Third (III) Appendix of the Berne Convention	Strict species protection	numerously No data	Not applicable			44.15, 44.16 (g-81), 45.5 (g-74, 75, 76) 44.7 (g-90)			19 (g-38)
Slow Worm <i>Anguis fragilis</i>	Third (III) Appendix of the Berne	Strict species protection	numerously No data	Not applicable			44.14 (g-23), 44.15 (g-80, 81), 44.16 (g-			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Convention						71, 80, 81), 45.3 (g-76, 74, 75), 44.7 (g-90)			
Grass Snake Natrix natrix	Third (III) Appendix of the Berne Convention	Strict species protection	numerously No data	Not applicable			44.14 (g-23, 24), 44.15, 44.16 (g-64, 65, 66, 67, 68, 70, 71, 77, 78, 79, 87, 80, 81), 44.18 (g-99) 45.3 (g-21, 22), 44.4 (g-25), 44.5 (g-76, 74, 75, 73), 44.7 (g-88, 90), 44.9 (g-95, 96, 126), 44.10 (g-107)			19 (g-34, 38, 108, 109, 110, 113)
Birds										

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
[A081] Western Marsh Harrier <i>Circus aeruginosus</i>	First (I) Appendix of the Birds Directive	Strict protection	6500-8000	Valley of the Widawa River Does not occur			44.15 (p-83)			
[A122] Corn Crane <i>Crex crex</i>	First (I) Appendix of the Birds Directive	full protection	35-45 thousand pairs	Valley of the Widawa River Does not occur			44.5 (p-94, 96), 44.7 (p-139)			
[A142] Northern Lapwing <i>Vanellus vanellus</i>	Third (III) Appendix of the Berne Convention	Strict protection	10-20 thousand pairs	-			44.18 (p-164), 44.4 (p-85)			
[A233] Eurasian Wryneck <i>Jynx torquilla</i>	-	full protection	820 thousand pairs	-			44.15 (p-106, 123) 44.5 (p-116)			
[A234] Grey-headed Woodpecker <i>Picus canus</i>	First (I) Appendix of the Birds Directive	Full species protection	2000-3000 pairs	Valley of the Widawa River rare within the area			44.15 (p-109) 44.18 (p-167) 44.7 (p-			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							134, 150)			
[A235] European Green Woodpecker <i>Picus viridis</i>	First (I) Appendix of the Birds Directive (BD)	Full species protection	4000-8000 pairs	-			44.15 (p-98) 44.5 (p-119, 91)			19 (p-184)
[A236] Black Woodpecker <i>Dryocopus martius</i>	First (I) Appendix of the Birds Directive	Strict species protection	10-20 thousand pairs	Valley of the Widawa River, 1-2 pairs			44.15 (p-112) 44.18 (p-168)			19 (p-186)
[A238] Middle Spotted Woodpecker <i>Dendrocopos medius</i>	First (I) Appendix of the Birds Directive	Strict species protection	10-20 thousand pairs	Valley of the Widawa River, 10-12 pairs	42.3.1 (p-177),		44.15 (p-99, 100, 107, 111), 44.18 (p-168, 171) 44.7 (p-146)			19 (p-180, 185)
[A276] Stonechat <i>Saxicola rubicola</i>	-	Strict species protection	25000-35000 pairs	-			44.4 (p-88)			
[A272] Bluethroat	First (I)	Strict	1300-1800	Valley of the			44.6 (p-			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
Luscinia svecica	Appendix of the Birds Directive	species protection	pairs	Widawa River rare			130) 44.15 (p-82)			
[A290] Grasshopper Warbler Locustella naevia	Second (II) Appendix of the Berne Convention	Full species protection	100000-200000 pairs	Not applicable			44.14 (p-77) 44.15 (p-105, 84, 97), 45.3 (p-76), 44.4 (p-89, 92), 44.5 (p-101, 93, 95) 44.10 (p-165, 174)			
[A291] River Warbler Locustella fluviatilis	Second (II) Appendix of the Berne Convention	Full species protection	50000-80000 pairs	-			44.15 (p-120) 44.5 (p-114)			
[A298] Great Reed Warbler	Second (II)	Full species	20000-50000 pairs	-			44.15 (p-81),			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
Acrocephalus arundinaceus	Appendix of the Berne Convention	protection					44.16 (p-149), 44.17 (p-155), 44.5 (p-102, 103, 104, 117, 115) 44.7 (p-136, 147, 148)			
[A307] Barred Warbler Sylvia nisoria	First (I) Appendix of the Birds Directive	Full species protection	20000-50000 pairs	Not applicable			44.15 (p-121, 125) 44.17 (p-156)			
[A321] Collared Flycatcher Ficedula albicollis	First (I) Appendix of the Birds Directive	Full species protection	2500-10000 pairs	Valley of the Widawa River 3-5 pairs			44.15 (p-108, 110) 19 (181, 187)			
[A338] Red-backed Shrike Lanius collurio	First (I) Appendix of the	Full species protection	200000-400000 pairs	Valley of the Widawa River 5-10 pairs	42.3 (p-175) 42.3.1 (p-		44.15 (p-113, 122, 124, 126,	45.4 (p-133)		19 (p-182, 183)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Birds Directive	n			175.176)		127, 128, 129, 132, 151, 78), 44.16 (p- 142, 143, 144), 44.17 (p-157, 158, 159, 161, 162), 44.18 (p- 163, 166, 172, 178), 44.4 (p-90), 44.5 (p- 118), 44.6 (p-131), 44.7 (135, 137, 138, 140, 141, 145), 44.8 (p-152), 44.9 (p- 153, 154), 44.10 (p- 160, 170, 173, 178,			

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							179)			
[A371] Common Rosefinch <i>Carpodacus erythrinus</i>	Second (II) Appendix of the Berne Convention	Full species protection	3000-4000 pairs	Valley of the Widawa River Not stated			44.15 (p-79)			
Mammals										
[1355] European Otter <i>Lutra lutra</i>	Second (II) and Fourth (IV) Appendix of the Habitats Directive	Partial species protection	common	Valley of the Widawa River 2-3 specimen	42.3 (s-3), 42.3.1 (s-3)		44.16 (s-3) 44.18 (s-3, 13) 44.4 (s-7), 44.6 (s-3), 45.4 (s-3), 44.7 (s-11), 44.9 (s-3), 44.10 (s-3, 12, 14)			19 (s-3, 17, 15, 16)
[1337] Eurasian Beaver <i>Castor fiber</i>	Second (II) and Fourth (IV) Appendix of the	Strict species protection	20-25 thousand specimen	Valley of the Widawa River 6 families	42.3 (s-3), 42.3.1 (s-3)		44.16 (s-3) 44.18 (s-3, 13) 44.4 (s-7, 8), 44.5 (s-8),			19 (s-3, 17, 15, 16)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Habitats Directive						44.6 (s-3), 45.4 (s-3), 44.7 (s-11), 44.9 (s-3), 44.10 (s-3, 12, 14)			
European Mole <i>Talpa europaea</i>	-	Full species protection	Not known	Not applicable	All over the area	All over the area	All over the area	All over the area	All over the area	All over the area
Common Shrew <i>Sorex araneus</i>	-	strict species protection	Not known	Not applicable	All over the area	All over the area	All over the area	All over the area	All over the area	All over the area
Eurasian Pygmy Shrew <i>Sorex minutus</i>	-	strict species protection	Not known	Not applicable	All over the area	All over the area	All over the area	All over the area	All over the area	All over the area
Eurasian Water Shrew <i>Neomys fodiens</i>	-	strict species protection	Not known	Not applicable	42.3 (s-3), 42.3.1 (s-3)		44.16 (s-3) 44.18 (s-3, 13) 44.4 (s-7), 44.5 (s-8), 44.6 (s-3), 45.4 (s-3),			19 (s-3, 17, 15, 16)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							44.9 (s-3), 44.10 (s-3)			
Western / eastern hedgehog <i>Erinaceus europaeus</i> / <i>concolor</i>	-	strict species protection	common	Not applicable	42.3 (s-3), 42.3.1 (s-3)		44.15 (s-9, 10), 44.16 (s-3), 44.18 (s-13), 44.4, 44.5 (s-8), 44.6, 45.4, 44.9, 44, 10 (s-3)			19 (s-3, 15)
European Water Vole <i>Arvicola amphibius</i> (= <i>A. terrestris</i>)	-	Partial species protection	numerous	Not applicable	All over the area	All over the area	All over the area	All over the area	All over the area	All over the area
Least weasel <i>Mustela nivalis</i>	-	strict species protection	common	Not applicable	42.3 (s-3), 42.3.1 (s-3)		44.15 (s-8, 10), 44.16 (s-3), 44.18 (s-3, 13), 44.4, 44.5 (s-8), 44.6, 45.4, (s-3) 44.7 (s-11), 44.9 (s-3), 44.10 (s-3,			19 (s-3, 15, 17)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
Ermine <i>Mustela erminea</i>	-	strict species protection	common	Not applicable	42.3 (s-3), 42.3.1 (s-3)		12, 14) 44.15 (s-9, 10), 44.16 (s-3), 44.18 (s-3, 13), 45.3, 44.4, 44.5 (s-8), 44.6, 45.4, (s-3) 44.7 (s-11), 44.9 (s-3), 44.10 (s-3, 12, 14)			19 (s-3, 15, 17)
Mammals bats										
[1322] Natterer's Bat <i>Myotis nattereri</i>	4th (IV) Appendix of the Habitats Directive	Full species protection	commonly	Valley of the Widawa River Frequent within the area	42.2 (n-56) 42.3 (n-48) 42.3 (n-45) 42.3.1 (49)		44.14 (n-20) 44.15 (n-25, 26) 44.14 (n-23, 30), 44.16 (n-31, 35) 44.17 (n-41, 44, 40, 36, 10)	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							44.18 (n-10, 44, 41) 44.5, 44, 44.7 44.9, 44.10			
[1323] Bechstein's Bat Myotis bechsteinii	Second (II) and Fourth (IV) Appendix of the Habitats Directive	Full species protection	individual specimen	Not applicable	42.2, 42.3, 42, 3, 1 (n-10, 50) 42.2 (n-35) 42.3 (n-48)		44.15 (n-25) 44.15 (n-24) 44.16 (31, 10, 35) 44.17 (n-41, 44, 40, 36, 10) 44.18 (n-10, 44, 41) 44.4 (n-21, 20) 44.5, 44, 44.7 44.9, 44.10	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)
[1324] Greater Mouse-Eared Bat Myotis myotis	Second (II) and Fourth (IV)	Full species protection	individual specimen	Valley of the Widawa River rare within the area	42.2 (n-56) 42.2 (n-35) 42.3 (n-		44.14 (n-20) 44.14 (n-23, 30)	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Appendix of the Habitats Directive				45) 42.3.1 (49)		44.17 (n-41, 44, 40, 36, 10) 44.4 (n-21, 20)			
[1318] Pond Bat Myotis dasycneme	Second (II) and Fourth (IV) Appendix of the Habitats Directive	Full species protection	individual specimen	Valley of the Widawa River rare within the area	42.2, 42.3, 42.3.1 (n-10, 50)		44, 16 (n-10) 44.18 (n-10, 44, 41)		46.2 (n-40, 10)	
[1314] Daubenton's Bat Myotis daubentonii	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland	Valley of the Widawa River frequent within the area	42.2 (n-35) 42.3 (n-48)		44.15 (n-25, 24, 26) 44.16 (n-31, 10, 35) 44.17 (n-41, 44, 40, 36, 10)	45.3 (n-20, 10)		19 (n-51, 54, 10, 55, 53, 52)
[1327] Serotine Eptesicus serotinus	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland	Valley of the Widawa River frequent within the area	42.2 (n-56) 42.2, 42.3, 42, 3, 1 (n-10, 50)		44.14 (n-20) 44.14 (n-23, 30)	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Directive				42.3 (n-45) 42.3.1 (49)		44.15 (n-24) 44.16 (n-10) 44.17 (n-41, 44, 40, 36, 10) 44.18 (n-10, 44, 41) 44.4 (n-21, 20)			
[1309] Common Pipistrelle Pipistrellus pipistrellus	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland	Valley of the Widawa River frequent and within the area	42.2 (n-56) 42.2, 42.3, 42, 3, 1 (n-10, 50) 42.2 (n-35) 42.3 (n-48) 42.3 (n-45) 42.3.1 (49)		44.14 (n-20) 44.15 (n-25, 24) 44.14 (n-23, 30) 44.16 (31.10, 35) 44.17 (n-41, 44, 40, 36, 10) 44.5, 44, 44.7.44.9, 44.10	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.16, 44.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							44.4 (n-21, 20)			
[1309] Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland	Not applicable	42.2 (n-56 42.2, 42.3, 42, 3, 1 (n-10, 50) 42.2 (n-35) 42.3 (n-48) 42.3 (n-45) 42.3.1 (49)		44.14 (n-20) 44.15 (n-25, 24) 44.14 (n-23, 30) 44.16 (31.10, 35) 44.17 (n-41, 44, 40, 36, 10) 44.18 (n-10, 44, 41) 44.4 (n-21, 20)	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)
[1317] Nathusius's Pipistrelle <i>Pipistrellus nathusii</i>	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland, unequally	Valley of the Widawa River frequent within the area	42.2 (n-56 42.2, 42.3, 42.3.1 (n-10, 50) 42.2 (n-35) 42.3 (n-48)		44.14 (n-20) 44.15 (n-25, 24) 44.14 (n-23, 30) 44.16 (31.10, 35)	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
					42.3 (n-45) 42.3.1 (49)		44.17 (n-41, 44, 40, 36, 10) 44.5, 44, 44.7.44.9, 44.10 44.18 (n-10, 44, 41) 44.4 (n-21, 20)			
[1312] Common Noctule Nyctalus noctula	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland,	Valley of the Widawa River rare within the area	42.2 (n-56) 42.2, 42.3, 42, 3, 1 (n-10, 50) 42.2 (n-35) 42.3 (n-48) 42.3 (n-45) 42.3.1 (49)		44.14 (n-20) 44.15 (n-25, 24) 44.14 (n-23, 30) 44.17 (n-41, 44, 40, 36, 10) 44.18 (n-10, 44, 41) 44.4 (n-21, 20) 44.5, 44, 44.7.44.9,	45.3 (n-20, 10)	46.2 (n-40, 10)	19 (n-51, 54, 10, 55, 53, 52)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
							44.10			
[1312] Lesser Noctule Nyctalus leisleri	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland,	Not applicable	42.3 (n-48)		44.15 (n-25, 24) 44.16 (31.10, 35)			
[1326] Brown Long-Eared Bat Plecotus auritus	4th (IV) Appendix of the Habitats Directive	Full species protection	All over Poland,	Not applicable	42.2 (n-35) 42.3 (n-48)		44.15 (n-25, 24, 26) 44.16 (31.10, 35) 44.17 (n-41, 44, 40, 36, 10) 44.4 (n-21, 20) 44.5, 44, 44.7.44.9, 44.10	45.3 (n-20, 10)		19 (n-51, 54, 10, 55, 53, 52)
[1308] Barbastelle Barbastella barbastellus	Second (II) and Fourth (IV) Appendix of the Habitats	Full species protection	All over Poland,	Not applicable	42.2 (n-35) 42.3 (n-48)		44.15 (n-25, 24) 44.16 (31, 35) 44.17 (n-41, 44, 40, 36, 10)	45.3 (n-20, 10)		19 (n-51, 54, 10, 55, 53, 52)

Species name	Protection status		Presence in Poland	Presence within the Natura 2000 area	Presence within the potential natural object impact zone Natural object / location					
	in the European Union	in Poland			WFS no. 42.2 42.3 42.3.1	WFS 43	WFS no. 44.4, 44.5, 44.6, 44.7, 44.8, 44.9, 44.10, 44.14, 44.15, 44.1644.17, 44.18	WFS no. 45.3, 45.4	WFS no. 46.2	WFS No. 19
	Directive						44.4 (n-21, 20)			
[1330/1320] Whiskered Bat / Brandt's Bat Myotis mystacinus / Myotis brandti	4th (IV) Appendix of the Habitats Directive	Full species protectio n	All over Poland, quite unequally	Valley of the Widawa River frequent within the area	42.2 (n-35) 42.3 (n-48)		44.15 (n-25) 44.16 (31.10, 35) 44.17 (n-41, 44, 40, 36, 10) 44.4 (n-21, 20) 44.5, 44, 44.7.44.9, 44.10			19 (n-51, 54, 10, 55, 53, 52)

Appendix 8 - Summary of mitigation and compensation measures

8.1 Methods for minimizing the impact of the Works Contract on natural habitats and species protected under the Natura 2000 areas "Grady w dolinie Odry"

8.2 . Summary of impacts on species and habitats located in the region, of Works Contract and methods for minimizing the impact of the Works Contract

8.3. Summary of interactions that require the implementation of compensation and how it is carried out

Table. 8.1. Methods for minimizing the impact of the Works Contract on natural habitats and species protected under the Natura 2000 area "Dolina Widawy"

Notes:

The Works Contract impacts were presented at the 4-grade scale: 0 - no impact, 1 - negative impact, however insignificant, 2 - negative impact, significant, however, possible to be effectively minimised with the use of appropriate mitigation measures, 3 - negative impact, significant, impossible to be effectively minimised, requiring the use of compensatory measures.

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
Natural habitats					
[3150] Old river beds and natural eutrophic water reservoirs with gatherings of Nymphaea, Potamogeton	<u>44.7</u> <u>44.11</u> <u>44.4</u>	A possibility of destruction or damage of the habitats or their parts, especially at the banks, as a result of building / construction works at: erection of the new embankment - WFS no. 44.7 (object no. h-22), erection of the new embankment - WFS no. 44.11 (object no. h-56), erection of the new embankment - WFS no. 44.4 (object no. h-14).	2	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.7 at the section neighbouring with the habitat no. h-22. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees within the banks of the old river-bed against damage. Prohibition to conduct any building / construction works at the close proximity of the habitat no. h-56 at the duration of constructing the embankment WFS no. 44.11. Leave the habitat intact. Prohibition to conduct any building / construction works at the close proximity of the habitat no. h-14 at the duration of constructing the embankment WFS no. 44.4. Leave the habitat intact.	1/0
[91F0] Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ficario-Ulmetum)	<u>44.15</u>	Destruction of a large part of the habitat (a complex of riverine carr forests 91F0 and 91E0) at the area of around 2.5 ha as a result of construction of the new embankment WFS no. 44.14 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-69. Cutting off a large patch of the habitat at the section of around 150 m from natural flooded areas which can cause it look riverine (carr).	2	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment at the section running by the object no. h-69. Technology of conducting the construction of the embankment from the front. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. For the duration of building / construction works, securing edges of the forest at the water-side against accidental damage through their fencing. It refers to sections of the embankment running at the direct proximity of the forest	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				walls. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment base at the section of its course through the habitat. All the losses at the habitat can be equal to around 0.8 ha with only a part of it (around 0.4 ha) being 91F0 habitats. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March). An alternative course of the embankment is possible, shifting it away from forest habitats and increasing flooded areas, which in consequence leads to further reduction of transformations of the habitat (losses within the habitat areas - around 0.3 ha). However, this variant is plausible for implementation only upon the expropriation of garden allotments, which can turn out to be impossible to implement due to public protests. Execution of culverts at the embankment to enable an inflow of water to the areas separated by the embankments so that not to change the existing ground and water conditions at riverine habitats. All the technological solutions should also allow a free outflow of water so as not to make the habitat swampy. It is required to provide environmental supervision during all the conducted works.	
	44.16	Destruction of a part of the object no. h-76 (within the area of around 0.5 ha) as a result of construction of the new embankment no. 44.16 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation).	1	Resignation from the occupation of lands within the prospective behind-embankment at the construction of the new embankment WFS no. 44.16 at the section neighbouring with the habitat no. h-76. Technology of conducting the construction of the embankment from the water-side embankment. Location of technological routes and storage sites at the water-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees at the land-side through fencing.	1/0
	44.17	Leaving the object no. h-28 intact is conditioned by conducting all the works at the opposite side of the Widawa river-bed in reference to the location of the object.	0	No threat does not result in the need to conduct additional minimising recommendations.	0
	44.8	Destruction of a part of the object at the area of around 1,5 ha as a result of construction of the new embankment no. 44.18 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-30.	2	Technology of conducting the construction of the embankment from the front. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment at the section of its course through the habitat. All the losses at the habitat can be equal to around 0.4 ha. Location of storage sites beyond the area of the habitat. Secure (for the duration of building / construction works)	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				all forest habitats being adjacent to the line of conducted works not covered by the construction of the embankment against accidental damage through their fencing. The fencing should be made at the water-side as well as the land-side. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March). It is required to provide environmental supervision during all the conducted works.	
	44.7	Destruction of a part of the object at the area of around 1.8 ha as a result of construction of the new embankment no. 44.7 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-25.	2	Technology of conducting the construction of the embankment from the front. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment at the section of its course through the habitat. All the losses at the habitat can be equal to around 0.5 ha. Location of storage sites beyond the area of the habitat. Secure (for the duration of building / construction works) all forest habitats being adjacent to the line of conducted works not covered by the construction of the embankment against accidental damage through their fencing. The fencing should be made at the water-side as well as the land-side. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	1
[6440] Cnidium meadows (Cnidion dubii)	44.11 44.12	Destruction of a part of the habitat with its area of around 1.0 ha as a result of construction of the embankment WFS no. 44.11 and 44.12 (permanent occupation), requirements within traffic of vehicles and machines, implementation of storage sites (temporary occupation), at the natural object no. h-57.	1	Resignation from the occupation of land within the mid-embankment at the duration of construction of the embankment WFS no. 44.11 and 44.12 at the section neighbouring with the object no. h-57. Location of technological routes and storage sites at the land-side. Prohibition to conduct all the building / construction works within the habitat. Leave the habitat intact.	0
	44.13	Destruction of a large part of the habitat with its area of around 7.5 ha (the total area of the habitat is equal to 35.84 ha), as a result of the construction of the new embankment WFS no. 44.13 (permanent occupation) as well as the occupation of lands for technological routes and storage sites (temporary occupation) at the natural object no. h-63.	2	Organise storage sites at the land-side of the embankment, beyond the boundaries and beyond the direct vicinity of the habitat. Implementation of technological routes at the sections intersecting the habitat at the embankment crest; then at the remaining section - from land-side. Technology of conducting the construction of the embankment from its front with the simultaneous limitation of the occupation of lands to the projected width of the embankment base. All the losses at the habitat can be equal to around 4.0 ha. The impact will be insignificant as there is a very large participation of 6440 habitats (around 179 ha at the section covered by the investment in the valley of the	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				Widawa river and all the losses within the habitat will be equal to around 3% of their surfaces.	
	44.16	Destruction of a fragment of the habitat with its area of around 0.4 ha as a result of construction of the embankment WFS no. 45.2 (permanent occupation), requirements within traffic of vehicles and machines, implementation of storage sites (temporary occupation), at the natural object no. h-78.	1	Resignation from the occupation of land within the mid-embankment at the construction of the embankment at the section running by the object no. h-78. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. Prohibition to conduct all the building / construction works within the habitat. Leave the habitat intact.	0
[*91E0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Salicetum albo-fragilis</i> , <i>Populetum albae</i> , <i>Alnenion</i> , arge bittercress)	44.15	Destruction of a large part of the habitat (a complex of riverine carr forests 91F0 and 91E0) at the area of around 2.5 ha as a result of construction of the new embankment WFS no. 44.14 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-69. Cutting off a large patch of the habitat at the section of around 150 m from natural flooded areas which can cause it look riverine (carr).	2	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment at the section running by the object no. h-69. Technology of conducting the construction of the embankment from the front. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. For the duration of building / construction works, securing edges of the forest at the water-side against accidental damage through their fencing. It refers to sections of the embankment running at the direct proximity of the forest walls. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment base e section of its course through the habitat. All the losses at the habitat can be equal to around 0.8 ha with only a part of it being 91E0 habitats. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March). An alternative course of the embankment is possible, shifting it away from forest habitats and increasing flooded areas, which in consequence leads to further reduction of transformations of the habitat (losses within the habitat areas - around 0.3 ha). However, this variant is plausible for implementation only upon the expropriation of garden allotments, which can turn out to be impossible to implement due to public protests. Execution of culverts at the embankment to enable an inflow of water to the areas separated by the embankments so that not to change the existing ground and water conditions at riverine habitats. All the	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				technological solutions should also allow a free outflow of water so as not to make the habitat swampy. It is required to provide environmental supervision during all the conducted works.	
	44.15	Fragmentary destruction of edges of the habitat with its area of around 0.1 ha as a result of all the building / construction works at the construction of the embankment WFS no. 44.15 and - in particular - in connection with traffic of vehicles and machines, implementation of storage sites (temporary occupation), at the natural object no. h-66.	1	Prohibition to conduct all the building / construction works within and in the direct proximity of the object no. h-66. Conduct all the works at a distance at least at 10 - 20 m from the habitat. Leave the habitat intact.	0
	44.15	Destruction of a part of the object at the area of around 1.8 ha as a result of construction of the new embankment no. 44.15 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-70.	2	Resignation from all the works related to temporary occupation of the land within the habitat - at the construction of the new embankment - at the section crossing the object no. h-70. Technology of conducting the construction of the embankment from the front. Location of technological routes and storage sites beyond the area of the habitat. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment base e section of its course through the habitat. All the losses at the habitat can be equal to around 0.5 ha. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March). Upon the felling, for the duration of building / construction works, securing edges of the forest at both sides against accidental damage through their fencing.	1
	44.16 44.17	The object no. h-27 is located at the opposite side of the Widawa river-bed, which ultimately excludes any threats as a result of works conducted at the construction of the embankment WFS no. 44.16. The object no. h-80 is located at a distance of over 180 m from the area of the planned construction of the embankment WFS no. 44.17, so beyond any threats resulted from the conducted works.	0	As there are no threats, it is stated that it is not required to take any minimising actions.	0
	45.3	Destruction of the object at the area of around 0.41 ha as a result of construction of the new embankment no. 45.3 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-10.	1	Resignation from occupation of the land within the habitat - at the construction of the new embankment - at the section crossing the object no. h-10. Technology of conducting the construction of the embankment from the front. Location of technological routes and storage sites beyond the area of the habitat. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment base a section of its course through the habitat. All the losses at the habitat can be equal to around 0.18 ha.	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March). Upon the felling, for the duration of building / construction works, secure edges of the forest against accidental damage through their fencing.	
	<u>44.4</u>	The object no. h-17 is located at a distance of over 100 m from the area of the planned construction of the embankment WFS no. 44.4, so beyond any threats resulted from the conducted works. It is possible to conduct all the works at a distance at least at 70 - 20 m from the habitat.	0	As there are no threats, it is stated that it is not required to take any minimising actions.	0
	<u>44.6</u>	Destruction of a part of the object at the area of around 0.1 ha as a result of construction of the new embankment no. 44.6 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-20.	1	Location of technological routes and storage sites beyond the area of the habitat. All the losses at the habitat in connection with the felling can be equal to around 0.1 ha. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	1
	<u>44.7</u>	Fragmentary destruction of edges of the habitat with its area of around 0.05 ha as a result of all the building / construction works at the construction of the embankment WFS no. 44.7 and - in particular - in connection with traffic of vehicles and machines, implementation of storage sites (temporary occupation), at the natural object no. h-21.	1	Prohibition to conduct all the building / construction works within and in the direct proximity of the object no. h-21. Conduct all the works at a distance at least at 20 - 30 m from the habitat. Leave the habitat intact.	0
	<u>44.7</u>	Destruction of a part of the object at the area of around 0.5 ha as a result of construction of the new embankment no. 44.7 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-22.	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.7 at the section neighbouring with the habitat no. h-22. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees at the water-side through fencing.	0
	<u>44.7</u>	Fragmentary destruction of edges of the habitat with its area of around 0.2 ha as a result of all the building / construction works at the construction of the embankment WFS no. 44.7 and - in particular - in connection with traffic of vehicles and machines, implementation of storage sites (temporary occupation), at the natural object no. h-26.	1	Prohibition to conduct all the building / construction works within and in the direct proximity of the object no. h-26. Conduct all the works at a distance at least at 20 - 30 m from the habitat. Leave the habitat intact.	0
	<u>44.9</u>	Destruction of the object at the area of around 0.3 ha as a result of construction of the new embankment no. 44.9 (permanent occupation) and occupation of the	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.9 at the section	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
		land for technological routes and storage sites (temporary occupation) at the natural object no. h-31.		neighbouring with the habitat no. h-31. Construction of the embankment completely beyond the range of the habitat and at a distance of 5-10 m from it. Location of technological routes and storage sites at the land-side.	
	44.9	The object no. h-81 is located at the opposite side of the Widawa river-bed, which ultimately excludes any threats as a result of works conducted at the construction of the embankment WFS no. 44.9.	0	As there are no threats, it is stated that it is not required to take any minimising actions.	0
[6410] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion)	44.15	Destruction of a part of the object constituting a mosaic of two types of habitats: changeably moist meadows (6410) and fresh meadows (6510) at the area of around 1.8 ha as a result of construction of the new embankment no. 44.15 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-72.	2	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.15 at the section neighbouring with the habitat no. h-72. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side and beyond the area of the habitat. Ultimately, all the losses within the habitat can be equal to around 0.4 ha. An alternative course of the embankment is possible, shifting it away from the habitat, which in consequence leads to no surface losses. However, this variant is plausible for implementation only upon the expropriation of garden allotments, which can turn out to be impossible to implement due to public protests.	1/0
	44.15	Destruction of a part of the object at the area of around 4.0 ha as a result of construction of the new embankment no. 44.15 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-74. The object constitutes a habitat complex of moist meadows 6410 and fresh meadows 6510.	2	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 1.2 ha including habitats of moist meadows being equal to 0,6 ha, considering the fact that a part of the habitats are made by fresh meadows. Location of storage sites beyond the area of the habitat.	1
[6510] Low-land and mountain fresh meadows used extensively (Arrhenatherion elatioris)	44.15	Destruction of a part of the object at the area of around 4.0 ha as a result of construction of the new embankment no. 44.15 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-74. The object constitutes a habitat complex of moist meadows 6410 and fresh meadows 6510.	2	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 1.2 ha including habitats of fresh meadows being equal to 0,6 ha, considering the fact that a part of the habitats are made by moist meadows. Location of storage sites beyond the area of the habitat. The impact will be insignificant as there is a very large participation of 6510 habitats (around 3.44 ha at the section covered by the investment) in the valley of the Widawa river and all the losses within the habitat will be	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				less than 5% of their surfaces.	
	44.15	Destruction of a part of the object constituting a mosaic of two types of habitats: changeably moist meadows (6410) and fresh meadows (6510) at the area of around 1.8 ha as a result of construction of the new embankment no. 44.15 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-72.	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.15 at the section neighbouring with the habitat no. h-72. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side and beyond the area of the habitat. Ultimately, all the losses within the habitat can be equal to around 0.4 ha. An alternative course of the embankment is possible, shifting it away from the habitat, which in consequence leads to no surface losses. However, this variant is plausible for implementation only upon the expropriation of garden allotments, which can turn out to be impossible to implement due to public protests.	1/0
	44.15	Destruction of a part of the object at the area of around 3.0 ha as a result of construction of the new embankment no. 44.15 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-64.	1	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 0.9 ha. Location of storage sites beyond the area of the habitat. The impact will be insignificant as there is a very large participation of 6510 habitats (around 3.44 ha at the section covered by the investment) in the valley of the Widawa river and all the losses within the habitat will be less than 5% of their surfaces.	1
	44.15	The object no. h-67 is located at a distance of over 50 m from the course of the embankment WFS no. 44.12 and beyond any forest area, which ultimately excludes any threats as a result of works conducted at the construction of the embankment.	0	As there are no threats, it is stated that it is not required to take any minimising actions.	0
	44.15	Destruction of a part of the object at the area of around 6.0 ha as a result of construction of the new embankment no. 44.15 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-71.	2	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 1.8 ha. Location of storage sites beyond the area of the habitat. The impact will be insignificant as there is a very large participation of 6510 habitats (around 3.44 ha at the section covered by the investment) in the valley of the Widawa river and all the losses within the habitat will be less than 5% of their surfaces.	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
	<u>44.16</u>	Destruction of a part of the object at the area of around 0.3 ha as a result of construction of the new embankment WFS no. 44.16 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-79.	1	Resignation from the occupation of land within the habitat at the construction of the new embankment WFS no. 44.16 at the section neighbouring with the habitat no. h-79. Conduct all the works in a non-destructive manner to the habitat. Technology of construction of superstructure of the existing embankment within the area of the habitat from the water-side. Location of technological routes and storage sites beyond the area of the habitat.	0
	<u>45.3</u>	Destruction of a part of the object at the area of around 1.5 ha as a result of construction of the new embankment WFS no. 45.3 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-11.	1	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 0.9 ha. Location of storage sites and technological routes beyond the area of the habitat.	1
	<u>44.4</u>	Destruction of a part of the object at the area of around 8.5 ha as a result of construction of the new embankment WFS no. 44.4 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-12.	2	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 2.5 ha. Location of storage sites beyond the area of the habitat. The impact will be insignificant as there is a very large participation of 6510 habitats (around 3.44 ha at the section covered by the investment) in the valley of the Widawa river and all the losses within the habitat will be less than 5% of their surfaces.	1
	<u>44.5</u>	Destruction of a part of the object at the area of around 12.0 ha as a result of construction of the new embankment WFS no. 44.5 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-18.	2	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 3.6 ha. Location of storage sites at the land-side and beyond the area of the habitat. The impact will be insignificant as there is a very large participation of 6510 habitats (around 3.44 ha at the section covered by the investment) in the valley of the Widawa river and all the losses within the habitat will be less than 5% of their surfaces.	1
	<u>44.5</u>	It is possible at some fragments to destruct a part of the object at the area of around 0.1 ha as a result of construction of the new embankment WFS no. 44.5 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-19.	1	Resignation from the occupation of land within the habitat at the construction of the new embankment WFS no. 44.5 at the section neighbouring with the habitat no. h-19. Conduct all the building / construction works in a non-destructive manner to the habitat. Location of technological routes and storage sites beyond the area	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				of the habitat.	
	<u>44.7</u>	Destruction of a part of the object at a distance of around 150 m and at the area of around 0.7 ha as a result of construction of the new embankment no. 44.7 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-23.	1	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 0.5 ha. Location of storage sites and technological routes beyond the area of the habitat. The impact will be insignificant as there is a very large participation of 6510 habitats (around 3.44 ha at the section covered by the investment) in the valley of the Widawa river and all the losses within the habitat will be less than 5% of their surfaces.	1
	<u>44.7</u>	Destruction of a part of the object at the area of around 0.3 ha as a result of construction of the new embankment no. 44.7 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-24.	1	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. All the losses at the habitat can be equal to around 0.1 ha. Location of storage sites and technological routes beyond the area of the habitat.	1
	<u>44.8</u>	It is possible at some fragments to destruct a part of the object at the area of around 0.1 ha as a result of construction of the new embankment WFS no. 44.8 (permanent occupation) and occupation of the land for technological routes and storage sites (temporary occupation) at the natural object no. h-29.	1	Resignation from the occupation of land within the habitat at the construction of the new embankment WFS no. 44.8 at the section neighbouring with the habitat no. h-29. Conduct all the building / construction works in a non-destructive manner to the habitat. Location of technological routes and storage sites beyond the area of the habitat.	0
Plants					
Common Snowdrop <i>Galanthus nivalis</i>	<u>42.3</u>	No identified positions. It is possible to damage a fragment of the potential habitat of the species (the object no. f-21) as a result of the re-construction of the bridge WFS no. 42.3. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of a series of potential habitat areas at the section of the Widawa valley.	1	Plan all the access roads in such a manner not to destruct the habitats - make use the existing roads. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. It is required to limit works within the area of the valley (the current mid-embankment), including potential felling / cutting off trees and shrubs, to the minimum, at 5 - 10 m from the bridges at maximum. Secure (against any damage) areas covered with trees not projected for felling through fencing for the period of the conducted works.	1/0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
	44.15	No identified positions. Then it is possible to damage a part of the potential habitat of the species (the object no. f-11) as a result of the construction of the embankment WFS no. 44.15. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of a series of potential habitat areas at the section of the Widawa valley.	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment at the section running by the object no. f-11. Technology of conducting the construction of the embankment from the front. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. For the duration of building / construction works, securing edges of the forest at the water-side against accidental damage through their fencing. It refers to sections of the embankment running at the direct proximity of the forest walls. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment at the section of its course through the habitat. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	1
	44.18	No identified positions. Then it is possible to damage a part of the potential habitat of the species as a result of the modernisation of the embankment WFS no. 44.18 at the natural object no. f-17 and f-21. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of a series of potential habitat areas at the section of the Widawa valley.	1	Modernisation and construction of a new section of the embankment at the land-side (at the section being adjacent to the forest wall) as well as resignation from the occupation of land within the mid-embankment. Locate places of storage of materials and technological routes only beyond the area of the habitats. Modernisation of the embankment at forest sections making use of technologies of conducting works from the embankment crest. Limit necessary felling / cutting down of trees and shrubs to the width of the embankment base. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	1
	44.7	No identified positions. Then it is possible to damage a minor part of the potential habitat of the species (the object no. f-16) as a result of the construction of the embankment WFS no. 44.7.	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.7 at the section neighbouring with the habitat no. h-16. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees at the water-side through fencing.	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
	44.10	No identified positions. Then it is possible to damage a part of the potential habitats of the species as a result of the construction of the embankment. It refers to the following natural objects: f-20, f-22. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of a series of potential habitat areas at the section of the Widawa valley.	1	Conduct all the works at the land-side of the embankment, completely resigning from the location of technological routes and storage sites within the mid-embankment. At the object no. f-20 - make adjustments at the route of the embankment at the section from km 5+400 up to km 6+500 of the Widawa river to include all the forest areas to the mid-embankment of the Widawa river. Leave forest communities intact through routing the embankment at a distance of 5 m from the forest wall at minimum. For the duration of building / construction works, securing edges of the forest at the water-side against accidental damage through their fencing.	1
		No threat is projected from the object no. f-17 as it is located at the opposite bank of the Widawa river in reference to the planned works.	0	Minimising actions are not required - no threat.	0
Yellow Water-lily <i>Nuphar lutea</i>	44.7	No identified positions. Then it is possible to damage a part of the potential habitat of the species (the overgrowing old river-bed) as a result of the construction of the embankment WFS no. 44.7 - the natural object no. f-13. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is frequent.	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.7 at the section neighbouring with the habitat no. h-13. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees within the banks of the old river-bed against damage.	0
	19	It is possible to destruct two positions of the species located within the area of the embankment projected for partial demolition WFS no. 19 - the natural object f-24.	2	Resignation from demolition of short sections of the embankment within the area of occurrence of old river-beds with Water-lily.	0
White Water-lily <i>Nymphaea alba</i>	44.7	No identified positions. Then it is possible to damage a part of the potential habitat of the species (the overgrowing old river-bed) as a result of the construction of the embankment - the natural object no. f-13. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is frequent.	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.7 at the section neighbouring with the habitat no. h-13. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees within the banks of the old river-bed against damage.	0
Lily of the Valley <i>Convallaria majalis</i>	44.18	It is possible to destruct one position of the species within the natural object no. f-17 as well as a part of the	1	Modernisation and construction of a new section of the embankment at the land-side (at the section being	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
		potential habitat of the species as a result of re-construction of the embankment WFS no. 44.18. The impact is insignificant as due to the occurrence of numerous potential habitat areas at the section of the Widawa valley (in particular a section of the valley at km 0+000 - 3+000 of the Widawa river), destruction of only one position as well as the fact that the species is very frequent.		adjacent to the forest wall) as well as resignation from the occupation of land within the mid-embankment. Locate places of storage of materials and technological routes only beyond the area of the habitats. Modernisation of the embankment at forest sections making use of technologies of conducting works from the embankment crest. Limit necessary felling / cutting down of trees and shrubs to the width of the embankment base. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	
	44.10	No identified positions. Then it is possible to damage a part of the potential habitat of the species as a result of the construction of the embankment WFS no. 44.10. The threat refers to the following objects: f-20 and f-17. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is very frequent.	1	Conduct all the works at the land-side of the embankment, completely resigning from the location of technological routes and storage sites within the mid-embankment. At the object no. f-20 - make adjustments at the route of the embankment at the section from km 5+400 up to km 6+500 of the Widawa river to include all the forest areas to the mid-embankment of the Widawa river. Leave forest communities intact through routing the embankment at a distance of 5 m from the forest wall at minimum. For the duration of building / construction works, securing edges of the forest at the water-side against accidental damage through their fencing.	1/0
	19	It is possible to destruct two positions of the species located within the area of the embankment projected for partial demolition - the natural object f-24.	2	Resignation from demolition of short sections of the embankment within the area of occurrence of the positions.	0
Fen Violet Viola stagnina	40	No threat for the identified positions because of the distance. Then it is possible to damage a minor part of the potential habitat of the species as a result of the implementation of the over-flow WFS no. 40. The threat refers to the following object: f-1.	1	Intensify all the building / construction works at the opposite side of the over-flow in relation to the f-1 habitat. Situate technological routes and storage places beyond within and in the direct vicinity of the species habitat. Conduct works at the side of the habitat, if required for the construction of the over-flow, 5 - 10 m at maximum, from the WFS structure.	0/1
	45.5	No identified positions. Then it is possible to damage a minor part of the potential habitat of the species as a result of the modernisation of the embankment WFS no. 45.5. The threat refers to the following object: f-1. Insignificant impact - it is possible to damage a significant area of the habitat of the species (considered as very rare).	2	Resignation from the occupation of land within the mid-embankment at the modernisation of the embankment at the section running by the object no. f-1. Technology of conducting the modernisation of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. Conduct all the works related to temporary occupation of land at the land-side of the embankment.	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
Broad-leaved Helleborine Epipactis helleborine	42.3	No identified positions. It is possible to damage a fragment of the potential habitat of the species (the object no. f-21) as a result of the re-construction of the bridge WFS no. 42.3. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is very frequent.	1	Plan all the access roads in such a manner not to destruct the object no. f-21 - make use the existing roads. Locate storage sites beyond the area of habitats as well as beyond the area of the present mid-embankment. It is required to limit works within the area of the valley (the current mid-embankment), including potential felling / cutting off trees and shrubs, to the minimum, at 5 - 10 m from the bridge at maximum. Secure (against any damage) areas covered with trees not projected for felling through fencing for the period of the conducted works.	1/0
	44.15	No identified positions. Then it is possible to damage a considerable part of the potential habitat of the species (the object no. f-11) as a result of the construction of the embankment WFS no. 44.15. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is very frequent.	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment at the section running by the object no. f-11. Technology of conducting the construction of the embankment from the front. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. For the duration of building / construction works, securing edges of the forest at the water-side against accidental damage through their fencing. It refers to sections of the embankment running at the direct proximity of the forest walls. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment at the section of its course through the habitat. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	1
	44.18	No identified positions. Then it is possible to damage a considerable part of the potential habitat of the species (the object no. f-17 and f-21) as a result of the re-construction of the embankment. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is very frequent.	1	Modernisation and construction of a new section of the embankment at the land-side (at the section being adjacent to the forest wall) as well as resignation from the occupation of land within the mid-embankment. Locate places of storage of materials and technological routes only beyond the area of the habitats. Modernisation of the embankment at forest sections making use of technologies of conducting works from the embankment crest. Limit necessary felling / cutting down of trees and shrubs to the width of the embankment base. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	1
	44.7	No identified positions. Then it is possible to damage a considerable part of the potential habitat of the species (the object no. f-16) as a result of the construction of	1	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.7 at the section	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
		the embankment WFS no. 44.7. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is very frequent.		neighbouring with the habitat no. h-16. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees at the water-side through fencing.	
	44.10	No identified positions. Then it is possible to damage a part of the potential habitats of the species as a result of the construction of the embankment WFS no. 44.10. It refers to the following natural objects: f-20 and f-22. The natural object no. f-17 is not threatened as it is located at the opposite side of the river in reference to the planned works. The impact is insignificant as there is no collision with the existing positions of the species as well as occurrence of numerous potential habitat areas at the section of the Widawa valley as well as the fact that the species is very frequent.	1	Conduct all the works at the land-side of the embankment, completely resigning from the location of technological routes and storage sites within the mid-embankment. At the object no. f-20 - make adjustments at the route of the embankment at the section from km 5+400 up to km 6+500 of the Widawa river to include all the forest areas to the mid-embankment of the Widawa river. Leave forest communities intact through routing the embankment at a distance of 5 m from the forest wall at minimum. For the duration of building / construction works, securing edges of the forest at the water-side against accidental damage through their fencing.	0
Grass Lily Ornithogalum umbellatum	44.15	No identified positions. Then it is possible to damage a part of the potential habitats of the species as a result of the construction of the embankment WFS no. 44.15. It refers to the following natural objects: f-9 and f-10. Moreover, it is possible to damage a small population of the species (considered as rare species) located at the edges of the habitat object no. f-11. Insignificant object - there is a collision with the existing positions, it is considered as rare species.	2	In case of the species habitat no. f-9, apply technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the habitat. Location of storage sites beyond the area of the habitat. In case of the species habitat no. f-10, locate places of storage of materials and technological routes as well as conduct all kinds of works beyond the area of the habitat and at a distance of 30 m from it at minimum. Prohibition to transform (re-shape) the habitat. In case of the species habitat no. f-11, resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment at the section running by the object no. f-11. Technology of conducting the construction of the embankment from the front. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. Prohibition to conduct works and transform (re-shape) the identified species habitat. Conduct all the works at a distance at least at 20 - 30 m from the position. For the duration of building / construction works, securing edges of the forest at the water-side against accidental	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				damage through their fencing. It refers to sections of the embankment running at the direct proximity of the forest walls. Reduction of felling / cutting off riparian trees and shrubs to the width of the embankment at the section of its course through the habitat. Felling of trees should be conducted within autumn and winter months (between 15 October and 1 March).	
	44.18	No identified positions. Moreover, the potential habitat of occurrence of the species (the object no. f-19) is located beyond possible impacts of the embankment route WFS no. 44.18 and any works conducted nearby.	0	Minimising actions are not required. No threats.	0
	44.7	No identified positions. Then it is possible to damage a part of the potential habitats of the species as a result of the construction of the embankment WFS no. 44.7. It refers to the following natural objects: f-14, f-15. The impact is insignificant as there is no collision with the existing positions of the species as well as due to the occurrence of numerous potential habitat areas at the section of the Widawa valley.	2	Technology of conducting the construction of the embankment from the front. Limitation of all the works to the width of the embankment width at the section of the embankment running through the following object: f-14 and f-15. Location of storage sites and technological routes beyond the area of the habitats.	1
	44.10	No identified positions. Moreover, the potential habitat of occurrence of the species (the object no. 18) is located beyond possible impacts, namely at the opposite side of the river-bed, therefore the potential species habitat is not threatened.	0	Minimising actions are not required. No threats.	0
Southern adderstongue - <i>Ophioglossum vulgatum</i>	44.15	The identified positions are located beyond possible-to-occur threats. Then it is possible to damage a part of the potential habitat of the species as a result of the construction of the embankment WFS no. 44.15. This refers to the natural object no. f-12. Significant impact - although there is no collision with the existing positions, however this is considered as a rare species with the limited area of occurrence of its habitats).	2	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.15 at the section neighbouring with the habitat no. h-12. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side and beyond the area of the habitat. An alternative course of the embankment is possible, shifting it away from the habitat, which in consequence leads to no surface losses. However, this variant is plausible for implementation only upon the expropriation of garden allotments, which can turn out to be impossible to implement due to public protests.	1/0
Fungi					
Scarlet cup - <i>Sarcoscypha coccinea</i>	44.15	The building / construction works are likely to disrupt the structure or damage the habitat no. m-2 within which the occurrence of this very rare species was identified. Intense operation of machines and heavy equipment can negatively impact the current state of	2	It is required to apply tolerably efficient protection of tree trunks (e.g. by means of the so-called geo-textile). All the earth works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time (any exposure of trees for drying	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
		dendroflora and finally the prospective operation of the local habitat network. Therefore, the position may be destroyed.		or freezing of their root system elements should be avoided).	
Giant puffball - Langermannia gigantea	44.15	One position can be damaged as a result of the conducted earth works (the object no. m-3). The potential habitat of the species is partially threatened as well. However, the species can develop at numerous varied habitats - this is indeed a synanthropic fungus. The species is also identified (at least) at several positions within the area of the Works Contract not covered by the impact.	1	All the building / construction works should be conducted in a manner not colliding with the position. At the construction of the embankment - conduct all the works at a distance of at least 5 - 10 m from the object no. m-3.	1
	44.18	One position of the species will be probably damaged as a result of the conducted building / construction works at the modernisation of the embankment (the object no. m-4). The species can develop at numerous varied habitats - this is indeed a synanthropic fungus. The species is also identified (at least) at several positions within the area of the Works Contract not covered by the impact.	1	No suggested specific minimising recommendations due to its numerous occurrence at the valley of the Widawa river (at the section covered by the investment but beyond any possible impact).	1
	44.4	One position of the species (the object no. 1) located at a greater distance from the projected embankment (around 80 m) and - at the same time - from the building / construction works. They are assessed as not being threatened.	0	No suggested specific minimising recommendations due to its numerous occurrence at the valley of the Widawa river (at the section covered by the investment but beyond any possible impact). (at the section covered by the investment but beyond any possible impact).	0
Endangered plant species					
Meadow-rue <i>Thalictrum lucidum</i> Mouse garlic <i>Allium angulosum</i> Marsh cnidium <i>Cnidium dubium</i>	45.5	One position of the species - Meadow-rue <i>Thalictrum lucidum</i> has been located within the object no. f-1, however completely beyond possible threat. Then the natural object no. f-1 constitutes a potential habitat of the considered endangered species. It is possible to damage a part of the potential habitat of the species as a result of the implementation of the embankment WFS no. 45.5.	2	Resignation from the occupation of land within the mid-embankment at the modernisation of the embankment at the section running by the object no. f-1. Technology of conducting the modernisation of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side of the embankment and beyond the area of the habitat. Conduct all the works related to temporary occupation of land at the land-side of the embankment.	0
Sedge <i>Carex tomentosa</i> Marsh cnidium <i>Cnidium dubium</i>	44.15	The identified positions of the species are located beyond the scope of the threat. Then it is possible to damage a part of the potential habitat of the endangered species as a result of the construction of the embankment WFS no. 44.15. The threat refers to the following object: f-12.	2	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.15 at the section neighbouring with the habitat no. h-12. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side and beyond the area of the habitat. An alternative course of the embankment is possible, shifting it away from the habitat, which in consequence leads to no surface losses. However, this variant is	1/0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				plausible for implementation only upon the expropriation of garden allotments, which can turn out to be impossible to implement due to public protests.	
Water Pineapple <i>Stratiotes aloides</i>	<u>44.7</u>	No identified positions. Then it is possible to damage a part of the potential habitats of the species (over-growing old river-beds) as a result of the construction of the new embankment no. 44.7. This refers to the natural object no. f-13.	2	Resignation from the occupation of land within the prospective mid-embankment at the construction of the new embankment WFS no. 44.7 at the section neighbouring with the habitat no. h-13. Technology of conducting the construction of the embankment from the land-side embankment. Location of technological routes and storage sites at the land-side. Additionally - at the duration of building / constructing works - it is required to secure shrubs and trees within the banks of the old river-bed against damage.	0

Table. 8.2. Summary of impacts on species and habitats located in the region, of Works Contract and methods for minimizing the impact of the Works Contract

Notes:

The Works Contract impacts were presented at the 4-grade scale: 0 - no impact, 1 - negative impact, however insignificant, 2 - negative impact, significant, however, possible to be effectively minimised with the use of appropriate mitigation measures, 3 - negative impact, significant, impossible to be effectively minimised, requiring the use of compensatory measures.

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
Insects					
Dusky Large Blue Maculinea nausitoides Scarce Large Blue Maculinea teleius.	44.12	The occupation of lands by the newly-formed embankment, transformation of the area by the way of conducting building / construction works - destruction of the habitats of the protected species (o-11).	2	Locate storage sites and technological routes beyond the area of the object no. o-11. At the section of the embankment being adjacent to the object no. o-11 at the water-side - conduct building / construction works only from the land-side of the embankment (alternatively, from the front) resigning from the occupation of land within the mid-embankment.	1
Caterpillar Moth Eriogaster catax.	44.15	Conducting building / construction works - destruction or partial damage of blackthorn brushwood (the object no. o-43, o-44).	2	It is required to take actions to transfer egg deposits and cocoons of first larval stages within the period from February to the end of April under the supervision of a specialist entomologist. NOTE The impact will only occurs when the less-colliding variant of the embankment no. 44.15 will not be implemented.	1
Great Capricorn Beetle Cerambyx cerdo Hermit Beetle Osmoderma eremita.	44.15	Conducting building / construction works - destruction or partial damage of the following objects: o-43, o-44.	2	The following positions: o-43 and o-44 should be left intact. Building / construction works should be performed beyond the projection area of tree crests. Within the boundaries of the area no storage sites and technological routes should be located as well. It is permitted only to make use of the existing roads (even if they are located within the projection area of tree crest). Then it is required to apply protection of tree trunks (it is necessary to make tree-trunk protection (e.g. made of planks) fully around tree trunks up to the level of 1.5 m at minimum).	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
Caterpillar Moth Eriogaster catax.	44.17	Conducting building / construction works - destruction or partial damage of blackthorn brushwood (the object no. o-60, o-61, o-62, o-65).	2	It is required to take actions to transfer egg deposits and cocoons of first larval stages within the period from February to the end of April under the supervision of a specialist entomologist.	1
Caterpillar Moth Eriogaster catax.	44.17	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-63, o-64, o-66, o-76.	2	Leave all the blackthorn brushwood intact. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following positions: o-63, o-64, o-66, o-76). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Great Capricorn Beetle Cerambyx cerdo.	44.17	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-68,	2	It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February). All the works around trees should be performed so that to minimise the negative impact of the works and machines / heavy equipment onto their prospective operation. The protection of tree trunks, e.g. through wrapping them with geo-textile. All the opencast works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time - any exposure of trees for drying or freezing of their root system elements should be avoided. It is recommended to provide environmental supervision during all the conducted works.	1
Great Capricorn Beetle Cerambyx cerdo.	44.17	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-66, o-71.	2	Abandon felling of trees. All the building / construction works should be conducted beyond the area of trees and their direct vicinity (the projection area of crests of trees constituting the following positions: o-66, o-71). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Hermit Beetle Osmoderma eremita.	44.17	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-67, o-68.	2	It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February). All the works around trees should be performed so that to minimise the negative impact of the works and machines / heavy equipment onto their prospective operation. The protection of tree trunks, e.g. through wrapping them with geo-textile. All the opencast works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time - any exposure of trees for drying or freezing of their root system elements should be avoided. It is recommended to provide environmental supervision during all the conducted works.	
Hermit Beetle <i>Osmoderma eremita</i> .	44.17	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-72.	2	Abandon felling of trees. All the building / construction works should be conducted beyond the area of trees and their direct vicinity (the projection area of crests of trees constituting the following position: o-72). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Caterpillar Moth <i>Eriogaster catax</i>	46.2	Demolition of the embankment - at the conduct of earth works - destruction or partial damage of blackthorn brushwood (the following objects: o-74, o-75, o-76, o-60, o-61, o-63, o-64) can happen.	2	Leave all the blackthorn brushwood intact. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following positions: o-74, o-75, o-76, o-60, o-61, o-63, o-64). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Caterpillar Moth <i>Eriogaster catax</i>	44.18	Conducting building / construction works - destruction or partial damage of blackthorn brushwood (the object o-60, o-76, o-79).	2	Leave blackthorn brushwood at the object o-79 intact. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following position: o-79). Within the boundaries of the area no storage sites and technological routes should be located as well. In case of the following positions: o-60 and o-76, it is required to take actions to transfer egg deposits and cocoons of first larval stages within the period from February to the end of April under the supervision of a specialist entomologist.	0/1
Great Capricorn Beetle <i>Cerambyx cerdo</i> Hermit Beetle <i>Osmoderma eremita</i>	44.18	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-113. The following position: o-113 is located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river")	2	Abandon felling of trees. All the building / construction works should be conducted beyond the area of trees and their direct vicinity (the projection area of crests of trees constituting the following position: o-113). Within the boundaries of the area no storage sites and technological	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
		area.		routes should be located as well.	
Great Capricorn Beetle <i>Cerambyx cerdo</i>	<u>44.18</u>	Conducting building / construction works - destruction or partial damage of the following object: o-120. The following position: o-120 is located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area.	2	It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February). All the works around trees should be performed so that to minimise the negative impact of the works and machines / heavy equipment onto their prospective operation. The protection of tree trunks, e.g. through wrapping them with geo-textile. All the opencast works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time - any exposure of trees for drying or freezing of their root system elements should be avoided. It is recommended to provide environmental supervision during all the conducted works.	1
Caterpillar Moth <i>Eriogaster catax</i> .	<u>44.5</u>	Conducting building / construction works - destruction or partial damage of blackthorn brushwood (the object no. o-89).	2	Leave all the blackthorn brushwood intact. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following position: o-89). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Great Capricorn Beetle <i>Cerambyx cerdo</i> Hermit Beetle <i>Osmoderma eremita</i> .	<u>44.7</u>	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-92,	2	It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February). All the works around trees should be performed so that to minimise the negative impact of the works and machines / heavy equipment onto their prospective operation. The protection of tree trunks, e.g. through wrapping them with geo-textile.	1

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
				All the opencast works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time - any exposure of trees for drying or freezing of their root system elements should be avoided. It is recommended to provide environmental supervision during all the conducted works.	
Great Capricorn Beetle <i>Cerambyx cerdo</i> Hermit Beetle <i>Osmoderma eremita</i> .	<u>44.7</u>	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-90, o-91, o-94, o-98, o-99.	2	Abandon felling of trees. All the building / construction works should be conducted beyond the area of trees and their direct vicinity (the projection area of crests of trees constituting the following positions: o-90, o-91, o-94, o-98, o-99). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Caterpillar Moth <i>Eriogaster catax</i> .	<u>44.7</u>	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural objects: o-95, o-96 and o-97.	2	Abandon cutting-off of shrubs. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following positions: o-95, o-96 and o-97). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Dusky Large Blue <i>Maculinea nausitous</i> , Scarce Large Blue <i>Maculinea teleius</i> .	<u>44.7</u>	The occupation of lands by the newly-formed embankment, transformation of the area by the way of conducting building / construction works - destruction of the habitats of the protected species (o-119, o-118).	3	The minimisation is not possible, natural compensation is required. It is recommended to restore meadows with their approximate flora composition, considering nutrition plants both for caterpillars as well as nectar-giving plants for butterflies. At the time it is also possible to make use of the same layer of humus and turf gathered at the time of building / construction works at the direct vicinity of meadows. Upon the such-conducted reclamation under the supervision of a specialist - habitat expert, it is suggested to extra sow key species of flower plants for the listed butterflies at proper proportions to restore appropriate structures of meadows. Great Burnet (<i>Sanguisorba officinalis</i>) should be finally the basic and dominant plant at every case.	3
Caterpillar Moth <i>Eriogaster catax</i> .	<u>44.8</u>	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural objects: o-100, o-101, o-102 and o-103.	2	Abandon cutting-off of shrubs. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following positions: o-100, o-101, o-102 and o-103). Within the boundaries of the area no storage sites and technological routes should be located as well.	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
Great Capricorn Beetle <i>Cerambyx cerdo</i> Hermit Beetle <i>Osmoderma eremita</i> .	<u>44.8</u>	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-94.	2	Abandon felling of trees. All the building / construction works should be conducted beyond the area of trees and their direct vicinity (the projection area of crests of trees constituting the following position: o-94). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Caterpillar Moth <i>Eriogaster catax</i> .	<u>44.9</u>	Conducting building / construction works - destruction or partial damage of blackthorn brushwood (the objects no. o-102, o-105).	2	It is required to take actions to transfer egg deposits and cocoons of first larval stages within the period from February to the end of April under the supervision of a specialist entomologist.	1
Caterpillar Moth <i>Eriogaster catax</i> .	<u>44.9</u>	Conducting building / construction works - destruction or partial damage of blackthorn brushwood (the objects no. o-77, o-100, o-101 and o-104).	2	Leave all the blackthorn brushwood intact. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following positions: o-77, o-100, o-101 and o-104). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Great Capricorn Beetle <i>Cerambyx cerdo</i> .	<u>44.9</u>	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-103, o-78.	2	Abandon felling of trees. All the building / construction works should be conducted beyond the area of trees and their direct vicinity (the projection area of crests of trees constituting the following positions: o-103, o-78). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Caterpillar Moth <i>Eriogaster catax</i> .	<u>44.10</u>	Conduct of building / construction works - destruction or partial damage of blackthorn brushwood (the positions no. o-37, o-38, o-105, o-106, o-110 as well as the positions o-111 and o-112 at sections colliding with the route of the embankment). The following position: o-111 is partially located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area.	2	It is required to take actions to transfer egg deposits and cocoons of first larval stages within the period from February to the end of April under the supervision of a specialist entomologist.	1
Caterpillar Moth <i>Eriogaster catax</i> .	<u>44.10</u>	Conduct of building / construction works - destruction or partial damage of blackthorn brushwood (the positions no. o-34, o-35, o-36, o-108 as well as the positions o-111 and o-112 at sections not colliding with the route of the embankment). The following positions: o-34 and o-35 are located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area. The following positions: o-36 and o-111 are partially located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area.	2	Leave all the blackthorn brushwood intact. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following positions: o-34, o-35, o-36, o-108 as well as the positions o-111 and o-112 at sections not colliding with the route of the embankment). Within the boundaries of the area no storage sites and technological routes should be located as well.	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
Great Capricorn Beetle <i>Cerambyx cerdo</i> Hermit Beetle <i>Osmoderma eremita</i> .	44.10	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural objects: o-38 and the objects: o-111, o-112 at sections colliding with the route of the embankment. The following position: o-111 is partially located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area.	2	It is allowed to perform modernisation and refurbishment works of the embankment (removing a top layer of humus at the embankment crest and its hardening). These works, however, must be executed in autumn and winter, with all the required precautions undertaken (with respect to the use of heavy machines and equipment in the immediate vicinity of trees) and completed prior to the start of the growing season (namely by the end of February). All the works around trees should be performed so that to minimise the negative impact of the works and machines / heavy equipment onto their prospective operation. The protection of tree trunks, e.g. through wrapping them with geo-textile. All the opencast works should be conducted so that tree root systems (root hairs) are uncovered for the shortest possible period of time - any exposure of trees for drying or freezing of their root system elements should be avoided. It is recommended to provide environmental supervision during all the conducted works.	1
Great Capricorn Beetle <i>Cerambyx cerdo</i> Hermit Beetle <i>Osmoderma eremita</i> .	44.10	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural objects: o-107, o-39, o-40, o-41, o-42. The following positions: o-39, o-40, o-41 and o-42 are located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area.	2	Abandon felling of trees. All the building / construction works should be conducted beyond the area of trees and their direct vicinity (the projection area of crests of trees constituting the following positions: o-107, o-39, o-40, o-41, o-42). Within the boundaries of the area no storage sites and technological routes should be located as well.	0
Dusky Large Blue <i>Maculinea nausitoides</i> Scarce Large Blue <i>Maculinea teleius</i> .	44.10	The occupation of lands by the newly-formed embankment, transformation of the area by the way of conducting building / construction works - destruction of the habitats of the protected species (o-109).	3	The minimisation is not possible, natural compensation is required. It is recommended to restore meadows with their approximate flora composition, considering nutrition plants both for caterpillars as well as nectar-giving plants for butterflies. At the time it is also possible to make use of the same layer of humus and turf gathered at the time of building / construction works at the direct vicinity of meadows. Upon the such-conducted reclamation under the supervision of a specialist - habitat expert, it is suggested to extra sow key species of flower plants for the listed butterflies at proper proportions to restore appropriate structures of meadows. Great Burnet (<i>Sanguisorba officinalis</i>) should be finally the basic and dominant plant at every case.	3
Caterpillar Moth <i>Eriogaster catax</i> .	19	Conducting building / construction works - destruction or partial damage of blackthorn brushwood (the positions no. o-36 and o-115). The following positions: o-36 and o-115 are located	2	Leave all the blackthorn brushwood intact. All the building / construction works should be conducted beyond the area of shrubs and their direct vicinity (the projection area of crests of shrubs constituting the following positions: o-	0

Habitat / species	WFS structures	Nature, scope and impact of the variant no. 1 (technical)	Assessment of the variant no. 1	Methods of minimisation (solutions according to the Variant no. 2 - environmental)	Assessment of the variant no. 2
		within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area.		36 and o-115). Within the boundaries of the area no storage sites and technological routes should be located as well.	
Great Capricorn Beetle <i>Cerambyx cerdo</i> Hermit Beetle <i>Osmoderma eremita</i> .	19	Building / construction works can lead to the destruction or disruption of the habitat of species within the following natural object: o-114, o-116. The following positions: o-114 and o-116 are located within the Natura 2000 "Dolina Widawy" ("the Valley of the Widawa river") area.	2	Felling of trees which grow at the existing embankment as well as in its proximity should be abandoned. All the planned intervals within the embankment should be executed beyond the projection area of oaks constituting the positions of Great Capricorn and Hermit Beetle. Only "minor building / construction equipment" should be used for all the planned works. The existing network of roads should be used to transport building / construction machines and equipment as well as earth masses. It is recommended to provide environmental supervision during all the conducted works.	0

Table. 8.3. Summary of interactions that require the implementation of compensation and how it is carried out

The table below presents the summary of compensation actions the need of implementation of which has been presented in the course of the conducted assessment of the environmental impact of the investment (the possibility of major negative impacts onto the species has been demonstrated). The compensation solutions refer to protected species of invertebrates, amphibians and reptiles beyond the Natura 2000 areas.

Kind (species)	WFS structure	Nature, scope and effects of impact	Compensation method
Insects			
Dusky Large Blue <i>Maculinea nausitoides</i> , Scarce Large Blue <i>Maculinea teleius</i> .	<u>44.9</u>	The occupation of lands by the newly-formed embankment, transformation of the area by the way of conducting building / construction works - destruction of the habitats of the protected species (o-109) at the area of around 1400 m ² .	It is recommended to restore meadows with their approximate flora composition (all the losses within the habitat - around 1400 m ²), considering nutrition plants both for caterpillars as well as nectar-giving plants for butterflies. At the place being projected for compensation (restoration), it is required to check in advance (through conducting specialised entomological evaluation) whether there are the following ants: <i>Myrmica rubra</i> , <i>Myrmica scabrinodis</i> and / or <i>Myrmica gallieni</i> which are required for the entire development cycle of Large Blues. At the time it is also possible to make use of the same layer of humus and turf gathered at the time of building / construction works at the direct vicinity of meadows. Upon the such-conducted reclamation under the supervision of a specialist - habitat expert, it is suggested to extra sow key species of flower plants for the listed butterflies at proper proportions to restore appropriate structures of meadows. Great Burnet (<i>Sanguisorba officinalis</i>) should be finally the basic and dominant plant at every case. It is projected to compensate meadow habitats of insects at the area of at least 1400 m ² (0.14 ha) by the WFS structure 44.10 at meadow areas between the forest and the river-bed of the Widawa river (the precinct of Swiniary, AM 23, the registered land plot no. 3, owned by: State Treasury, Agricultural Property Agency, branch in Wrocław). The area of the land plot planned for usage is equal to 8.4397 ha.
Dusky Large Blue <i>Maculinea nausitoides</i> , Scarce Large Blue <i>Maculinea teleius</i> .	<u>44.7</u>	The occupation of lands by the newly-formed embankment, transformation of the area by the way of conducting building / construction works - destruction of the habitats of the protected species (o-119, o-118) at the area of around 9000 m ² .	It is recommended to restore meadows with their approximate flora composition (all the losses within the habitat - around 9000 m ²), considering nutrition plants both for caterpillars as well as nectar-giving plants for butterflies. At the place being projected for compensation (restoration), it is required to check in advance (through conducting specialised entomological evaluation) whether there are the following ants: <i>Myrmica rubra</i> , <i>Myrmica scabrinodis</i> and / or <i>Myrmica gallieni</i> which are required for the entire development cycle of Large Blues. At the time it is also possible to make use of the same layer of humus and turf gathered at the time of building / construction works at the direct vicinity of meadows. Upon the such-conducted reclamation under the supervision of a specialist - habitat expert, it is suggested to extra sow key species of flower plants for the listed butterflies at proper proportions to restore appropriate structures of meadows. Great Burnet (<i>Sanguisorba officinalis</i>) should be finally the basic and dominant plant at every case. It is projected to compensate meadow habitats of insects at the area of at least 9000 m ² (0.9 ha) by the WFS structure 44.10 at meadow areas between the forest and the river-bed of the Widawa river (the precinct of Swiniary, AM 23, the registered land plot no. 3, owned by: State, Agricultural Property Agency, branch in Wrocław). The area of the land plot planned for usage is equal to 8.4397 ha.
Amphibians			

Kind (species)	WFS structure	Nature, scope and effects of impact	Compensation method
European green toad.	<u>44.12</u>	Construction of the new embankment no. 44.11. The direct damage of the potential breeding site of amphibians - the natural object p-47 with its area of around 0.5 ha.	It is necessary to reconstruct the damaged backwaters area being the potential breeding place of amphibians within the area corresponding to the destroyed object. The location of the new backwaters area should be set at the stage of further projection of the investment with a specialist in the field of protection of amphibians. The reservoir should be shallow - up to half a metre deep - with the nature of backwaters area which dries every year. The elimination of the natural object should be conducted in Autumn, so after 1 August. Then for sure there will no water within the backwaters area. It is projected to compensate the backwaters area within the mid-embankment of the Widawa river (precinct of Swojczyce, AM24, land plot no. 11, 7/2 or 11, owned by: University of Environmental and Life Sciences in Wroclaw. The area of the land plot planned for usage is equal to 8.8864 ha.
Great Crested Newt, European Fire-bellied Toad, Common Spade-foot, European Tree Frog, Moor Frog, Smooth Newt, Common Toad and Edible Frog.	<u>44.14</u>	Construction of the new flood-protection embankment no. 44.14. The direct damage of the potential breeding site of amphibians - the natural object p-58 with its area of around 0.75 ha.	It is necessary to reconstruct a water reservoir with its area corresponding to the destroyed object. The location of the reservoir should be set at the stage of further projection of the investment with a specialist in the field of protection of amphibians. The reservoir should have its parameters being suitable for the breeding of amphibians. The reservoir should not be too deep. At the deepest place it should be 1 – 1.5 m deep so that it gets dry every several years. The reservoirs slopes should be profiled so that the banks tilt is equal to around 1x3 - 1x5 m both over the water surface as well as below the water surface. There should be shallows made at one side of every reservoir with the other river bank being planted with shrubs. The reservoir should not be fished. The elimination of the natural object no. 58 should be performed in autumn so within the period from 1 August to 1 November, in the period at which there will be no breeding units and tadpoles in the water reservoir and still - at the same time - amphibians will not spend winter in the water reservoir. It is projected to compensate in the form of reservoirs within the mid-embankment of the Widawa river (precinct of Swojczyce, AM24, land plot no. 11, 7/2 or 11, owned by: University of Environmental and Life Sciences in Wroclaw. The area of the land plot planned for usage is equal to 8.8864 ha.
Reptiles			
Grass Snake	<u>44.14</u>	Construction of the new flood-protection embankment no. 45.3. The direct damage of places where reptiles occur - the natural object g-24.	The compensation of losses caused by the accomplishment of the object 44.14 made for amphibians will also compensate losses within the habitats used by reptiles (it relates to the same object). See Compensation for amphibians, object 44.14.