



Gorzów Wlkp., 27 February 2017

**GENERAL DIRECTORATE
FOR ENVIRONMENTAL
PROTECTION
in GORZÓW WIELKOPOLSKI**

WZŚ.4233.1.2016.AN

**DECISION
on environmental conditions**

Pursuant to Article 71.2.2, Article 75.1.1(i) and Article 82, Article 85.1 and 85.2.1 of the Act of 3 October 2008 on provision of information on the environment and its protection, participation of the society in the environmental protection and assessment of impact on the environment (i.e. Journal of Laws of 2016, item 353, as amended) - hereinafter referred to as the EIA in connection to Article 104 of the Act of 14 June 1960 - the Administrative Proceedings Code (i.e. Journal of Laws of 2016, item 23, as amended). - hereinafter referred to as the "APC" of 9 September 2016 submitted by Ms Lila Mikłaszewicz, acting on the basis of the authorization from the Marshal of Lubuskie Voivodeship concerning issuing a decision on environmental conditions for the investment named "Flood protection of Krosno Odrzańskie" and conducting the proceedings referring to the environmental impact assessment,

I hereby establish

the following conditions for the investment named:

"Flood protection of Krosno Odrzańskie"

implemented by:

The Marshal of Lubuskie
Voivodeship ul. Podgórna 7
65-057 Zielona Góra,

at the same time:

I. I specify:

1. The type and location of the project implementation:

The object of the project is to protect the southern part of Krosno Odrzańskie City covering around 60 ha against flood. The Project will be implemented according to variant I – proposed by the applicant.

The scope of the project includes the following:

- The construction of 9 new ring flood embankments, retaining walls and mobile flood protection systems covering the total length of 5921.1 m;
- The extension or reconstruction of bypass channels, and the installation of anti-backwater flaps on the existing storm sewage system covering the total length of 2757.8 m.

The investment will be implemented in the leftbank part of the Odra River Valley, between 513.5 and 514.7 of the Odra River, in the southern part of Krosno Odrzańskie City, in Lubuskie Voivodeship, in krośnieński powiat, in Krosno Odrzańskie Commune, in district 0002 – Krosno Odrzańskie City, 0016 – Stary Raduszec and in Dąbie Commune in district 0013 – Połupin.

2. The conditions of using the terrain at the implementation and operation phase:

- 2.1. Construction works on acoustically protected terrains may be carried out only during the day (from 6:00 a.m. to 10:00 p.m.).
- 2.2. The terrain must be used economically and its surface transformation must be minimal; the terrain must be ordered after completing investment works.
- 2.3. The building site back-up facility (the depot with construction equipment and materials) must be located on a hardened area and it must be equipped with absorbents enabling the quick liquidation of the effects of any leakage of fuels, oils, etc.
- 2.4. The building site back-up facility (the depot with equipment, construction materials and earth mass) and planting of earth mass from excavations must be located outside the natural habitats and the habitats of protected species.
- 2.5. Construction machines and materials must be transported mostly along the existing system of roads.
- 2.6. It is necessary to apply required technical and organisational measures in order to maintain access routes in cleanliness and measures limiting dust emission at the time of transporting construction materials and conducting construction works.
- 2.7. Construction equipment must be in a working order and satisfy the requirements approving it for use; the type and working order of such equipment must ensure the protection of soil, surface waters and ground waters against pollution, dust and gas emission to the air and noise emission.
- 2.8. It is necessary to minimise the operation time of motor machines and vehicles in a neutral gear and speed of vehicles in the vicinity of the building site, as well as adhere to the rule of switching off machines and appliances during breaks at work.
- 2.9. It is forbidden to repair and service construction equipment on the project area, e.g. oil, fluid exchange, etc.
- 2.10. Waste generated during the project implementation must be sorted and collected in containers or in dedicated places and they must be collected regularly by authorised entities.
- 2.11. Processing and drinking water must be supplied in water carts.
- 2.12. Social-household sewage must be collected in tight and mobile contained tanks and disposed to the local sewage treatment facility.
- 2.13. A tight protective geotextile fence, installed in the ground at the depth of 10 cm, must be mounted along embankment II, on its northern part, in the section 160 m (from km 0+490 to km 0+650). A protective fence should be mounted for the entire period of conducting earth works and vehicles operation in the building site in the indicated section, without dismounting the fence in winter if the works are continued in two seasons.
- 2.14. Trees and shrubs required for elimination must be cut out from 1 September to the end of February, preferably from November to January.
- 2.15. The embankments and channels must be maintained on a current and systematic basis.

3. The conditions concerning environment protection which must be included in the documentation required for issuing a decision on the project implementation permit, within the meaning of the Act of 8 July 2010 on the specific

on specific rules of preparing for the project implementation within the flood structures:

- 3.1. Leave the shallowing of the old river bed in bypass channel No 1 with the width from 10 to 40 m with the reed and aquatic plants, present in the section from 0+700 to km 0+950.

II. I do not impose the obligation of conducting the following:

The environmental impact assessment for this project and the assessment of the procedures concerning the transboundary environmental impact, as part of the procedure concerning issuing a decision on the project implementation permit, within the meaning of the Act of 8 July 2010 on the specific rules of preparing for the project implementation within the flood structures (i.e. Journal of Laws of 2015, item 966, as amended).

III. I hereby determine that the specification of the project constitutes Appendix No 1 to this decision and that it is the integral part hereof.

SUBSTANTIATION

Ms Lita Mikłaszewicz, acting on the basis of the authorization from the Marshal of Lubuskie Voivodeship, applied to the Regional Director for Environmental Protection in Gorzów Wlkp. with a motion of 9 September 2016 for issuing the environmental permit for the project named "Flood protection of Krosno Odrzańskie City", attaching the following, in the required number of copies, requisite under Article 74.1 of EIA:

- The project information sheet and its electronic copy on IT data carriers,
- The copy of the cadastral map, authenticated by a competent body, covering the anticipated terrain where the project will be implemented and covering the anticipated area which will be affected by the project,
- A map in the scale ensuring the legibility of presented data with marked anticipated terrain where the project will be implemented and anticipated area which will be affected by the project, and additional electronic copy of the map, and an indicative map,
- Excerpts of the land register,
- The authorization to represent the investor.

The aim of this investment task is the flood protection of the terrains of the southern part of Krosno Odrzańskie City located in the Odra River Valley, arable lands, petrol stations, manufacturing sites, historical value facilities and, above all, residential and public utility building developments. The planned investment comprises the construction of 9 new ring flood embankments, resistance walls and mobile flood protection systems covering the total length of 5921.1 m, as well as the extension and rebuilding of bypass channels together with the installation of anti-backwater flaps on the existing storm sewage system covering the total length of 2757.8 m.

The investment will be implemented in the leftbank part of the Odra River Valley, between 513.5 and 514.7 of the Odra River, in the southern part of Krosno Odrzańskie City, in Lubuskie Voivodeship, in krośnieński powiat, in Krosno Odrzańskie Commune, in district 0002 – Krosno Odrzańskie City, 0016 – Stary Raduszec and in Dąbie Commune in district 0013 – Połupin.

The said investment, pursuant to Par. 3.1.65 of the Regulation of the Council of Ministers of 9 November 2010 on investments likely to exert significant impact on the environment (i.e. Journal of Laws of 2016, item 71) is an investment likely to exert significant impact on the environment. Within the meaning of Article 71.2.2 of EIA, the implementation of such an investment is permissible exclusively upon obtaining a decision on environmental conditions; whereas such a decision is issued prior to obtaining decisions outlined in Article 72.1 and prior to submissions referred to in Article

72.1(a). As far as this project is concerned, the said decision will be indispensable for obtaining a decision on the project implementation permit, within the meaning of the Act of 8 July 2010 on the specific rules of preparing for the project implementation within the flood structures (i.e. Journal of Laws of 2015, item 966, as amended).

In line with Article 75.1.1(i) of the EIA, a competent body for issuing a decision on environmental conditions for this type of investment is the Regional Director of the Environmental Protection. As far as this case is concerned, according to the venue, the Regional Director of the Environmental Protection in Gorzów Wlkp. is a competent body.

As per the requirement stipulated in Article 17.3 of the aforementioned Act on the specific rules of preparing for the project implementation within the flood structures, by means of the letter of 27 September 2016, sign: WZŚ.4233.1.2016.AN, the General Director of Environment Protection was notified of the expiration of the application for issuing a decision on environmental conditions for the planned investment.

The data concerning the application for issuing a decision and the project information sheet are entered into the public data base kept under Article 22.1 of the EIA under the following numbers 918/2016 and 919/2016.

Since the number of pages of this procedure exceeds 20, pursuant to Article 74.3 of the EIA, the provision of Article 49 of the Administrative Proceedings Code is applied which states that the parties may be notified

of decisions and other activities of the body through announcement or by means of another public information accepted in a given location. Taking the above into consideration, the parties to the procedure have been notified of instituting the proceedings in the subject case and their rights, by means of the announcement of 27 September 2016, sign: WZŚ.4233.1.2016.AN. The announcement was posted on the information board and in the Public Information Bulletin of the Regional Directorate of Environment Protection in Gorzów Wlkp., and on the information board in the City Hall in Krosno Odrzańskie and in the Office of Dąbie Commune.

The planned project is an investment likely to exert significant impact on the environment for which an obligation of conducting the environmental impact assessment may be imposed under Article 63.1 of the EIA. In the course of the proceedings held, in relation to the effects of the planned investment environmental impact, difficult to be anticipated, in particular on the natural environment and surface waters, as well as due to the extent of the project, it has been stated that there is a justified need for conducting the assessment of the analysed investment on the environment based on the accurately prepared EI report.

Taking the above into consideration, by means of the decision of 26 October 2016, Sign: WZŚ.4233.1.2016.AN an obligation was imposed concerning conducting the environmental impact assessment for the planned investment prior to the issuance of this decision and the detailed scope of the environmental impact report was agreed.

The Parties to the proceedings have been notified of the aforementioned decision through the announcement of 26 October 2016 sign: WZŚ.4233.1.2016.AN. The announcement was posted on the information board and in the Public Information Bulletin of the Regional Directorate of Environment Protection in Gorzów Wlkp., and on the information board in the City Hall in Krosno Odrzańskie and in the Office of Dąbie Commune.

The information on issuing the decision was entered into the public data base kept under Article 21.1 of the Act on the provision of information on the environment and its protection, participation of the society in the environmental protection and assessment of impact on the environment, under number 1045/2016.

On 14 November 2016, the environmental impact report for the project "Flood protection of Krosno Odrzańskie City", drawn-up in November 2016 by the authors' team under the supervision of dr inż. Marek Maciantowicz, was received.

On account of a short period which lapsed from issuing the decision on the obligation of conducting the project's environmental impact assessment to the submittal of the aforementioned documentation, in the course of the proceedings, an activity anticipated in Article 63.5 of the EIA was waived, i.e. Suspending the proceedings concerning the issuance of the decision on environmental conditions by the time of submitting the project's environmental impact report.

The said report featured content-related omissions and required supplementation; therefore, in the letter of 29 November 2016, sign: WZŚ.4233.1.2016.AN a call was issued for their submitting.

The report on the environmental impact of the planned investment, upon its supplementation and the submission of consolidated text (incoming date: 21 December 2016), in terms of a structure, satisfies the requirements of Article 66 of the EIA. The report includes analyses, the determination of environmental impact and prospective environmental hazard connected with the implementation and operation of the project. Based on the information contained in the above mentioned documentation, the project implementation and operation conditions, ensuring environment protection, were defined

The information on the EI report was entered into the public data base kept under Article 21.1 of the Act on the provision of information on the environment and its protection, participation of the society in the environmental protection and assessment of impact on the environment, under number 1137/2016 and 9/2017.

In connection with the determination of an obligation to conduct the environmental impact assessment and to draw-up the environmental impact report, the information on the application and the possibilities of submitting reservations and motions in the seat of the local body within 21 days was published through the announcement of 2 January 2017, sign: WZŚ.4233.1.2016.AN posted on the information board and in the Public Information Bulletin of the Regional Directorate of Environment Protection in Gorzów Wlkp., and on the information board in the City Hall in Krosno Odrzańskie and in the Office of Dąbie Commune.

None reservations and motions were announced in the proceedings with the participation of public.

In the course of the pending proceedings, the following was determined:

The object of the planned investment is the flood protection of the terrains in the southern part of Krosno Odrzańskie City located downstream the Odra River.

So called zero variant was analysed in the submitted project's environmental impact report and the effects for the environment in the event of not undertaking the investment were described. The area of the southern part of Krosno Odrzańskie City consists of developed areas, allotments, industrial areas, water channels, roads and agricultural fields. Within the developed area, apart from residential buildings, there are also historical buildings entered in the list of historical monuments: the Piast castle, defensive walls, historical tenant houses and public utility facilities: schools, bus station, shops, city stadium, post office, church, hotel, etc. Krosno Odrzańskie City, in terms of flood risk, is the most endangered city on

Lubuskie land. These hazards were made visible by floods which took place in the last quarter-century, in the years 1977, 1985, 1987, 2010, in particular the flood in July 1997. Before the wars, there were also tragic floods in 1899, 1903 and 1932. This results in continuous endangering of the inhabitants and their property.

In the event of not undertaking the project, there might be another flooding of the historical centre of Krosno City. In terms of natural environment, the regime of reservoirs and fluvial processes but with time the conditions for fish will deteriorate as a result of shallowing the channels.

During the design works, 2 solution variants for the rebuilding and building of flood control appliances were determined for Krosno Odrzańskie City, described in the project information sheet. At the same time, at the stage of drawing-up the environmental impact report, reservations were formulated by the authors as well as the suggestions for minimising the project environmental impact consisting in resigning from the performance of a few planned elements which were considered at the stage of design works and which constitute the element of variant I.

Variant I - suggested by the applicant is as follows:

A. the construction of new flood embankment:

- Embankment I: km 0+000 ÷ 1+279
- Embankment II: km 0+000 ÷ 1+387.6
- Embankment III: km 0+000 ÷ 0+454.3
- Embankment IV: km 0+000 ÷ 0+757
- Embankment V: km 0+000 ÷ 0+123.9
- Embankment VI: km 0+000 ÷ 0+352.7
- Embankment VII: km 0+000 ÷ 1+304.7
- Embankment VIII: km 0+000 ÷ 0+190.3
- Embankment IX: km 0+000 ÷ 0+076.8

B. the extension or rebuilding of the existing bypass channels:

- Bypass channel No 1: km 0+084 ÷ 1+257
- Bypass channel No 2a: Length approx. 60m
- Bypass channel No 2: km 0+000 ÷ 0+551.9
- Bypass channel No 3: km 0+000 ÷ 0+165
- Bypass channel No 4: km 0+000 ÷ 0+792.8

This variant is the update and correction of the anticipated scope of works accepted at the stage of performing the concept of flood protection for Krosno Odrzańskie City. It consists in the assumption that the flood protection for the protected areas will be ensured provided that new embankments and works in the channels are performed. This is an optimal variant due to the provision of flood protection with the moderate environmental impact of the project. The investment terrain occupation was limited maximally owing to designing in the considerable length and flood protection embankments. Such solutions are advantageous both for inhabitants and for the environment. The routes of embankments and walls are arranged along the Odra River and along the edges of the existing bypass channels and, if possible, by narrowing their width. Furthermore, variant I combines the function of flood protection for the terrain with the functioning of elements which contribute to the higher attractiveness and development of the recreational base in this part of the city.

The report informs that within the variant chosen by the investor, the works within the protection of the bank in the bypass channel No 1, i.e. the installation of a steel wall, rip-rap, will cover the right bank (near the city), leaving the left bank changed to a minor extent,

what, already at the stage of design works, levels the impact of the investment on the change in aquatic conditions and natural environment resources of the vast waterlogged area located to the west of this part of Krosno Odrzańskie (the former estuary of the Bóbr River). Similarly, at the stage of design works, within the course, size and technology of works, there is a solution minimising the necessary cut out of trees and shrubs. Therefore, it was possible to leave 32 trees of a natural environment and landscape value. The following trees were left: 12 common oaks in the circumference above 3 m, which may constitute in the future the prospective habitats of rare and protected animals, e.g. great capricorn beetle and osmoderma eremita, or the place of birds nesting.

Variant II is less advantageous due to flood protection, with the environmental impact comparable to the previous variant I, but with different properties. This solution is more nuisant to the inhabitants. It is a bigger hindrance in using the near-bank areas of the Odra River and bypass channels. This variant, as variant I, anticipates the following: the performance of new flood embankments (apart from embankment No IX) and the performance of works as part of the development and rebuilding of bypass channels. The disadvantage of this variant is wider occupation of the terrain for the investment than in variant I, because there are more earthworks from walls or earthworks connected with resistance walls. More terrain occupation entails more damage in the tree stand and general decrease in green areas in the form of grass and shrubs. The occupation of the terrain anticipated for the reinforcement of channel slopes is also bigger. Variant II was indicated as a rational alternative variant.

The scope of works, planned for the performance during the project implementation, as well as its location, is specified in item I.1 of this decision.

The project will be implemented in the area of protected landscape “18 – the Krośnieńska Odra Valley” and fulfilling the public objective, pursuant to Article 24.2.3 of the Act of 16 April 2004 on natural environment protection (i.e. Journal of Laws of 2016, item 2134, as amended), hereinafter referred to as the NEPA, is not limited under the list of prohibitions introduced for the above mentioned area. The investment, on account of the specificity of works and anticipated location, will not lower the potential of the ecosystems which are the wildlife corridor of the said area of the protected landscape and it will not reduce the value of ecosystems providing services for tourism and leisure.

The investment will be implemented partially in two Natura 2000 sites, i.e. in the Krośnieńska Odra Valley PLH080028 and in the Middle Odra Valley PLB080004. The result of the assessment of the planned activities, as part of the aforementioned investment, presented in the report and accepted as justified, with the introduction of minimising activities, does not demonstrate any significant, and in particular significantly adverse, impact on the objectives of the protection of the said Natura 2000 sites, within the meaning of Article 33 of the NEPA. The investment terrain does not co-create any ecological systems with the protected habitats and species, whose transformation may contribute to the change in the key processes, structures, connections and relations among the ecosystems in the aforementioned Natura 2000 sites. Neither direct nor indirect impact was identified, whose scale could result in an incorrect state of protected species and natural habitats because the project implementation does not change the population count of species and the area of their habitats, the fragmentation of natural habitats, the formation of a migration barrier and it will not affect the key processes and relations shaping the structure of the above mentioned areas. The impacts during the construction and operation will not have the scale of violating the natural balance or considerable impacts on the objects of the protection of the aforementioned Natura 2000 sites. The anticipated scope of works, i.e. the construction of embankments in the vicinity of development and deepening the water channels will not affect adversely the integrity of the said Natura 2000 sites and the coherence of Natura 2000 network. The hitherto function of the wildlife corridor in the Odra River Valley will not be changed,

and the flooded area with the natural fluvial processes significant for the natural resources of the above Natura 2000 site will not be reduced.

With reference to birds and their habitats, protected on Natura 2000 site of the Middle Odra River Valley PLB080004, the project's impact at the construction phase and operation phase are not significant, and sometimes any significant cause and effect relationship. The reason behind the above is the lack of the concentration of birds wintering near the planned investment and the distance of the only hatching stand of a corn crane of minimum 100 m from the location of the project implementation. On account of the dependencies of the current aquatic conditions in the vicinity of the designed investment on the system and regime of surface waters, i.e. the Odra River and the Bóbr River, and the system of the existing bypass channels, the scope of works anticipated in the project will not affect significantly their change, and in consequence the change (deterioration) of the birds habitats.

The planned works on the area under discussion also ought not to constitute any extensive and significant hazard for other species of birds present in that location. The bird populations nesting in three inventory areas (covering the investment terrain and the accepted buffer of 50 m) constitute the fractions of the percentage of the domestic populations. The report indicates the nesting of red-necked shrike and barred warbler inside the shrubs planned for cutting out; but it does not inform on the acknowledged nesting of birds in the trees planned for clearance. The birds nesting in the trees which will be eliminated have many convenient biotopes in the near distance, enabling nesting, and the number of removed trees compared to the remaining trees within the city and in its nearest vicinity does not constitute a value which would result in the extinction of birds confirmed in this part of Krosno Odrzańskie.

One of the activities minimising impacts on birds is a condition of leaving reeds on the edge of the channel and a sandbank in the section of the bypass channel from km 0+700 to km 0+950 (the preservation of the hatching stands of common moorhen and water rail)

- Condition I.3.1 of this decision,

The extent of the planned tree clearance is large (703 pieces, including 296 brittle willows, 71 common oaks, 65 black locusts and 54 ashes, also trees with circumference above 200 cm); therefore, in order to minimise the potentially negative impact of the planned investment on birds, consisting in destroying hatching during trees and shrubs clearance in the breeding period, taking into consideration the identified hatching species of birds and their breeding biology, the clearance of trees and shrubs was conditioned outside the hatching period of birds, i.e. from September to February – condition I.2.14 of this decision.

With reference to natural habitats and animal species protected on Natura 2000 site of the Krośnieńska Odra River Valley PLH080028 (KDO), the project's impact at the construction phase and operation phase are not significant, and sometimes any significant cause and effect relationship. The report presents the results of recognising natural resources in the investment belt and in the buffer of 50 m. For the protected fish species in the area, the deepening of channel beds will result in improvement, i.e. slight increase in the area of their habitat, e.g. for amur bitterling, European weatherfish and spined loach in the event of channel 2, 2A, 3 and 4 and channels accessibility (the improvement of the local conditions of migration) e.g. asp, in the event of channel 1, 2 and 2A. At the time of deepening the channels and forming the banks, habitat conditions may be deteriorated temporarily due to the influence of suspensions and forcing the periodical change of a living location. This impact will be short-term and transient. After completing the implementation of the project, the condition of the channels will not change much because bypass channels will not be supplied with any devices limiting the hitherto migration of fish (whose territory extent is even though very limited) and the water distribution will not be modified. In the event of insects, e.g. green snaketail and large copper, the confirmed stands are located outside the Investment belt and the performance of works near these stands will not affect the said species.

The trees in the section of the designed embankment were checked within the entire length of the planned investment and the presence of osmoderma eremita and great capricorn beetle was not confirmed; therefore, the investment will not affect these protected species of insects. The necessary trees clearance will not reduce significantly the area of their possible habitat because already at the stage of design works concerning the establishment of the project implementation variant, 12 old common oaks were left.

The signs of the presence of European beaver and the presence of otter and European fire-bellied toad was confirmed in the buffer zone, that is outside the investment terrain, and the project implemented will not affect adversely the possibility of feeding and migrating among these specimens. European fire-bellied toad is a wondering species in the breeding period, and it was confirmed in the direct vicinity of the project implementation, in a small and shallow reservoir with exuberant aquatic plants on the floodplain of the inter-embankment zone. This location is also the breeding stand of a common toad and the numerous population of common lizard. Thus, it is possible that the specimens of the above species move to the area of works in the section of embankment II.

The protection of the specimens of the aforementioned species, in particular the European fire-bellied toad, against death due to construction works is an minimising activity consisting in the installation of a tight geotextile protective fence at the depth of 10 cm in the soil, next to the northern part of embankment II, from km 0+490 to 0+650 - condition I.2.13 of this decision.

The nuisance for amphibians and reptiles due to the construction of the investment will be short-term and transient, and the extend of transforming their habitats (which are stands only of a local meaning) will be minor and not permanent. In the vicinity of the investment, there are differentiated and proper "substitute" habitats where the specimens of these animals can stay. The effects of aquatic plants destruction during works will be negative, short-term but reversible. It is highly probable that the performed new embankments and channels and ditches changed for the purpose of the investment will be adapted with time, at least partially, by amphibians and reptiles.

Furthermore, already at the stage of planning the investment within the scope of the necessary works in the channels, in channel No 2 to km 0+169.3 the following was abandoned: rebuilding, levelling and developing the bottom and slopes by topsoiling and sowing with a mixture of grass, and the following was carried out: cleaning and maintaining this section (sowing the slopes, treatment cutting of damaged branches). The natural process of shallowing the said section of the channel with a proper water level in the Odra River Valley may, with time, form a convenient biotope in this place for amphibians breeding and wintering.

The implementation of some sections of the investment will undoubtedly affect natural habitats present nearby embankments or in the places of its new localisation. The report documents that destruction (usage change) will cover the area constituting in total the insignificant percentage of the natural habitat resources in Natura 2000 site Krośnińska Odra River Valley. It also assesses that the narrowing habitats are commonly spread in the Odra River Valley. Thus, the patches of tall herb fringes, *Urtico-Convulvulelum* and *Fallopium-Humuletum*, representing habitat 6430 will be destroyed on the total area of 445 m², constituting merely 0.012% of the total area of this habitat which is identified and indicated in SDF

of the above mentioned Natura 2000 site, i.e. 384.05 ha. Furthermore, tall herb fringes are characteristic for quick regeneration and low sensitivity to disturbances; therefore, newly-formed upstream slopes will be the new locations of the spontaneous regeneration of the tall herb fringe habitat, stimulated by fluvial processes.

Alluvial meadows *Cnidion dubi*, representing habitat 6440, the patches will be destroyed covering in total 0.47 ha, constituting merely 0.7% of the total area of this habitat identified and indicated in SDF of the above mentioned Natura 2000 Site,

i.e. 67.21 ha. The Report informs that the patches of habitat 6440 (i.e. 7.4 ha) indicated in the report constitute an additional (with reference to the one indicated in SDF) habitat resource within the boundary of the aforementioned Natura 2000 Site. Thus, as a result of the project implementation, the protected area of habitat 6440 will not be reduced, and the remaining indices of this state will not deteriorate. Furthermore, the report confirms that the resources of both habitats in Krośnieńska Odra River Valley PLH080028 (indicated in SDF) are underestimated in relation to their actual share. This is a credible claim, considering the total area of the Odra River Valley within the boundaries of KDO amounting to 19202.47 ha, with prevailing open spaces. The inventory of habitats for the needs of this investment also discovered the habitat of alluvial meadows in the Odra River Valley, outside Natura 2000 site. For both above habitats, the report indicates the degeneration of phytosociological indices of the patches of the above habitats in the places which will be subject to destruction. This is understandable due to ruderal plant species spreading, foreign (in terms of geography and habitat) and invasive, on the area located in the vicinity of anthropologically transformed Krosno Odrzańskie and on the edge of larger patches i.e. in the ecotonal zone of the habitat.

The project activities in bypass channels, at the implementation stage, will cause the destruction of some floating and submerged plants. The Report informs about the current occurrence of the groups of plants, in channels and near their banks, which are the identifiers of the natural habitats of Natura 2000 Site with the following codes 3150, 3270 and 3130. The habitat of old river beds and natural eutrophic reservoirs with the communities of *Nymphaeion*, *Potamion* (code 3150), is represented locally by the old bend of the Odra River (channel No 1), demonstrating the anthropogenic forms of pressure and degeneration (e.g. neophytisation and trampling). The banks or the dried bottoms of reservoirs with the underwater communities of *Littorelletea*, *Isoeto-Nanojuncetea* is an ephemeric habitat and it was confirmed in only one stand covering the area of 6m² in the route of channel No 1. Plant communities identifying the natural habitat No 3270, i.e. flooded and muddy riverbanks with the flora of *Chenopodium rubri* p.p. and *Bidention* p.p. were confirmed outside the investment works impact. The deepening of channels and the correction and reinforcement of their slopes do not cover the entire length of all the channels (e.g. the remaining section of channel No 2, abandoning works on the left bank of the channel No 1 - in the section from km 0+437.6 to km 0+900.0, remaining sandbank in channel No 1) what makes that after completing the works, flora will return quickly from the above mentioned home habitats, in the process of colonisation, to the channels and their banks. At the operation stage, the flora of the ephemeral natural habitat with the code number 3130 will re-form in the low water periods in the channel.

The nuisance for the natural environment due to the construction of the project will be short-term (works will be conducted in sections) and transient and the extent of environment transformation will be minor (local). As part of the implementation of the designed project, it is planned to introduce materials to the environment which are commonly applied with this type of investments (i.e. earth masses for the construction of the embankment body, aggregate, break-stone, concrete slabs, steel boards), the use of typical construction machines and transport means (excavators, bulldozers, loaders) and known and accepted technology of works. The specification and nuisance resulting from the construction of embankments will not differ from the standard construction works of a similar material scope. The implementation of the project will not change the hydrogeological conditions on the project area and adjacent protected areas, and it will not result in the long-term and adverse change in the level of ground waters. The hydrographic conditions on the terrain under consideration are shaped and dependent on hydrographic conditions in the Odra River and in bypass channels, and the investment does not disturb them (e.g. It does not change the local effluent network, the water regime on the Odra River, the rhythm of floods). The Report does not precise the localisation of the building site back-up facility (depot of construction materials and earth masses), leaving this issue for the investment contractor, at the same time indicating the general rule of locating it near

the works conducted, preferably in the technological belt anticipated for temporary occupation. Since the natural habitats and the habitats of protected species in the above mentioned Natura 2000 sites are confirmed in the vicinity of the investment, the necessary activity minimising the prospective negative impact on protected habitats and species from Natura 2000 sites, which may increase the extent of their destruction or the scale of transformations of soil and water conditions specific for them, is conditioning the location of the building site back-up facility (the depot of construction equipment and materials, and earth masses) and planting earth masses and soil from excavations outside the natural habitats and the habitats of protected species in Natura 2000 sites confirmed in the vicinity of the investment – condition I.2.4 of this Decision.

The Report suggests monitoring at the project operation stage, whose aim will be the assessment of the degree of the recovery or regeneration of plant communities and the state of habitats, Taking into account the terrain natural resources acknowledged in the Report, or its assessed loss or a transformation degree as a result of the investment implementation, this monitoring is deemed unnecessary. Such monitoring would have only the scientific value what is not related to the essence of the investment. The positive effects of natural adaptation, healing the terrain after the project implementation in similar activities are observed and documented e.g. In the fragment of the Pliszka River, the Leniwa River and Odra River or the recovery of the reservoir in the Prądnikowa River. Furthermore, they are anticipated and assessed, in this Report and in the source literature, as certain or likely in the consequence of natural environmental processes.

On the basis of data and analysis presented in the said report, as a result of the construction of new embankment sections, the stands of the mouse garlic *Allium angulosum* under partial protection will be destroyed. The estimated count of the specimens which will be destroyed is 350 items. The destruction of the species stands will not result in any significant deterioration of its preservation on a local, regional and national scale because in the Odra River section under consideration, mouse garlic is a quite common species and locally it even occurs on uncultivated post-agricultural lands and flood embankments.

The analysed terrain is situated in the Odra River basin in the water region of the Middle Odra River. According to the updated Water Management Plan for the Odra River Basin, passed by the Regulation of the Council of Ministers of 18 October 2016 (Journal of Laws of 2016, item 1967), the terrain of the said project is located within the area of the uniform part of underground waters (JCWPd) GW600068. The assessment of the quantitative and chemical condition of the analysed JCWPd is good. The risk assessment for a failure to achieve the environmental targets assigned for this JCWPd is not affected.

Furthermore, the investment is located on the area of two uniform parts of surface waters (JCWP):

- The Old Odra River with the code RW6000231598 with the status of natural waters part. The assessment of the condition of the above mentioned JCWP was determined as negative. The risk assessment for a failure to achieve the environmental targets assigned for this JCWP is not affected;
- The Odra River from the Czarna Struga River to the Nysa Łużycka River with the code number RW6000211739 with the status of strongly changed part of waters. The assessment of the condition of the above mentioned JCWP was determined as negative. The environmental target is to achieve a good ecological potential; the possibility of aquatic organisms migrations in the section of the significant water course – the Odra River within JCWP and a good chemical condition. The risk assessment for a failure to achieve the environmental targets assigned for this JCWP is affected, with a departure – extending the deadline for achieving the target until 2027 due to the lack of technical possibilities.

The planned investment comprises two activities which are likely to affect the ecosystems of the river and habitats directly dependant on water – the construction and modernisation of flood embankments and deepening bypass channels. As part of the investment, no works are planned directly in the bed of the Odra River. The construction of embankments refers to aquatic organisms

conditioning the assessment of the ecological condition/potential of the river to a minor or even negligent extent. The embankment does not change the natural dynamic of flows, does not affect or affects insignificantly on the formation of the riverbed morphometrics. It affects positively water quality to a small extent because it reduces the inflow of the area pollution to the river. At the project implementation stage, waters may be polluted for a short term with suspension but its impact will not be high.

The considered investment is not connected with underground waters uptake or change in supplies; moreover, no factor was recorded which was likely to affect the deterioration of the underground waters condition. During construction works, the short-term spillage is likely of such substances as fuel and oil, but their scale and extent will be insignificant and it will not pollute the underground waters. This type of hazards will be eliminated by the contractor promptly. During the construction works, the existing aquatic conditions may also be disturbed; this impact will be temporary and will cease as of completing the works.

The submitted environmental impact report confirms that the project implementation and operation will not exert an adverse impact on the above mentioned JCWP and JCWPd and thus it will not contribute to the deterioration of the condition of underground and surface waters and to the failure to achieve the environmental targets presented in the updated Water Management Plan for the Odra River Basin.

The emission of substances and energy to the environment (noise, gas, dust, waste, oil derivatives, etc.) will occur mostly during the delivery of construction materials, the transport and operation of mechanical equipment. Upon implementation, the investment will not be a source of the emission of substances and energy to the environment.

The Investor declares in the report that earthworks and reinforcement works will be carried out in the periods of low and average water levels and with the optimistic weather forecast concerning precipitation. The works will be performed and finished in short sections and with the development of agricultural technological belts and ordering of adjacent terrains. Demolishing earthworks are planned to be performed mechanically with the use of excavators and bulldozers. The volume of earth masses obtained from excavations, if possible, will be planted near adjacent parcels and in technological belts with their agricultural development and/or disposed to the nearest municipal landfill. The embankment mounds will be performed mainly by a frontal method. Deepening works will be performed in channels from the riverbed or from the bank with the use of areas anticipated for temporary occupation.

The distance of a terrain where works will be carried out from the residential development (terrains under protection against noise) is differentiated depending on the investment element. The closest residential development is located along the northern bank of channel 1. Therefore, item I.2.1 of this Decision include the condition of the construction works performance during the day.

In order to eliminate or reduce significantly the adverse environmental impact of the project during its implementation, the proper localisation and organisation of the technical back-up facility for building crews is necessary. The conditions outlined in item I.2.3., I.2.7 and I.2.9 are imposed in order to exclude the possibility of polluting the ground and water environment

as a result of minor emergencies or the poor technical condition of machines and vehicles and possible leakages from collected and stored materials, including oil derivatives, on the area of the building site back-up facility of the planned investment. Furthermore, the above mentioned conditions entail the necessity of adhering to the rule

of the economical use of the terrain and ordering it after completing the works related to temporary allocation – condition in item I.2.2, and according to item I.2.5 the necessity of allocating access roads firstly based on the existing road system.

Item I.2.11 of this Decision indicates the manner of supplying with water, and item I.2.12 determines the manner of conducting household sewage management in the building site which will be based on mobile toilets mounted in the building site back-up facility, and such sewage will be collected periodically to the nearest sewage treatment facility.

The necessity of protecting the sensitive ground and water environment is connected with the obligation of conducting waste management in a manner ensuring environment protection (a condition outlined in item I.2.10).

In order to limit the project's impact on the air condition during implementation, item I.2.6, I.2.7, I.2.8 contains conditions concerning equipment and the organisation of construction works.

At the stage of the project operation it is necessary to conduct the on-going and systematic maintenance of embankments and channels (a condition outlined in item I.2.15).

On account of its specificity, the project will not result in any climatic changes because neither greenhouse gases nor substances likely to contribute to climate changes will be emitted during its operation. The project will be implemented in a manner consistent with all the standards applied for this type of buildings; therefore, any possible climatic changes should not result in the disturbance of its structure or its functioning.

On account of the location and scope of the project, there is no risk of the environmental transboundary impact and the direct use of natural resources does not apply to the planned project.

The impact of the planned investment accumulated with other projects of a similar nature would occur in the event of their simultaneous implementation. Considering the hitherto practice of planning works consisting in the construction, reconstruction and modernisation of embankment, due to very high costs, such tasks are fulfilled in sections and on a small scale in relation to the size of the entire system of embankments located within the Odra River areas. Therefore, there is no possibility of the accumulation of the planned investment with other projects.

The investment under consideration is not subject to Article 248 of the Act of 27 April 2001 – the Environment Protection Law (i.e. of 2016, item 672, as amended), on plants with a risk of serious industrial emergencies; thus, this decision does not specify the requirements within counteracting their effects. A risk of a construction disaster, on account of the planned technology, is very low.

Furthermore, the analysed investment does not belong to the installation outlined in Article 135.1 of the aforementioned Act – the Environment Protection Law; therefore, there are no legal grounds to assign the limited use area.

The decision on the environmental conditions for the planned project is necessary to obtain e.g. a decision on the project implementation permit, within the meaning of the provisions of the aforementioned Act of 8 July 2010 on the specific rules of preparing for the project implementation within flood control structures, therefore item II of this decision presents the standpoint mentioned in Article 82.1.4 of the EIA Act on the lack of the necessity of conducting the environmental impact assessment and proceedings concerning the environmental transboundary impact as part of the procedure concerning issuing a decision referred to in Article 72.1.18 of the EIA Act, because currently possessed data

on the scope of the project are sufficient for the complete and comprehensive assessment of the project's environmental impact.

Acting pursuant to Article 77.1.2 in connection with Article 78.1.2 of the EIA Act, prior to issuing this decision, the opinion of the State Poviast Sanitary Inspector in Krosno Odrzańskie was sought, and the said Inspector in the sanitary opinion sign: NS-NZ-771- DŚ-3-3/2017 of 24 January 2017 submitted a reservation, within the hygienic and health requirements, to the implementation of the project "The construction design must consider all the recommendations resulting from the project's environmental impact report". Since this decision defines the project's implementation and operation conditions, based on the information contained in the report, the submitted reservation was considered.

Item III, pursuant to Article 82.3 of the EIA Act, includes a provision that the specification of the project constitutes Appendix to this Decision.

While considering the reading of Article 10.1 of the Administrative Proceedings Code Act, by means of the announcement of 31 January 2017, sign: WZŚ.4233.1.2016.PT the parties to the proceedings were informed that the entire evidence material was collected concerning issuing a decision on environmental conditions for the analysed project and the parties were informed on the possibility of taking a position within 5 days concerning the collected evidence and materials. The announcement was posted on the information board and in the Public Information Bulletin of the Regional Directorate of Environment Protection in Gorzów Wlkp., and on the information board in the City Hall in Krosno Odrzańskie and in the Office of Dobro Commune. Despite providing the said notification, none of the parties became familiar with the case files.

In connection to the above and based on the provisions cited in the introduction, it is decided as in the conclusion.

INSTRUCTIONS

The Parties are authorised to appeal against this decision to the General Director of Environment Protection by agency of the Regional Director of the Environmental Protection in Gorzów Wlkp. within fourteen days of a serving date.

The information on the issued decision is subject to disclosure in the public list of data.

A stamp duty was not collected for the issuance of this decision pursuant to Article 7.3 of the Act of 16 November 2016 on stamp duty (i.e. Journal of Laws of 2016, item 1827).



Cc:

1. Ms Lila Mikłaszewicz the investor's plenipotentiary
Przedsiębiorstwo Projektowo Wykonawcze Inżynierii Wodnej „INWOD” Sp. z o.o. in Wrocław;
2. Other parties – pursuant to Article 49 of the Administrative Proceedings Code;
3. a/a

Attn:

1. National Poviast Sanitary Inspector in Krosno Odrzańskie.



REGIONAL DIRECTOR OF
ENVIRONMENT PROTECTION IN
GORZÓW WIELKOPOLSKI

Appendix No 1 to the decision on environmental conditions
Sign: WZŚ.4233.1.2016.AN of 27 February 2017

THE DESCRIPTION OF THE INVESTMENT

The planned investment "Flood protection of Krosno Odrzańskie City" consists in the construction of flood embankments and the development or reconstruction of bypass channels in the leftbank part of the Odra River Valley, between 513.5 and 514.7 of the Odra River, in the southern part of Krosno Odrzańskie City, in Lubuskie Voivodeship, in krośnieński powiat, in Krosno Odrzańskie Commune, in district 0002 – Krosno Odrzańskie City, 0016 – Stary Raduszec and in Dąbie Commune in district 0013 – Połupin.

The aim of this investment task is the flood protection of the terrains of the southern part of Krosno Odrzańskie City located in the Odra River Valley, arable lands, petrol stations, manufacturing sites, historical value facilities and, above all, residential and public utility building developments. The planned investment comprises:

- The construction of 9 new ring flood embankments, retaining walls and mobile flood protection systems covering the total length of 5921.1 m;

Embankment I: km 0+000 ÷ 1+279 — located on the left bank of the Odra River, from the bridge in Ariańska Street downstream the river, then along the right bank of Bypass Channel No 1 to bridge N-2 in Bohaterów Wojska Polskiego Street;

Embankment II: km 0+000 ÷ 1+387.6 — located on the left bank of the Odra River, from the bridge in Ariańska Street upstream the river, then along the western edge of Połupin polder and along the right bank of Bypass Channel No 1 to bridge N-2 in Bohaterów Wojska Polskiego Street;

Embankment III: km 0+000 ÷ 0+454.3 — the route runs along in left bank of Bypass Channel No 1 from bridge N-2 in Bohaterów Wojska Polskiego Street and farther along the right bank of Bypass Channel No 2 and to bridge N-3 in Bohaterów Wojska Polskiego Street;

Embankment IV: km 0+000 ÷ 0+757 – located on the left bank of Bypass Channel No 3 and running downwards from bridge N-4 in Bohaterów Wojska Polskiego Street, farther along the left bank of Bypass Channel No 2, then running along the right bank of Bypass Channel No 4 and reaching the road frame in Bohaterów Wojska Polskiego Street;

Embankment V: km 0+000 ÷ 0+123.9 – located on the left bank of Bypass Channel No 2 running from bridge N3 in Bohaterów Wojska Polskiego Street upstream the channel, then along the western edge of Połupin polder, farther along the right bank of Bypass Channel No 3 to bridge N-4 in Bohaterów Wojska Polskiego Street;

Embankment VI: km 0+000 ÷ 0+352.7 – runs along the left bank of Bypass Channel No 3 from bridge N3 in Bohaterów Wojska Polskiego Street upstream the channel, then along the western edge of Połupin polder, farther along the right bank of Bypass Channel No 4 to the road frame in Bohaterów Wojska Polskiego Street;

Embankment VII: km 0+000 ÷ 1+304.7 – runs along Bohaterów Wojska Polskiego Street and poviát road to Raduszec and farther, after changing its direction, it runs to the north to Bypass Channel No 4, then it changes its direction again and runs along the left bank of Bypass Channel No 4 upwards the channel and reaches bridge N-5 in Bohaterów Wojska Polskiego Street;

Embankment VIII: km 0+000 ÷ 0+190.3 – the embankment starts on the left bank of Bypass Channel No 4 from bridge N3 in Bohaterów Wojska Polskiego Street upwards Bypass Channel No 4, then it changes its direction to the south and it runs along the western edge of Połupin polder and farther it changes its direction and reaches the frame of the national road in Bohaterów Wojska Polskiego Street;

Embankment IX: km 0+000 ÷ 0+076.8 – located on the western side of the national road at Bohaterów Wojska Polskiego Street, it starts on the left bank and from the bottom water of bridge N-2 and runs towards the south.

- The extension or reconstruction of bypass channels, and the installation of anti-backwater flaps on the existing storm sewage system covering the total length of 2757.8 m:

Bypass Channel No 1: km 0+084 ÷ 1+257 – also known as the Municipal Channel, regulation covers a section of the channel from the estuary to the river on its left bank below the channel in Ariańska Street upwards above bridge N-2;

Bypass Channel No 2: km 0+000 ÷ 0+551.9 – through a short connection Channel No 2a, it is a leftbank tributary of Bypass Channel No 1, it starts on the left bank of Bypass Channel No 1 below bridge N-2 and it runs towards Połupin polder above bridge N-3;

Bypass channel No 2a: is a short connection channel with the length of 60 m which connected Bypass channel No 2 with Bypass Channel No 1;

Bypass Channel No 3: km 0+000 ÷ 0+165 – fulfils the function of gathering flood waters from Połupin polder under bridge N-4, below bridge N-4 it is the leftbank tributary of Bypass Channel No 2;

Bypass Channel No 4: km 0+000 ÷ 0+792.8 — it is the tributary of Bypass Channel No2, it runs in parallel to Embankment IV, introduces flood waters from Połupin polder under bridge N-5 and farther below the bridge it discharges water to the Odra River Valley.

The components of the flood control devices of EMBANKMENT I:

1. Mobile flood protection system (MSOP) in km 0+000 ÷ 0+357.7; 0+702.4 ÷ 0+752.8; 1+262 ÷ 1+276.3;

2. Embankment in km 0+409.4 ÷ 0+479.4

- Earth embankment with a service road on the embankment crest with the following parameters: Embankment crest width 4,50 m, hardened service road width 3.0 m from PD road slabs and waysides 2x0.75 m,

- Upstream slope inclination = 1:3,

- Downstream slope inclination = 1:3,

- Sowing the slopes and sides of the embankment crest with a mixture of grass with topsoiling;

3. Embankment with ferroconcrete wall in km 0+357.7 ÷ 0+426.1, 0+479.4 ÷ 0+548.2, 1+134.7 ÷ 1+234.8,

- Earth embankment with a service road on the embankment crest with the following parameters: Embankment crest width 4,50 m, hardened service road width 3.0 m from PD road slabs and waysides 2x0.75 m,

- Upstream slope inclination 1:3,

- Downstream slope inclination 1:3,
 - Sowing the slopes and sides of the embankment crest with a mixture of grass with topsoiling;
 - Reinforcement wall from the upstream side with the height of 2.05 m;
4. Both-sided ferroconcrete walls in km 0+548.2 ÷ 0+702.4, 0+752.4 ÷ 1+084.8
- Flood control devices in the form of both sided resistance walls in the axial distribution of 3.0 m with a footpath between them with the surface width of 1.50 m hardened with a concrete or granite stone,
 - slope inclination 1:2;
5. Ferroconcrete wall in km 1+084.8 ÷ 1+134.7 - flood control devices in the form of one-sided resistance wall with a footpath with the surface width of 1.50 m hardened with a concrete or granite stone,
- slope inclination 1:3;
6. Embankment in km 1+234.8 ÷ 1+262.1 +276.3 ÷ 1+279 - flood control devices in the form of one-sided resistance wall (without a footpath).

Embankment structures (downward slopes and transport passages, steps):

- km 0+000 - concrete-stone steps on the designed footpath,
- km 0+008 - concrete-stone steps for the upstream side,
- km 0+128, 0+350.3; 0+409.4; 0+427.4; 0+546.6; 1+134.7 - embankment downward slopes from PD road slabs width 3.0 m wayside 2x 0.75m,
- steps in km 0+479.2 and in km 555.6,
- steps in km approx. 0+720 ÷ 0+750 - pcs. 3,
- km 1+200 ÷ 1+225 on the embankment crest – a reversing loop with the surface from PD road slabs with the width of 3.0 m wayside 2x 0.75 m.

The components of the flood control devices of EMBANKMENT II:

1. Ferroconcrete wall in km 0+000 (-1.07) ÷ 0+008.8
 - Flood control devices in the form of one-sided resistance wall (without a footpath, variable height up to 2.5 m;
2. Wall with mobile flood control (MSOP), in km 0+008.85 ÷ 0+224.1
 - Resistance wall with the height of 1.30 ÷ 1.60 m,
 - Upstream slope with the inclination of 1:2 ÷ 1:2.5 with topsoiling and sowing with a grass mixture,
 - footpath with the width 3.50 m with the surface from e.g. cobblestone or concrete stone;
3. Embankment with ferroconcrete wall in km 0+224.1 ÷ 0+501.6, 1+225.1 ÷ 1+287.7
 - Earth embankment with footpath with the surface from cobblestone or concrete stone as part of the service road on the embankment crest with the following parameters: Embankment crest width 4,50 m, hardened service road width 3.0 m from PD road slabs and waysides 2x0.75 m,
 - Upstream slope inclination 1:2, reinforced with break stone rip-rap,
 - Resistance wall from the upstream side with the height of 2.05 m.;
4. embankment km 0+501.6 ÷ 1+225.1
 - Earth embankment with a service road on the embankment crest with the following parameters: Embankment crest width 4.50 m, service road width 3.0 m from PD road slabs and waysides 2x0.75 m,
 - upstream slope inclination 1:3 with topsoiling and sowing with a grass mixture,
 - downstream slope inclination 1:3 with topsoiling and sowing with a grass mixture;
5. Embankment with ferroconcrete wall in km 1+225.1 ÷ 1+287.7
 - Earth embankment with a service road on the embankment crest with the following parameters:

Embankment crest width 4.50 m, service road width 3.0 m from PD road slabs and waysides 2x0.75 m,

- Reinforcement wall from the upstream side with the height of 2.45 ÷ 3.5 m,
 - downstream slope inclination 1:2 ÷ 1:3 with topsoiling and sowing with a grass mixture;
6. Ferroconcrete wall in km 1+287.4 ÷ 1 + 387.6 with the height of 3.30 ÷ 1.85m,
- Flood control devices in the form of one-sided resistance wall (without a footpath),
 - Raising the crest of the existing wall (bridge wing).

Embankment structures (downward slopes and transport passages, steps):

- km 0+010.7 designed concrete-stone steps in the inter-embankment zone,
- km 0+912.2 of the embankment - in the commune road - embankment passage with the width 6.0 m and 4.50 m with the surface from PD slabs, width 4.50 m and 3.50 m, wayside 2 x 0.75 m,
- km of the embankment 1+180 ÷ 1+225 - designed manoeuvring site on the embankment crest,
- km 0+526.8 ÷ 0+570.1 - passing loop,
- km 0+355 ÷ 0+380 - passing loop.

The components of the flood control devices of EMBANKMENT III:

1. Embankment wall from steel wall in km 0+000 ÷ 0+092.3,
 - Embankment wall from tight steel wall - upper with top plare and stone lining, the length of sheet piles 12.0 m,
 - footpath with the width 2.0 m with the surface from concrete stone.
2. Embankment in km 0+092.3 ÷ 0+289 - earth embankment with the crest width 3.50 m, both-sided slope inclination 1:3 with topsoiling and sowing with a grass mixture with topsoiling,
 - on the embankment crest – footpath with the width 2.0 m with the surface from concrete stone.
3. Ferroconcrete wall in km 0+289 ÷ 0+449
 - Flood control devices in the form of one-sided ferroconcrete resistance wall with the sectional earth embankment (without a footpath).

Embankment structures (downward slopes and transport passages, steps):

- km 0+100 of the embankment - downward slope with the width of 4.50 m with the surface from PD slabs with the width of 3.0 m and wayside 2 x 0.75 m,
- km of the embankment 0+257 ÷ 0+290 - manoeuvring site in the embankment crest with the surface of PD road slabs.

The components of the flood control devices of EMBANKMENT IV:

1. Ferroconcrete wall in km 0+000 ÷ 0+013.1; 0+042.6 ÷ 0+159.8; 0+167.1 ÷ 0+171.6, including:
 - Ferroconcrete wall from the upstream side with the height of 1.65 ÷ 3.20 m, with footpath with the width 2.0 m with the surface from concrete stone,
 - The upstream slope is the channel slope;
2. Embankment wall from steel wall in km 0+013.1 ÷ 0+042.6,
 - Flood control device in the form of a steel wall from the upstream side, which is also the upper wall of Bypass Channel No 3,
 - footpath with the width 2.0 m with the surface from concrete stone,
 - The upstream slope is the slope of channel No 3;
3. Wall with the mobile flood protection system (MSOP) in km 0+159.8 ÷ 0+165.6 ;

4. Embankment in km 0+171.6 ÷ 0+757

- Earth embankment with a service road on the embankment crest or on the near-embankment shelf with the following parameters:

Embankment crest width 4.50 m, service road width 3.0 m from PD road slabs and waysides 2x0.75 m,

- upstream slope inclination 1:2.5 ÷ 1:3 with topsoiling and sowing with a grass mixture,
- downstream slope inclination 1:2.5 ÷ 1:3 with topsoiling and sowing with a grass mixture.

Embankment structures (downward slopes and transport passages):

- km 0+162.7 downward slope from bridge N-1 on the land side, with the width of 4.5 m, surface from PD slabs with the width of 3.0 m wayside 2 x 0.75 m,
- km 0+192.7 downward slope on the land side, width 4.50m with the surface from PD slabs with the width of 3.0 m wayside 2 x 0.75 m,
- km 0+ 209.4 downward slope on the land side with the width of 4.5 m, surface from PD slabs with the width 3.0 m and wayside 2 x 0.75 m,
- km 0+285.5 ÷ 0+330 downward slope to the embankment shelf with a reversing loop with the width of 4.5 m, surface from PD slabs 3.0 m, wayside 2 x 0.75 m,
- km 0+583.5 ÷ 0+608.5 passing loop with the width of 7.5 m, surface from PD slabs with the width 6.0 m wayside 2 x 0.75m,
- km 0+757 - downward slope in Bohaterów Wojska Polskiego Street, width 4.50 m with the surface from PD slabs with the width of 6.0 m wayside 2 x 0.75 m.

The components of the flood control devices of EMBANKMENT V:

1. Ferroconcrete wall in km 0-000 ÷ 0+123.9, including:

- Flood control devices in the form of one-sided ferroconcrete resistance wall with the sectional earth embankment (without a footpath),
- Reinforcement wall from the upstream side with the height of 2.05 ÷ 2.45 m,
- in sections from 0+052.2 to 0+124 -wall with earth embankment with the crest width 3.0 m,
- Downstream slope inclination 1:3,
- The upstream slope is the channel slope,
- Sowing the slopes and sides of the embankment crest with a mixture of grass with topsoiling.

The components of the flood control devices of EMBANKMENT VI:

1. Ferroconcrete wall in km 0-002.3 ÷ 0+040.3, including:

- Flood control devices in the form of one-sided ferroconcrete resistance wall with the sectional earth embankment (without a footpath),
- Reinforcement wall from the upstream side with the height of 1.65 m;
- The upstream slope is the channel slope;

2. Embankment in km 0-040.3 ÷ 0+35.7

- Earth embankment crest width 4.50 m, service road width 3.0 m from PD road slabs and waysides 2x0.75 m,
- upstream slope inclination 1:3 with topsoiling and sowing with a grass mixture,
- downstream slope inclination 1:3 with topsoiling and sowing with a grass mixture;
- In the section of km 0+287.6 ÷ 0+337.7 additionally a ferroconcrete wall on the upstream side with the height of 4.4 m.

Embankment structures (downward slopes and transport passages, steps):

- km 0+002.3 designed steps from Bohaterów Wojska Polskiego Street;
- km 0+043.4 ÷ 0+081.4 manoeuvring site,
- km 0+279.6 - downward slope to the upstream side,
- km 0+352.7 - downward slope from Bohaterów Wojska Polskiego Street.

The components of the flood control devices of EMBANKMENT VII:

1. Ferroconcrete wall in km 0+000 ÷ 0+321.2; 0+327.8 ÷ 0+490; 0+541.1 ÷ 0+654.6; 1+199.5 ÷ 1+304.7 including:

- Flood control devices in the form of one-sided ferroconcrete resistance wall with the earth embankment (without a footpath),
- Reinforcement wall from the upstream side with the height of 1.90 ÷ 2.50 m,
- The upstream slope is the slope in Bohaterów Wojska Polskiego Street towards the polder;

2. Mobile flood protection system (MSOP) in km: 0+321.2 ÷ 0+327.8, 0+490 ÷ 0+541.1

- as part of MSOP, the sectional access to the property and transport through Bohaterów Wojska Polskiego Street;

3. km 0+654.6 ÷ 1+199.5

- Earth embankment crown width 4.50 m, service road width 3.0 m from PD road slabs and waysides 2x0.75 m,
- upstream slope inclination 1:3 with topsoiling and sowing with a grass mixture,
- downstream slope inclination 1:3 with topsoiling and sowing with a grass mixture.

Embankment structures:

1. downward slopes and transport passages, steps:

- km 0+324.4 - downward slope from Bohaterów Wojska Polskiego Street towards the polder,
- km 0+537.5 - access to the property,
- km 0+636.5 - downward slope from the embankment,
- km 0+990.7 - downward slope from the embankment,
- km of the embankment 1+183 ÷ 1+200 manoeuvring site,

2. Embankment and transport culverts:

PW-1 - km of the embankment approx. 0+769.1, culvert \varnothing 600; with the anti-backwater flap and lattice at the inlet,

PW-2 - km of the embankment approx. 1+224.8 culvert \varnothing 600; with the anti-backwater flap and lattice at the inlet,

PD-1 and 2 - on ditch R-O km 0+218 and km 0+312 culverts \varnothing 600

Transposition ditches:

- Above the designed embankment culvert PW-1 the reconstruction of ditch R-O with the length of approx. 75 m and de-silting with the length of approx. 60 m together with culvert 5P on the poviats road Krosno Odrzańskie- Stary Raduszec and the installation of the anti-backwater flap.

The components of the flood control devices of EMBANKMENT VIII:

1. km 0+000 ÷ 0+168.3, including:

- Earth embankment with a service road on the embankment crown with the following parameters: Embankment crest width 4.50 m, service road width 3.0 m from PD road slabs and waysides 2x0.75 m,
- Ferroconcrete wall on the embankment crest from the upstream side with the height of approx. 2.05 m and in sections km 0+070.6 ÷ 0+ 128.3 from the polder side with the width—ferroconcrete wall at the embankment foot with the width of 1.3 ÷ 3.2 m,

- upstream slope inclination 1:2 ÷ 1:3 with topsoiling and sowing with a grass mixture, 2. km 0+168.3 ÷ 0+190.3
- Earth embankment crest width 4.50 m, service road width 3.0 m from PD road slabs and waysides 2x0.75 m,
- upstream slope inclination 1:2 with topsoiling and sowing with a grass mixture,
- downstream slope inclination 1:2 and variably with topsoiling and sowing with a grass mixture.

Embankment structures (downward slopes and transport passages, steps):

1. downward slopes and transport passages, steps:
 - km in 0+000 designed downward slope from Bohaterów Wojska Polskiego Street on the service road,
 - km 0+190.3 - downward slope from Bohaterów Wojska Polskiego Street, The

Components of the flood control devices of EMBANKMENT IX:

1. km 0+034.3 ÷ 0+073.3
 - Flood control devices in the form of one-sided ferroconcrete resistance wall with the earth embankment from the upstream side (without a footpath),
 - upstream slope inclination 1:2 with topsoiling and sowing with a grass mixture;
2. km 0+073.3 ÷ 0+076.8 - mobile flood protection system (MSOP),
 - as part of MSOP, designed downward slope to the upstream side.

Embankment structures (downward slopes and transport passages, steps):

- km 0+073.3 designed downward slope to the upstream side from Bohaterów Wojska Polskiego Street.

The components of the designed BYPASS CHANNEL NO 1 km 0+084 ÷ 1+257:

Earthworks in the bed conducted from the channel bed:

km 0+084 ÷ 0+880 and 1+164 ÷ 1+257 - deepening the layer bottom 0.3 ÷ 3.5 m.

Left bank of Bypass Channel No 1:

1. km 0+089 ÷ 0+437.6
 - The correction of the bottom part of the slope in order to deep the channel above water table, topsoiling and sowing with a mixture of grass;
2. km 0+900 ÷ 1+027.3 (bridge N-2 D.W.):
 - In the foot of the channel slope – a steel wall with a top plate,
 - Slope reinforced with the break stone rip rap with the layer of 0.50 m (near the bridge, only to the height of the bottom of the cone reinforcement);
3. Reinforcement under bridge N-2 km 1 +027.3 - (Eliza bridge N-2 G.W.) 1+039.6:
 - In the foot of the channel slope – a steel wall,
 - On slope, break stone rip rap, layer 0.50 m;
4. km 1+039.6 ÷ approx. 1+164
 - - In the foot of the channel slope – a steel wall,
 - On slope, break stone rip rap, layer 0.50 m to the upper steel wall (embankment);
5. km 1+164 ÷ 1+257
 - Reinforcement of the slope with break stone rip rap, layer 0.50 m.

The bank of the operation of Bypass Channel No 1:

1. km 0+084 ÷ 0+257
 - in km 0+084 ÷ 0+966.7 In the foot of the channel slope – a steel wall with a top plate,

On the slope, break stone rip rap, layer 0.50 m with the exclusion of the following section: in km 0+283 ÷ 0+412.9 with the designed slope reinforcement with a band from stone moulded into concrete,

2. km 0+966.7 ÷ 1+027.3 (Eliza bridge N-2 D.W)

- In the foot of the channel slope – a steel wall with a top plate,
- Filling up the stone rip rap on the channel slope and in the vicinity of the footholds;

3. km 1 +027.3 ÷ 1+039.6 (Eliza bridge N- 2 , G.W)

- In the foot of the channel slope – a steel wall with a top plate,
- Filling up, reconstructing and repairing the existing stone reinforcing under the bridge;

4. km 1+039.6 ÷ 1+207

- In the foot of the channel slope – a steel wall,
- on the slope, break stone rip rap, layer 0.50 m.

5. km 1+207 ÷ 1+257

- Reinforcement of the slope with break stone rip rap, layer 0.50 m.

The components of the designed BYPASS CHANNEL NO 2:

Earthworks in the bed of the channel No 2:

km 0+180 ÷ 0+325, 0+412 ÷ 0 +551.9 - deepening the layer bottom, thickness 0.1 to 1.0 m.

Reinforcing the channel slopes:

Left and right bank of Bypass Channel No 2:

1. km 0+000 ÷ 0+169.3

Cleaning and maintenance (mowing the slopes, cutting of damaged branches);

2. km 0+169.3 ÷ 0+312.7

- In the foot of the channel slopes- low walls in the form of a kerb,
- Reinforcement of the slope with break stone rip rap, layer 0.50 m.

3. Reinforcing under the bridge km 0+312.7 ÷ 0+320.1 (bridge N-1 GW) with break stone 15-30 cm max. thickness 20 cm laid on the concrete,

- In the foot of the channel slopes- low walls in the form of a kerb;

4. km 0+320.1 ÷ 0+400 (bridge N-3 D.W.):

- In the foot of the channel slopes – a steel wall with a top plate to bridge N-3 or

reinforcement of the bridge cones,

- Slopes above the tight wall reinforced with break stone on the concrete substructure or break stone rip rap, layer 0.50m;

5. Reinforcement under the bridge, km 0+400 ÷ 0+413.1 (bridge N-3 .W.)

- In the foot of the channel slopes- low wall in the form of a kerb,
- Slope reinforced with the break stone rip rap, layer 0.50 m;

6. km 0+413.1 ÷ 0+551.9

- In the foot of the channel slopes- low wall in the form of a kerb,
- Reinforcement of the slope with break stone rip rap, layer 0.50 m.

Inflow ditches:

De-silting the inflow ditch in the channel km 0+543 within the length approx. 20 m (to the existing culvert ø 1000).

The components of the designed BYPASS CHANNEL NO 2a:

Earthworks in the bed of the channel No 2a

km 0+000 ÷ 0+ 060 deepening the layer bottom to 0.50 m with the bottom width 14.0 m.

Reinforcing the channel slopes:

- In the foot of the channel slopes- low walls in the form of a kerb,
- Reinforcement of the slope with break stone rip rap, layer 0.50 m.

The components of the designed BYPASS CHANNEL NO 3:

Earthworks in the bed of the channel No 3:

- km 0+000 ÷ 0+075.8 - deepening the layer bottom, thickness 0.1 - 1.0 m,
- km 0+106.1 ÷ 0+165 - eliminating the covered inlet to the channel.

Reinforcing the channel slopes:

1. km 0+000 ÷ 0+085.8,
 - In the foot of the channel slope – a steel wall with a top plate to bridge N-4,
 - Slopes above the tight wall reinforced with break stone on the concrete substructure;
2. Reinforcement under the bridge, km 0+085.8 ÷ 0+097.4 (bridge N-4 G.W.)
 - In the foot of the channel slope – a steel wall with a top plate,
 - Reinforcement of the bottom under the bridge with stone rip rap and extending the bottom width, slopes to the heads — filling up or repairing the existing reinforcement;
3. km 0+097.4 ÷ 0+114.6
 - In the foot of the channel slope to km 0+114.6 - a steel wall with the top plate, farther upwards the channel in the slope foot - low wall in the form of a kerb to km 0+165,
 - Reinforcement of the slope with break stone rip rap, layer 0.50 m.

The components of the designed BYPASS CHANNEL NO 4:

Earthworks in the bed of the channel No 4:

- km 0+0.00 ÷ 0+550.2 - to km 0+132 The extension of the existing channel, farther upwards the excavation of the new section of the channel with the bottom width of 10.0 m and slope inclination 1:2,
- km 0+701.2 ÷ 0+792.8 - deepening the layer bottom, layer diameter 0.5 m.

Reinforcing the channel slopes:

1. km 0+000 ÷ 0+515.2
 - In the foot of the channel slopes- low wall in the form of a kerb, with the bottom width 10.0 m - the slope reinforced with the break stone rip rap, layer 0.50 m;
2. km 0+515.2 ÷ 0+537.5 - designed road culvert;
3. km 0+537.5 ÷ 0+637.7 and km 0+651.2 ÷ 0+701.2
 - In the foot of the channel slope – a steel wall with a top plate,
 - Reinforcement of the slope with break stone rip rap, layer 0.50 m.
4. Reinforcement under bride N-5 km 0+637.7 ÷ 0+651.2
 - Cleaning the existing reinforcement from cobblestone or concrete stone near the bridge abutments.
5. km 0+701.2 ÷ 0+792.8
 - in the foot of the channel slopes- low wall in the form of a kerb, with changeable bottom width 3.0 ÷ 6.5 m,
 - Reinforcement of the slope with break stone rip rap, layer 0.50 m.

Structures on the channel:

- Road culvert in channel km 0+526.5,

Inflow ditches;

- km approx. 0+730 - left bank, ditch reconstruction within the length of approx. 85 m bottom width 0.60 m slope inclination 1:1.5 sowing the slopes with a mixture of grass and topsoiling,
- km approx. 0+790 on the left and right side, reconstruction and de-silting of ditches within the length of approx. 60 m in front of the inlet to the channel,

Dismantle works

- km 0+565.3 - dismantling the pipeline kd 800 within the length of 38 m.

The construction of flood control embankments which surround the protected terrains will result in the formation of a baffle for the surface migration of storm water to the bypass channels or to the Odra River. Therefore, as part of the investment, it is anticipated to drain the land side terrain by means of drainage or sewage systems, or ditches collecting storm water and filtering water from the terrain protected by the embankment. It is also planned to perform infiltration wells located in the lowest places of the protected terrain and discharging their waters in pipelines equipped with anti-withdrawal flaps.

The construction of new flood control embankments will require the occupation of the terrain covering the allocated belts with the width of approx. 5 m for embankments and approx. 3 m for walls from the upstream and downstream side. The route of bypass channels will not be changed.

The embankment mounds will be performed mainly by a frontal method, in particular in the sections of nearby residential development (e.g. embankment No 1 and 2), in the sections where their route is adjacent to the right bank of bypass channel No 1. Technological roads will be possible in the embankment sections whose designed route runs from the eastern side and western side, e.g. on embankment No 7, in the section from the road Krosno - Raduszec towards the north it will be possible to conduct works also from the downstream and upstream side.

The deepening works in the channel will be performed by various means, e.g. in bypass channel No 1, earthworks will be conducted from the bed, with the use of technological roads previously prepared in the channel bed. Where possible, the works will be also performed from the shore with the use of areas anticipated for temporary occupation. Within the boundaries of the accepted temporary occupation of plots (the width from 2 to 10 m), it will be possible to perform technological roads and use them during works on the embankments or channels.

