

REGIONAL DIRECTOR  
FOR ENVIRONMENTAL PROTECTION  
IN CRACOW

ST-I.4210.1.2015.MB

Tarnów, November 30, 2016

## DECISION

Acting based upon Articles 104 and 107 (1) of the Act of June 14, 1960 – Administrative Procedure Code (OJ of 2016, item 23, as amended) [hereinafter referred to as the APC], Article 71 (1) and (2) item 2, Article 72 (1) item 18, Article 74 (3), Article 75 (1) item 1 letter i), Article 75 (6), and Article 82 and Article 85 of the Act of October 3, 2008 on providing information on the environment and its protection, public participation in the environmental protection, and on environmental impact assessments (OJ of 2016, item 353, as amended) [hereinafter referred to as the EIA Act], in relation to Article 17 of the Act of July 8, 2010 on the special preparation rules for flood protection investments (OJ of 2015, item 966, consolidated text), as well as Article 3 (1) item 65 of the regulation of the Council of Ministers of November 9, 2010 on the investments which may significantly affect the environment (OJ of 2016, item 71),

### after considering the application

dated 01/12/2015, as provided by Mrs. Małgorzata Jelonek, acting on behalf of the Małopolskie Province – Małopolskie Board of Amelioration and Water Structures in Cracow, on the issuance of a decision on environmental conditions for the Works Contract considering Construction of the right embankment of the Biala River in the City of Tarnów at local chainage of km 0+000 – 0+695, after providing an environmental impact assessment and obtaining a sanitary opinion no. 263/2016 of the State District Sanitary Inspector in Tarnów dated 09/14/2016, ref. no.: NNZ.420.124.2016.2,

### I establish

**environmental conditions for the Works Contract considering Construction of the right embankment of the Biala River in the City of Tarnów at local chainage of km 0+000 – 0+695, according to option “2”.**

#### **I. Type, scale and location of the Works Contract:**

The Works Contract shall include construction of the right flood embankment for the River Biała over a length of 695 m in the City of Tarnów. Beginning of the designed embankment shall be located in vicinity of a railway embankment at the Cracow – Medyka route, in the final section of Stanisława Kassali Street. Further on, the embankment route shall run along the existing dirt road and through the Family Garden Allotments (FGA) “Semafor”. The new embankment shall join the existing embankment in the area of Św. Katarzyny Street.

Location of the Works Contract: register plots no. ½, 98/13, 98/14 – area 273, Municipality of Tarnów; 1/1, 1/8, 1/9, 1/14, 1/18, 1/19, 1/20, 1/21, 1/22, 1/23, 1/24, 15/1, 16, 25 – area 274, Municipality of Tarnów; 281, 307 – area 276, Municipality of Tarnów, 66/3, 78/13 – area no. 192, Municipality of Tarnów.

Site Issues Department in Tarnów, 5-9. Solidarności Alley, 33-100 Tarnów

Tel.: (14) 696 33 12, tel./fax: (14) 696 32 43

<http://krakow.rdos.gov.pl>; e-mail: [sekretariat.tarnow@rdos.gov.pl](mailto:sekretariat.tarnow@rdos.gov.pl)

Implementation of the Works Contract shall be associated with a necessary removal of facilities at the garden allotments, from the area of about 12 ha, due the use of land for the embankment and for the embanked area. Construction of the designed right embankment of the Biała River is mostly located within the garden allotments "Semafor", the area of which shall be reduced after implementation of the Works Contract from 37 ha to 25 ha – any freestanding objects (fences, garden sheds, etc.) located between the new embankment and the river shall be demolished and removed.

Within the framework of protection against leaks it is expected to develop an anti-filtration membrane within the crest – with minimum thickness of 0.4 m and depth of 8.0 m – over the entire length.

All actions planned within the framework of the Works Contract were described in Appendix no. 1 to this decision: "Characteristics of the Planned Works Contract".

**II. Conditions for the use of land on the implementation stage and on the use stage or at the use of Works Contract, with special inclusion of necessary protection of valuable environmental values, natural resources and heritage, and limitation of nuisance to the neighboring sites:**

1. The construction works shall be performed beyond the period of flood risk occurrence. One shall develop a proceeding manual for the potential event of flood after the commencement of works.
2. Organization of the construction site shall include the protection of land, particularly comprising inclusion of a rule of minimizing the acquisition area and transformation of its surface. One shall adopt a minimum width of the work strip to reduce the area of vegetation to be damaged.
3. The temporary plant and facilities should be located in the furthest possible distance from residential buildings, and they cannot be moreover located within the embanked are of the River Biała. The temporary plant and facilities in a form of re-loading/storage/construction yards shall be fenced and hardened using concrete road slabs. A sealed fueling spot and a place of minor repairs for construction equipment shall be set out within the yard (the sealing shall include placement of geo-membrane – foil underneath concrete slabs).
4. One shall apply modern and fully technically efficient construction equipment and means of transportation; technical conditions of operating construction and transportation machines shall be inspected on an ongoing basis, especially in terms of oil derivatives' leakage.
5. One shall apply protection (tarpaulin, sheet or other type of cover) on trucks transporting loose material, which may dust during the delivery, for the purpose of limiting a non-organized emission of dust to the air.
6. In spots, where heavy equipment exits from the construction site to public roads, one shall organize posts, where soil or mud would be removed from wheels of vehicles. Lanes of public roads shall be cleared off of pollution brought from the construction site in order to prevent secondary dusting from soil transferred by wheels of vehicles providing services for the site.
7. One shall periodically sprinkle the uncovered land to avoid dusting in case of favorable weather conditions (drought, wind).
8. The works done with application of construction equipment shall be limited to the daytime, i.e. from 6.00 am to 10.00 pm.
9. Operations of machines and equipment at idle shall be eliminated.

10. One shall avoid unnecessary, excessive concentration of the works including application of heavy construction equipment.
11. The number of truck deliveries for construction materials shall be limited to the necessary minimum.
12. Routes of construction equipment and of vehicles transporting construction materials should be set out within the existing traffic arteries and limited to the necessary minimum. In case development of additional, temporary access roads (technical lanes) to the Works Contract's construction site would be necessary, temporary course made of reinforced-concrete slabs – with a width of up to 3.0 m – shall be arranged within their route, and it shall be removed after the completion of works.
13. The area of works should be clearly marked, in a way visible for operators of heavy equipment, so vegetation located beyond the designated area of works would not be damaged.
14. One shall remove a top layer of soil from the area of construction works prior to the commencement of works, and stock it in piles in vicinity of the work line. One shall keep its proper humidity (sprinkle, if necessary) until its re-use for the final shaping of the embankment and neighboring sites. The top-soil layer should be used completely for the land reinstatement.
15. The works associated with the removal of top layer of ground shall not be done during intensive rainfall and just afterwards.
16. Prior to the commencement of removal works in the area of newly developed embanked area one shall list flora. Any identified specimens of alien plant species and of invasive species shall be removed from the newly developed embanked area.
17. The removal of trees and shrubs shall be limited to the necessary minimum. The logging shall be done beyond the hatching season of birds – from October the 16<sup>th</sup> until the end of February. Occasional logging may be done during the hatching period of birds under environmental supervision – only after an ornithologist states that nests or hollows are not occupied, and that nestlings are not present or that trees or shrubs to be removed are not inhabited by other animals under protection.
18. At least 3-years-old seedlings with covered root system shall be applied for planned planting. The planting shall be protected against biting by deers and hares.
19. Within the area set out by a projection of trees remaining beyond the construction zone one shall observe the following bans: ground condensation, storage of construction materials, stopping and parking of heavy construction equipment.
20. Trunks of trees not to be logged shall be protected for the time of construction works against potential mechanical damages (e.g. through application of fencing, trunk covers made of straw mats or jute, cover made of planks or OSB boards – up to the level of at least 150 cm). Tree boughs shall be protected by e.g. tying the bottom or low branches (boughs) to the higher ones or supporting with a support, so bark would not be damaged. The investor is obliged to assure that the Contractor protects trees and shrubs in a way securing their effective protection against mechanical damage.
21. The construction site, and especially opened excavations, shall be properly protected against forming of traps for animals. At the end of every working day one shall protect such sites by filling, covering with stiff material (e.g. planks, chipboards) or tight fencing.
22. The excavations shall be left opened for the shortest possible time.

23. On every working day one shall – prior to the commencement of works – inspect the construction site in terms of animal presence, and – similarly – the bottom and the walls of excavations shall be inspected prior to their removal (filling, embedding). If necessary, one shall allow the animals to leave the excavations, and – eventually – catch the animals manually and release them beyond the Works Contract area.
24. During the construction works one shall avoid forming of ruts and other land pits, in which water may stay, in order to avoid potential unstable breeding habitats for amphibians.
25. If within the Works Contract area seasonal migration of amphibians would be identified, the construction site shall be protected to disable migration of amphibians to the site, where they would be endangered due to the works – for that purpose one shall properly fence the construction site with a fencing of a minimum height of 0.5 m, including a 10 cm overhang placed outside (e.g. foil, agro-textile). In the bottom part the fencing material shall be dug into the ground – the fencing needs to tightly adjoin the ground and it needs to be anchored. Amphibians shall be caught and transferred to the area beyond the Works Contract under environmental supervision done by an expert naturalist, who is experienced in field work and has knowledge and is skilled in recognition of species and habitats in a wide scope.
26. It is not allowed to obtain soil from the embanked area.
27. Vehicles are not allowed to enter the River Biała channel, and any other interference in that channel, including intake of water or extraction of aggregate from the river-bed for the Works Contract's construction purposes, is not permitted.
28. The slope for construction of the embankment shall be made of natural soil. Materials delivered and applied for the construction shall be inspected, and the source of soil shall be precisely inspected. The applied material cannot contain substances, which may be washed out – especially substances which are particularly harmful for the water environment, occurring in a form of soluble compounds.
29. Proper compaction of embankments shall be obtained through placement and compaction of the ground in layers with thickness of about 20 cm in order to obtain the compaction rate of  $I_s \geq 0.92$ .
30. Slopes of the flood embankment and any spots, from which grass would be removed, shall be formed using priorly removed soil (as a bank of seeds) and sown with a mix of such native grass as: false oat-grass (*Arrhenatherum elatius*), orchard grass (*Dactylis glomerata*), Timothy-grass (*Phleum pratense*), meadow foxtail (*Alopecurus pratensis*).
31. Organization of and technical conditions for the performance associated with the Works Contract shall eliminate the possibility of disturbance for water relations.
32. During implementation of the Works Contract one shall not allow for polluting or littering the River Biała channel and the embanked area, especially with diesel derivatives – the construction works cannot result in deterioration of the cleanliness of surface water and ground water.
33. Temporary plant and facilities shall be provided with absorbent to neutralize the potential failure leakage of dangerous substances (including diesel derivatives) from construction machines and devices and from the means of transportation.
34. In case of a failure resulting in contamination of the ground one shall immediately remove the polluted layers of soil and transfer them to the specialized company having relevant permits for dangerous waste management.

35. One shall properly manage waste – minimize the quantity of produced waste, collect it selectively in marked containers, within separated and properly organized sites, in conditions protecting it against the impact of weather conditions and the access of outsiders and animals; and it shall subsequently be transferred to units having relevant permit for taking-over, transportation, recovery or treatment of waste, respectively.
36. Temporary plant and facilities shall be provided with sanitary facilities, along with assurance of transfer of domestic sewage to the waste treatment plant.
37. In case of discovering fossil remnants of plants or animals one shall immediately notify the regional director for environmental protection about it.
38. In case of identifying during the construction works objects or items of archaeological value one shall immediately notify relevant conservatory authorities.
39. After the completion of works one shall reinstate the sites damaged during the construction works and remove any temporary elements of the works, including temporary plant and facilities and technical roads and lanes.

**III. Requirements related to the protection of environment which shall be included in the documentation required for the issuance of a decision discussed under Article 72 (1) of the Act of on providing information on the environment and its protection, public participation in the environmental protection, and on environmental impact assessments.**

1. Implementation of the Works Contract shall be synchronized with the construction of the left flood embankment at chainage about km 6+680 – 7+700 of the River Biała, so (through the development of the subject/developed embankment) flood hazard for the Koszyckie Estate in Tarnów would not increase.
2. The flood embankment should be designed using natural soil assuring proper parameters – endurance and compaction.
3. Temporary access roads / technical lanes (with a width of about 3 m) shall be set out in such a way to avoid a necessity of logging for trees or shrubs.
4. Design replacement planting in accordance with potential natural vegetation and in conformity with local habitat conditions – species of trees and their quantity shall correspond with native species and with the logged number of trees. It is not allowed to implement invasive alien species.

**IV. Requirements for preventing effects of industrial failures.**

The Works Contract is not implemented within plants forming a hazard of serious industrial failure occurrence.

**V. I do not impose an obligation to provide a repeated environmental impact assessment under the proceeding on the issuance of decisions discussed under Article 72 (1) item 18 of the Act of on providing information on the environment and its protection, public participation in the environmental protection, and on environmental impact assessments.**

**VI. I do not impose an obligation of providing a post-implementation analysis.**

**VII. I do not impose an obligation related to the monitoring of Works Contract impact on the environment.**

**VIII. I state the absence of a necessity to form a restricted use area.**

**IX. Requirements on limitation of transboundary impact on the environment.**

Transboundary impact of the Works Contract on the environment was not identified.

**X. Stating the compliance with the local spatial management plan.**

The Works Contract is related to the implementation of a new flood protection structure developed based upon the act on the special preparation rules for flood protection investments; thus – in accordance with the EIA Act – it is not necessary to state the compliance of its location with valid LSDP.

**XI. Characteristics of the planned Works Contract form Appendix no. 1 to this decision and remain its integral part.**

#### JUSTIFICATION

Mrs. Małgorzata Jelonek (Ecological Techniques and Investment Implementation Agency mkm PERFEKT Sp. z o.o., 1/411. Rzemieślnicza Street, 30-363 Cracow), acting on behalf of the Małopolskie Province – Małopolskie Board of Amelioration and Water Structures in Cracow (71. Szlak Street, 31-153 Cracow) [hereinafter referred to as the MZMiUW], applied on 01/12/2015 to the Regional Director for Environmental Protection in Cracow [hereinafter referred to as the Regional Director] for the issuance of a decision on environmental conditions for the Works Contract comprising Construction of the right embankment of the Biala River in the City of Tarnów at local chainage of km 0+000 – 0+695.

The following were attached to the application on the issuance of a decision on environmental conditions:

1. Two copies of the Investment Data Sheet, including appendices (+CD).
2. Power of attorney for Mrs. Małgorzata Jelonek (Ecological Techniques and Investment Implementation Agency mkm PERFEKT Sp. z o.o., 1/411. Rzemieślnicza Street, 30-363 Cracow) to represent MZMiUW in Cracow in the proceeding in question.
3. Copies of simplified extracts from the land register.
4. Site map in a scale of 1:1000.

Information on the provided application on the issuance of a decision on environmental conditions has been published in the Publicly Accessible Data Register [hereinafter referred to as the PDWD], on the website of Center of Environmental Information – Ekoportal <http://www.ekoportal.gov.pl> (sheet no.: 38/2015).

The subject Works Contract is qualified as an investment, which may potential affect the environment significantly, in accordance with Article 3 (1) item 65 of the Regulation of the Council of Ministers of November 9, 2010 on investments which may significantly affect the environment (OJ of 2016, item 71), which lists *flood protection structures, excluding redevelopment of flood embankments including sealing of embankment bodies and their base, in order to limit the possible washing out and failure during accommodation of flood water, and also regulation of water or its channeling understood as management of water allowing for their use for navigation purposes.*

In accordance with Article 71 (2) item 2 of the EIA Act, in case of the planned contracts which may potentially affect the environment significantly, it is required to obtain a decision on environmental conditions.

Implementation of the Works Contract is partially planned within closed properties of PKP: within register plots no.: 15/1, 25 – register area 274, Municipality of Tarnów, as listed in the appendix to decision no. 3 of the Minister of Infrastructure of March 24, 2014 on identification of land, where railway lines run, as closed areas (Mol OJ of March 24, 2015, item 25, as amended).

In compliance with Article 75 (6) of the EIA Act, in case of the Works Contract implemented partially within the closed area, a regional director for environmental protection issues a decision on environmental conditions for the entire Works Contract.

Simultaneously, the decision on environmental conditions shall be necessary for obtaining a decision on investment project implementation permit in accordance with provisions of the Act of July 8, 2010 on the special preparation rules for flood protection investments [compare with Article 75 (1) item 1 letter i) of the EIA Act].

Acting based upon Article 64 (2) of the APC and based upon Article 74 of the EIA Act, the Proxy was called in a note dated 01/21/2015, ref. no.: ST-I.4210.1.2015.MB, to supplement the filed application with the following:

1. Copy of a site map certified by a relevant authority, including the expected site, where the Works Contract shall be implemented, and including an area, which will be affected by the Works Contract.
2. Missing extracts from the land register comprising areas affected by the Works Contract.

In reference to the aforementioned notification, Mrs. Małgorzata Jelonek provided relevant documents along with a note dated 01/28/2018, ref. no.: BTT-117/MJ/2015, in which she simultaneously applied to the Regional Director for Environmental protection for removing the plot no. 307 area no. 267 Municipality of Tarnów from the range of application.

The Regional Director informed the parties in the notification dated 01/29/2015, ref. no.: ST-I.4210.1.2015.MB, about the commencement of proceeding to issue a decision on environmental conditions for the Works Contract titled “Construction of the right embankment of the Biala River in the City of Tarnów” at local chainage of km 0+000 – 0+695.

The planned Works Contract is classified to a group of investments, for which implementation of the environmental impact assessment procedure may be required based upon Article 63 (1), due to Article 59 (1) item 2 of the EIA Act.

As a consequence, the Regional Director requested the State District Sanitary Inspector in Tarnów in the note dated 01/29/2015, ref. no.: ST-I.4210.1.2015.MB, to issue an opinion on the obligation to provide an environmental impact assessment and to eventually establish the range of environmental impact report.

The State District Sanitary Inspector in Tarnów issued a sanitary opinion no. 33/2015 on 02/13/2015, ref. no.: NNZ.420.18.2015.2, in which he stated that the Works Contract titled “Construction of the right embankment of the Biala River in the City of Tarnów” at local chainage of km 0+000 – 0+695 requires implementation of the environmental impact assessment and development of the environmental impact report with a range compliant with Article 66 (1) of the EIA Act.

After analyzing the collected evidence and taking into account the aforementioned opinion of the State District Sanitary Inspector in Tarnów, the Regional Director identified in the decision dated 02/23/2015, ref. no.: ST-I.4210.1.2015.MB, that it is obligatory to perform an environmental impact assessment for the planned Works Contract comprising Construction of the right embankment of the

Biala River in the City of Tarnów at local chainage of km 0+000 – 0+695, and he simultaneously determined the range of environmental impact report – in accordance with the requirements determined under Article 66 of the EIA Act; and indicated issues which shall be included in the report in details. Information on the decision has been published in the PDWD (sheet no.: 179/2015).

As a consequence, acting in accordance with contents of Article 63 (5) of the EIA Act, the Regional Director suspended the proceeding on the issuance of a decision on environmental conditions for the Works Contract in question with a decision dated 02/23/2015, ref. no.: ST-I.4210.1.2015.MB, until provision of the environmental impact report. Information on the decision has been published in the PDWD (sheet no.: 178/2015).

On 05/11/2015 Mrs. Małgorzata Jelonek provided the Regional Director with a document titled: Environmental Impact Report for the Works Contract titled “Construction of the right embankment of the Biala River in the City of Tarnów” at local chainage of km 0+000 – 0+695 [hereinafter referred to as the EIA Report], as developed by the team of the following authors: Przemysław Kruk MSc (team leader), Natalia Błaszczuk MSc, Karolina Kruk B.A., Eng. Sylwia Jaworska MSc (KIK ECO LAB Przemysław Kruk, 5a. Karczówkowska Street, Room no. 227, 25-019 Kielce). Information on the report has been published in the PDWD (sheet no.: 469/2015).

As a result, acting in accordance with Article 97 (2) of the APC, the Regional Director restarted the suspended administrative proceeding on the issuance of a decision on environmental conditions for the Works Contract with a note dated 05/14/2015, ref. no.: ST-I.4210.1.2015.MB. Information on the resolution has been published in the PDWD (sheet no.: 496/2015).

The environmental impact assessment is done to identify and – subsequently – to minimize or eliminate the adverse impact of the Works Contract on the environment – for the purpose of providing a correct assessment it is necessary to have actual data on any possible impact of the Works Contract on the environment.

After analyzing the documentation provided on 05/11/2015 it was stated that the EIA Report filed during the proceeding aiming at the issuance of a decision on environmental conditions for the Works Contract in question does not meet the requirements determined under Article 66 of the EIA Act and under the resolution of the Regional Director dated 02/23/2015, ref. no.: ST-I.4210.1.2015.MB, in which it was informed that it is obligatory to implement an environmental impact assessment, and the range of environmental impact report was indicated therein. It was simultaneously stated that the EIA report does not contain sufficient information for determination of conditions for implementation of the Works Contract, and as a consequence it requires updating.

As a result, the Proxy was called in a note dated 06/10/2015, ref. no.: ST-I.4210.1.2015.MB, to update the aforementioned EIA Report through provision of a detailed range of necessary update and clarifications.

In reference to the aforementioned call, an updated and corrected EIA Report was filed with a note dated 09/24/2015, ref. no.: BTT-203/MJ/2015. The Proxy simultaneously requested the Regional Director in the aforementioned note to add plots no. 307 – area no. 276 Municipality of Tarnów, and 66/3 and 78/13 – area no. 192 Municipality of Tarnów to the application on the issuance of a decision on environmental conditions. It is necessary to redevelop an overhead power line within those plots. A corrected site map (2 copies) was also attached, including indication of an area, where the Works Contract shall be implemented, along with the Works Contract impact range; and including extracts from the land register for the aforementioned plots. Information on the updated report has been published in the PDWD (sheet no.: 79/2016).

After analyzing the EIA Report developed for the Works Contract in question and the update of (new) EIA Report, the Proxy was again called in a note dated 12/17/2015, ref. no.: ST-I.4210.1.2015.MB, to update the EIA Report.

Simultaneously, due to the Works Contract impact range on the environment proved in the update to the EIA Report, and therefore due to necessary extension of the number of proceeding parties, the Proxy was requested to provide the following along with the updated report:

1. Updated list of plots located within the Works Contract impact range.
2. Extracts from the land register for plots located within the area under the Works Contract impact (to establish at least 21 proceeding parties).
3. Copies of site maps – for the entire area where the Works Contract impact is expected – certified by a relevant unit.

In reference to the aforementioned call, Mrs. Małgorzata Jelonek provided the Regional Director on 02/01/2016 with the required update of documentation. Information on the updated report has been published in the PDWD (sheet no.: 80/2016).

During the proceeding it was established that – due to the proved range of impact for the planned Works Contract on the environment – the owners and the users of properties are also the proceeding parties, except for the parties listed in the notification dated 01/29/2015, ref. no.: ST-I.4210.1.2015.MB, located within the Works Contract impact range, as – in accordance with Article 28 of the APC – *Everyone whose legal interest or obligation refers to the proceeding remains a party.*

As a consequence, it was stated that the number of parties exceeds 20, and therefore – in accordance with delegation included in Article 74 (3) of the EIA Act – Article 49 of the APC was applied for the proceeding, and from that time the parties were notified about any actions of the authorities by notifications and announcements published in a common way.

As a result, a notification dated 03/07/2016, ref. no.: ST-I.4210.1.2015, informed that the Regional Director implements administrative proceeding on the issuance of a decision on environmental conditions for the Works Contract titled: “Construction of the right embankment of the Biala River in the City of Tarnów” at local chainage of km 0+000 – 0+695. A notification was published through placement on notice boards of the: Site Issues Department in Tarnów of the Regional Directorate for Environmental Protection in Cracow, City Office of Tarnów; on 9 notice boards at the planned Works Contract’s location (at FGA “Semafor”), on 3 notice boards at the Koszyckie Estate in Tarnów – within the Works Contract range (from 03/07/2016 to 03/22/2016); and it was also published at the website of the RDOŚ in Cracow: <http://bip.krakow.rdos.gov.pl/>.

After analyzing the provided evidence, the Regional Director – due to the impact of the planned Works Contract proved during the proceeding, e.g. on engineering objects – applied in notes dated 03/21/2016, ref. no.: ST-I.4210.1.2015.MB, to the following:

1. Board of Roads and Traffic in Tarnów [hereinafter referred as ZDiK in Tarnów] remaining the Administrator for the road bridge over Biała in the artery of Krakowska Street, with a request to make a standpoint on the impact of the planned Construction of the right embankment of the Biala River in the City of Tarnów at local chainage km 0+000 – 0+695, on a flood hazard for that object.
2. General Directorate for National Roads and Motorways Branch in Cracow [hereinafter referred to as GDDKiA] with a request to make a standpoint on the impact of the planned construction of the flood embankment in question on flood hazard for a road bridge over Biała in the artery of state road no. 94.

3. Regional Water Management Authority in Cracow [hereinafter referred to as RZGW in Cracow] remaining the Administrator of the River Biała, with a request to make a standpoint on the impact of the planned construction of the flood embankment on flood hazard for the City of Tarnów, including engineering objects, and especially the road bridge over Biała in the artery of Krakowska Street in Tarnów and the Koszyckie Estate in Tarnów.
4. Polish State Railways S.A. [hereinafter referred to as PKP S.A.] with a request to make a standpoint on the impact of the planned construction of the flood embankment on flood hazard for a railway bridge over Biała within a railway line Cracow – Medyka.

Essential case documentation, i.e. the EIA Report (updated version), was attached to the aforementioned notes in a digital form on electronic data carriers (CDs).

In reference to the notes listed above, the Regional Director received the following:

1. Opinion of GDDKiA Branch in Cracow received on 04/08/2016 (dated 04/04/2016, ref. no.: O.KR.z-4.432.2016rk.5380/3398), containing a negative assessment for the planned Works Contract due to the fact that as a result of developing new flood embankment the elevation of design water within the bridge over Biała – placed within the artery of DK 94 road – would be increased by 0.48 m.
2. Opinion of ZDiK in Tarnów received on 04/11/2016 (dated 04/08/2016, ref. no.: ZDiK.DE.431.32.2016.JS), stating that ZDiK in Tarnów does not see any direct flood hazard caused by the Works Contract determined in the application on the road bridge over Biała, in the artery of Krakowska Street.
3. Opinion of RZGW in Cracow received on 04/13/2016 (dated 04/08/2016, ref. no.: ZP-rr-773-2-7/16), containing the following information: *RZGW in Cracow states that the subject Works Contract may be implemented in its current form, assuming simultaneous determination of time and financial frames for implementation of the following stage of protection for the City of Tarnów by flood embankments (it is especially related to the construction of a section of embankments protecting the Koszyce Estate) and full awareness of the Investor that the occurrence of flood event on Biała Tarnowska prior to completing the construction of the left embankment may cause an increase of flood hazard for buildings located within that area.*

On 04/21/2016, upon an initiative of the Proxy, a meeting was held in the office of GDDKiA Branch in Cracow in relation to the impact of the planned construction of the embankment on flood hazard for engineering objects in the City of Tarnów. Representatives of GDDKiA Branch in Cracow, RZGW in Cracow, MZMiUW in Cracow, and RDOŚ in Cracow, as well as the Proxy attended the meeting.

In the note dated 04/22/2016, ref. no.: ST-I.4210.1.2015.MB, the Regional Directorate for Environmental Protection in Cracow – in reference to the note dated 04/08/2016, ref. no.: ZP-rr-773-2-7/16 – applied to the RZGW in Cracow with a request to present (based upon data and hydraulic-hydrological models held by RZGW in Cracow) the possible scale of flood hazard increase for the bridge objects resulting from implementation of the Works Contract titled: “Construction of the right embankment of the Biala River in the City of Tarnów” at local chainage km 0+000 – 0+695, and – further on – after developing the left embankment protecting the Koszyckie Estate in Tarnów.

In reference to the aforementioned note RZGW in Cracow provided its standpoint in an opinion dated 05/06/2016, ref. no.: ZP-rr-773-2-7-1/16, as follows: *As results from the provided analysis, construction of the embankment in accordance with the Works Contract titled “Construction of the right embankment of the Biala River in the City of Tarnów” at local chainage km 0+000 – 0+695 shall result in increasing the elevation of water-table at all of three bridges. In case of both road bridges, requirements related to the freeboard for the bottom of structures shall not be met in reference to*

*the design water-table's elevation. It was simultaneously stated that in case of a scenario comprising development of all investments planned under the FRMP (thus the embankments in question), elevations of water-table for all of three bridge objects shall be decreased by few centimeters in relation to the current state. Hereinafter we inform that our institution considers the fact that the subject Works Contract corresponds with the scope of actions limiting the flood hazard in Biała Tarnowska River Basin as the first stage of works expected under the FRMP, while being aware that the works on development of a flood protection system should be done starting from the top of the catchment, consecutively moving towards its bottom. Simultaneously, RZGW in Cracow is aware of the complexity of the investment process, including extremely significant factor associated with the obtainment of resources for particular investments, which in turn affects the order of implementation and may cause temporary rise of flood hazard. However, due to an overriding interest, i.e. final increase of the flood protection level in the Biała Tarnowska River Basin, the subject Works Contract may be implemented in its current form, while assuming implementation of the following stages of development for the flood protection system.*

On 05/30/2016 the SID in Tarnów received a note dated 05/23/2016, ref. no.: O.KR.Z-4.432.2016rk.5342/2016, from the Deputy Director of GDDKiA Branch in Cracow, containing a standpoint that GDDKiA identified hazards, which may occur due to implementation of the subject Works Contract; however, considering the overriding interest, which is the final rising of the flood protection level for the Biała Tarnowska River Basin, and the fact that the Works Contract shall remain the first stage of works foreseen in the FRMP, the Branch states that the subject Works Contract may be implemented in its current form, while assuming that following stages of developing the flood protection system would be implemented, provided that rescheduling of implementation for further stages, causing failure to meet the requirements for bridge objects, cannot form a basis for imposing a condition of rising the bottom of the structure or of providing other types of protection to remove a potential risk caused due to regulation works done on the River Biała Tarnowska, or application for their redevelopment submitted by the road administrator.

On 06/06/2016 the Regional Director has again applied in the note no. ST-I.4210.1.2015.MB – after the note dated 03/21/2016 – to the Headquarters of PKP S.A. with a request to provide a standpoint of PKP S.A. on the impact of the planned Construction of the right embankment of the Biala River in the City of Tarnów at local chainage km 0+000-0+695 on flood hazard for the railway bridge over Biała within the railway line Cracow-Medyka in the City of Tarnów.

PKP S.A. Properties Management Department in Cracow informed the Regional Director in a note dated 07/22/2016, ref. no.: KNKr.12.741.86.2016JD/3, that the note no. ST-I.4210.1.2015.MB has been submitted to PKP PLK S.A. Railway Line Authorities in Cracow and to PKP PLK S.A. Investment Implementation Center in Cracow with a request for provision of establishments.

Answer to the aforementioned request was provided to the SID in Tarnów on 08/10/2016 – note of PKP Polish Railway Lines S.A. Railway Lines Authorities dated 08/05/2016, ref. no.: IZDK5-513-28/1/16 – which contained information obtained from the Investment Implementation Center South – as given in a note dated 08/01/2016, ref. no.: IRRK3/2/3-0815-POLIŚ 5.1-7-294/16. In accordance with contents of the aforementioned note dated 08/01/2016, the designer's standpoint is as follows: *"The bridge has recently been redeveloped, and elevation of the structure's bottom is 197.84. As a consequence, Q1% and Q0.3% water elevations shall be changed. According to calculations done for the bridge after the redevelopment, Q0.3 elevation amounts to 196.03. Flow conditions underneath the bridge would also be modified due to the changed opening of the object. The bridge opening before the modernization was 65.36 m, whereas after the redevelopment it amounts to 73.60 m. The*

*minimum spacing from the bridge bottom to the highest water level cannot be smaller than 1.00 m. The table provided (attached to the opinion) for designed W1 informs 1.62 m at Q0.3. This is a rate meeting that condition."*

On 06/17/2016 the SID in Tarnów received a note dated 04/27/2016 containing remarks of leisure gardeners (55 signatures) on legitimacy of the planned construction of the flood embankment within the area of garden allotments "Semafor" in Tarnów. It was stated in the note that the level of water in June 2010 – during the flood determined as "the flood of the century" – flooded about 50% of garden allotments "Semafor", thus it was the greatest flooding of the area in 60 years; and the level of water has never exceeded the limits of garden allotments.

After analyzing all of the evidence, acting based upon Article 77 (1) item 2 of the EIA Act, the Regional Director applied in a note dated 08/23/2016, ref. no.: ST-I.4210.1.2015.MB, to the State District Sanitary Inspector in Tarnów – being a unit relevant for providing an opinion on the Works Contract in sanitary and hygiene terms – with a request to issue an opinion on implementation conditions for the Works Contract prior to the issuance of a decision on environmental conditions.

In the announcement of 08/23/2016, ref. no.: ST-I.4210.1.2015.MB, the proceeding parties were informed about the aforementioned request for opinion. The announcement was published through placement on notice boards of SID in Tarnów, RDOŚ in Cracow (from 08/23/2016 to 09/08/2016), CO of Tarnów (from 08/23/2016 to 09/06/2016), at the location of the planned Works Contract, and at the Koszyckie Estate in Tarnów (from 08/24/2016 to 09/07/2016), and it was also published at the website <http://bip.krakow.rdos.gov.pl/>.

The State District Sanitary Inspector in Tarnów provided a positive opinion in the sanitary opinion no. 263/2016 dated 09/14/2016 (reception date: 09/19/2016), ref. no.: NNZ.420.124.2016.2, for environmental conditions for the aforementioned Works Contract in terms of hygiene and health requirements – while keeping all technical, technological and organizational solutions resulting from the environmental impact report, including updates, protecting the surrounding and the environment, and – as a result – health of people against adverse impact of the designed Works Contract. Those requirements were included among conditions imposed onto the Investor by this decision.

Acting based upon Article 33 (1) and Article 79 (1) and due to Article 74 (3) of the EIA Act, the Regional Director informed the proceeding parties in the announcement of 09/20/2016, ref. no.: ST-I.4210.1.2015.MB, and simultaneously notified the public about the possibility of acknowledging the EIA Report and complete case documentation for the proceeding on the issuance of a decision on environmental conditions for the planned Works Contract considering Construction of the right embankment of the Biala River in the City of Tarnów at local chainage of km 0+000 – 0+695, and also about the possibility of providing remarks and conclusions on the aforementioned Works Contract within 21 days – from 09/22/2016 to 10/12/2016, inclusive. Simultaneously, the public was informed about the: subject of the decision, which is to be issued in that case; relevant authorities issuing the decision; and proper authorities for the issuance of opinions. The announcement was published through placement on notice boards of SID in Tarnów, RDOŚ in Cracow (from 09/20/2016 to 10/13/2016), CO of Tarnów (from 09/20/2016 to 10/12/2016), at the location of the planned Works Contract, and at the Koszyckie Estate in Tarnów (from 09/21/2016 to 10/21/2016), and it was also published in the Public Information Bulletin of the RDOŚ in Cracow – at the website <http://bip.krakow.rdos.gov.pl/>, where a complete version of the EIA Report was also made available.

As a consequence of the aforementioned notification none of the proceeding parties of the interested parties informed its will to acknowledge the collected case documentation. Neither

remarks nor conclusions were provided within the indicated deadlines for the Works Contract in question.

The Regional Director – acting based upon Article 10 (1) and Article 49 of the APC, and due to Article 74 (3) of the EIA Act informed the proceeding parties in a notification dated 10/21/2016, ref. no.: ST-I.4210.1.2015.MB, about completing the evidence hearing for the issuance of a decision on environmental conditions for the subject Works Contract and about the possibility of acknowledging the entire documentation collected and discussing prior to the issuance of decision on collected evidence and materials and on raise demands. The announcement was published through placement on notice boards of SID in Tarnów, RDOŚ in Cracow (from 10/21/2016 to 11/04/2016), CO of Tarnów (from 10/21/2016 to 04/11/2016), at the location of the planned Works Contract, and at the Koszyckie Estate in Tarnów (from 10/21/2016 to 11/09/2016), and it was also published at the website <http://bip.krakow.rdos.gov.pl/>.

No demands, reservations, remarks and conclusions were provided within the indicated deadline for acknowledging the documentation and discussing on collected evidence and materials and submitted requests prior to the issuance of decision.

Development of the environmental impact report allowed for adopting optimal solutions leading to reduction of the adverse impact of the Works Contract on particular elements of the environment.

The authorities issuing the decision in question verified whether the planned Works Contract affects the environment and health of people adversely. Data used for the analysis was updated in the report and it meets all legal regulations and rules for the development of documents of that type. The report, including updates, unequivocally indicates areas of adverse and positive impacts associated with the construction stage and the operational stage. The possible impacts and the potential hazards associated with the implementation and the use of the Works Contract were determined based upon quantitative analyses done for the EIA Report (updated and corrected), and they allowed for proposing measures preventing and mitigating potential adverse impact on the implementation stage and on the operational stage of the Works Contract.

Based upon the collected data and upon analyses included in the documents provided, implementation and use conditions were defined to assure the protection of environmental values and natural resources, and to limit nuisance for neighboring sites.

The planned Works Contract shall include construction of the right flood embankment of the River Biała in Tarnów, within FGA “Semafor”.

### **Description of analyzed variants**

Within the framework of the planned Construction of the right embankment of the Biala River in the City of Tarnów at local chainage of km 0+000 – 0+695 four implementation variants were prepared for the Works Contract:

Variant “0” stating leaving of the current condition;

Variant “1” stating construction of the embankment along the River Biała;

Variant “2” stating construction of the embankment within the area of FGA “Semafor” (option recommended by the Investor);

Variant “3” stating construction of the embankment in such a way that the highest possible retention was kept within the embanked area (total removal of allotment gardens).

The Works Contract refers to the construction of river embankments within an urbanized area. The necessary connection of the Works Contract with the existing facilities and adapting it to the present land management limit the possible consideration of variants in terms of location.

In accordance with data included in the EIA Report, public hearings were done in attendance of the Board, owners and users of the "Semafor" garden allotments during preparation of the Works Contract. A result of the public hearing was a positive opinion of the FGA "Semafor" Board on the route of the embankment.

Variant "1" means implementation of the Works Contract comprising construction of the flood embankment in such a way to minimize interference with the existing garden allotments. The route of designed embankment would run in the area of gardens' fencing, using the slope of the River Biała, and subsequently – along a dirt road until reaching a railway embankment of PKP. Such a solution would be associated with narrowing the Biała river bed, what would be highly unfavorable – mainly due to a small distance from the railway bridge. At high water level there would be no place for its storage within the embanked area, what may cause damming of water at the bridge and significant weakening of its structure. Such a location of the embankment may cause occurrence of erosion during accommodation of a flood wave. The flood embankment in that location may also disturb the possibility of free migration for fauna along the river bed.

Variant "2" means construction of the flood embankment within the area of garden allotments (about 250m from the bank slope of the Biała river bed) and exclusion of about 30% of garden allotments from use. The newly designed embankment would start in the area of the railway embankment, and its end would be located at the parking for garden allotments – at the end of Św. Katarzyny Street, remaining an extension of the existing embankment. Moving the embankment from the existing Biała river bed would result in forming an embanked area, which may remain an additional natural area for water storage during flood events. The area of garden allotments is highly modified by human, whereas after implementation of the Works Contract the area – within the freshly formed embanked area – would slowly start to restore its natural state.

Variant "3" expects such a location of the new embankment, which would assure the highest possible water storage within the newly formed embanked area. The embankment route would run from the junction with the existing embankment, along Św. Katarzyny Street, and then perpendicularly, along residential buildings due north, until reaching the railway embankment. Such a route of the embanked would increase the flooding surface within the embanked area in comparison to variant "2" by about 20 ha – i.e. the area of potential retention of 600 000 m<sup>3</sup>. Analyses done for the EIA Report prove that in case of flood wave occurrence (adopted flow of 1230 m<sup>3</sup>/s) the retention capacity of that area would be small (filling time of about 10 minutes) and it would not significantly affect the reduction of flood hazard for the City of Tarnów. Such a location of the embankment would cause necessary removal of the entire area of "Semafor" garden allotments (about 37 ha).

The EIA Report provides a multi-criteria analysis for variants based upon comparative analysis method presented in the study titled *"Zastosowanie analizy wielokryterialnej do wyboru preferowanego wariantu ochrony przeciwpowodziowej w zlewni wykorzystywanej w analizach planistycznych regionu wodnego Górnej Wisły"* [*"Application of multi-criteria analysis to select the preferred flood protection variant for the river basin used for planning analyses for the water region of Upper Vistula"*] done upon an order of RZGW in Cracow.

After analyzing the environmental and social aspects, necessary financial expenditures for implementation of variant "3" and deadlines, the Investor adopted variant "2" of the Works Contract for implementation.

In accordance with data included in the EIA Report, the assumed flood protection method presented in variant "2", i.e. the one adopted for implementation, is in conformity with establishments made in the following documents:

1. *Concept for construction of flood embankments of the River Biała in Communes of Bobowa, Ciężkowice, Gromnik, Tuchów, Pleśna, Tarnów, and in the Municipality of Tarnów*, including update, as developed by the JV of BJORNSEN BERATENDE INGENIEURE GMBH and CONECO-BCE Sp. z o.o.
2. *Investment Programme Analysis for the Dunajec River Basin (IPA)* – as a measure indicated for implementation. The route of embankment developed follows the route presented in that study.
3. *Draft Flood Risk Management Plan for the Water Area of Upper Vistula*. The planned solutions have been indicated as measures necessary in the first planning cycle for the Dunajec river basin. Based upon an analysis of integrated flood risk's distribution for the area of Upper Vistula, that draft indicated the Municipality of Tarnów as the municipality with increased flood risk level (level 3). However, based upon the analysis of the area covered by the Flood Protection Plan for the Upper Vistula River Basin (POPGW), Tarnów was indicated – based on a method of developing flood risk management plans for river basins and water regions – as a city having unacceptable level of flood risk.

Considering the aforementioned factors, the authorities determined in a conclusion to this decision a series of measures mitigating adverse impact of the Works Contract implemented in accordance with variant "2".

### **Scale and location of the Works Contract**

Implementation of the Works Contract shall relate to the necessary removal of facilities from garden allotments in the area of about 12 ha, due to the use of land for the embankment and for the embanked area. Construction of the designed right embankment of the River Biała is mostly located within FGA "Semafor", the area of which – after completion of the Works Contract – shall be reduced from 37 ha to 25 ha. Any free-standing objects (fencing, garden sheds, etc.) located between the new embankment and the river shall be demolished and removed – in accordance with guidelines of the Regional Water Management Authority in Cracow, as a future administrator of that area.

Location of the Works Contract: register plots no. 1/2, 98/13, 98/14 – area 273, Municipality of Tarnów; 1/1, 1/8, 1/9, 1/14, 1/18, 1/19, 1/20, 1/21, 1/22, 1/23, 1/24, 15/1, 16, 25 – area 274, Municipality of Tarnów; 281, 307 – area 276, Municipality of Tarnów, 66/3, 78/13 – area no. 192, Municipality of Tarnów.

Between the area of garden allotments and the river bed of Biała there are green areas over a width of 40-150 m. The closest residential area is located in a distance of about 200 m due south-east – those are residential buildings at Św. Katarzyny Street and at Tomasza Dąbala Street.

Within the Works Contract framework it is planned to: seal the planned embankment with anti-filtration membrane in a form of hydro-insulating membrane at the embankment crest; develop roads at the embankment within the area beyond the embankment, including a crossing ramp and entry roads to the embankment crest; and redevelop and protect the existing facilities (fencing, water-supply pipe, sewerage network, gas piping, teletechnical network, and power line), including removal of the existing infrastructure located at the new embankment (fencing, water-supply pipes, power cables). Additionally, existing sections of water-supply network shall be redeveloped within the area of garden allotments. Free-standing objects and fences, which are located within a route of

the new embankment and within the new embanked area shall be totally removed – in accordance with guidelines of RZGW in Cracow.

In conformity with Regulation of the Minister of Environment of April 20, 2007 on the technical conditions for hydraulic structures and their location (OJ of 2007, no. 86, item 579), the subject embankment is Class II structure. A characteristic status for that class is the occurrence probability of  $p=1\%$  (design flow  $Q_d$ ) and the occurrence probability of  $p=0.3\%$  (control flow  $Q_c$ ). For the purpose of establishing a safe freeboard, model simulation were done for a flood wave having the aforementioned occurrence probabilities, for the current and for the final condition, including construction of embankments under the Works Contract. Valid hydrological data provided by the Institute of Meteorology and Water Management in Cracow were used for the study. Based upon the results of hydraulic modelling done for the flood event with peak flow's occurrence probability of  $p=1\%$  (1 in 100 years) and of  $p=0.3\%$  (1 in 333 years), flood zones were determined for  $Q_{1\%}$  and for  $Q_{0.3\%}$  below. In compliance with the Regulation, elevation of safe freeboard shall amount to 1.0 m over the elevation at probability of  $p=1\%$  or 0.3 m over the elevation at probability of  $p=0.3\%$ . The final model was developed as a transformation of the base model, which included implementation of the required elevation of the embankment crest.

In accordance with the results of hydraulic calculations done, the surface of the current flood zone, which shall be removed due to the construction of the embankment in question, is  $0.829 \text{ km}^2$ . It shall simultaneously be emphasized that the construction of the embankment, along with extension of the existing embankments (accumulation of impact has been assumed) shall result in water damming of maximally 58 cm. In conformity with the developed hydraulic model, the scope of impact for the embankment section in question occurs in a reach from km 2+437 to 11+179, i.e. over a length of about 3.5 km downstream of the designed section, and over a length of about 6.7 km upstream of the designed section. The impact of the designed embankment section shall not reach the estuary of Biała to the River Dunajec, and – in compliance with calculations – it shall not cause an increase of flood hazard for the Dunajec River.

### **Impact on people and material goods**

At performance of the construction works, transformation and use of environmental elements shall be done only to such an extent, in which it is necessary due to implementation of the Works Contract.

Network of technical infrastructure shall be redeveloped in accordance with technical conditions obtained from its administrators. Necessary redevelopment of technical facilities does not form an investment in reference to the provisions of the Regulation of the Council of Ministers of November 9, 2010 on the investments which may significantly affect the environment (OJ of 2016, item 71).

In accordance with contents of the EIA Report the construction of the new embankment within garden allotments in the City of Tarnów shall not affect the flood safety status for the areas located on the opposite bank of the River. A flood embankment is currently located there, and its height is sufficient, even in case the water level would rise due to the development of newly designed embankment.

Significant impact of the construction of the new embankment and of the extension of the existing embankments shall be seen in areas located on the left bank of the River Biała between the railway bridge in the artery of Krakowska Street and the bridge in the artery of state road no. 94 (Koszyckie Estate, area of FGA "Metalowiec"). Those areas currently are (except for the garden allotments) placed within a flood zone for water having the occurrence probability of  $Q_{0.3\%}$ . After

implementation of the Works Contract in question the flood safety for those areas will be deteriorated – the area of residential estate and the most of garden allotments would be located within flood hazard area for water having the occurrence probability of Q1%.

In the note dated 05/06/2016, ref. no. ZP-rr-773-2-7-1/16, RZGW in Cracow informed the Regional Director that after considering the provided documentation it made an internal GIS analysis based upon flood zones for two scenarios – for the present condition and for the target state (i.e. with completion of the embankment) – basing upon flood zones established by the hydraulic modelling results done by the Designer. The analysis applied data on residential houses from the Data Base of Topographic Objects. The analysis done proved that the construction of the embankment section in question shall protect 292 residential buildings and shall simultaneously increase flood hazard for the opposite bank. The analysis proves the fact that implementation of the subject Works Contract without simultaneous construction of the left embankment in the area of Koszyckie Estate shall result in increasing the flood hazard therein.

Therefore, the subject Works Contract may be implemented in the current form only at simultaneous determination of time and financial frames for implementation of a further stage of protection for the City of Tarnów with flood embankments (it is especially related to the construction of embankment section protecting the Koszyckie Estate), and at full awareness of the Investor that the occurrence of flood on Biała Tarnowska River prior to the completion of the left embankment may cause the increase of flood hazard for buildings located in that area. It indicates a necessity of constructing the embankments protecting the Koszyckie Estate first, and just then – implementation of the subject embankment in the area of FGA “Semafor”.

For the purpose of flood protection for the Koszyckie Estate one shall extend the existing left embankment of the River Biała, which currently ends at Krakowska Street. Construction of flood embankments in the area of Koszyckie Estate was included in the Investment Programme Analysis for the Dunajec River Basin (API) as a significant measure, which shall necessarily be implemented, and in the Flood Risk Management Plan (FRMP) on the 1 planning stage for the years 2016-2021. The route of the aforementioned embankment has initially been forecasted along Koszycka Street (in reference to a high slope in the area of Krakowska Street), and then along Mieszka Street, until reaching the Family Garden Allotments “Metalowiec”. The height of earth embankment shall vary from about 1.0 m (in the area of Krakowska Street) to about 3.0 m – until reaching the area of garden allotments (land elevation of about 200.40 m a.s.l.).

The hydraulic analysis done within the framework of hydraulic model proves that after implementation of the Works Contract minimum distance between the bridge bottom and the design water-table shall be kept – in accordance with the regulations – for the railway bridge section.

In case of the road bridge in the artery of Krakowska Street the Works Contract shall result in increasing a depth at the upstream station of the road bridge by 56 cm – from 198.17 to 198.73 m a.s.l.; what – at the minimum elevation of the bridge bottom of 199.05 m a.s.l. – shall allow for keeping the freeboard of 0.32 m.

Extension of the existing flood embankments located within the City of Tarnów (over their entire length) shall be done within a framework of separate design documentation (titled “Expansion of Flood Embankments and Construction of the Right Embankment of the River Biała in Tuchów, Tarnów, City of Tarnów”). Due to implementation of those two contracts, issues associated with flood hazard within the City of Tarnów from the estuary of Biała to the estuary of Wątok Stream (right embankment) and to Krakowska Street (left embankment) shall be solved.

## **Environmental conditions**

The Works Contract is located in the area strongly modified by human – within garden allotments, at administrative boundaries of the City of Tarnów.

In accordance with information included in the EIA Report, species of plants protected based upon the Regulation of the Minister of Environment of October 9, 2014 on the protection of plant species (OJ of 2014, item 1409) and species of fungi listed in the Regulation of the Minister of Environment of October 9, 2014 on the protection of fungi species (OJ of 2014, item 1408) have not been identified within the area of the planned Works Contract.

It is necessary to remove trees and shrubs directly colliding with the planned Works Contract within its framework. The logging of trees and shrubs shall be limited to the necessary minimum allowing for implementation of the Contract – it shall be done only within an area designated for the new embankment. The logging should be done beyond the hatching season of birds – from October the 16<sup>th</sup> until the end of February. Occasional logging may be done during the hatching season under environmental supervision – only after the ornithologist identifies that there are no bird nests on trees or shrubs to be logged or that they are not inhabited by other animals under protection.

The necessary logging of trees shall be compensated by replacement planting, the scope and detailed location of which shall be established at undertaking the construction works. Alien and invasive species of perennials and shrubs shall be removed from the area of newly developed embankment.

Trees and shrubs, which shall not be logged, and which are located within and in vicinity of the construction yard, that may be damaged due to the works, shall be protected against possible mechanical damage.

The Works Contract area remains a spot of constant presence, feeding, nesting or breeding of animals under protection based upon the Regulation of the Minister of Environment of October 6, 2014 on the protection of animal species (OJ of 2014, item 1348). Implementation of the Works Contract cannot violate provisions of the protection of species resulting from the Act of April 16, 2004 on conservation of nature (OJ of 2015, item 1651, as amended) and the Regulation on the protection of animal species.

In case it would be necessary to remove habitats of protected species or in case of other departures from bans valid in reference to species under protection, it is required to obtain a permit from relevant authorities within a separate proceeding – in accordance with Article 56 of the Act on conservation of nature. Issuance of the permit on the protection of species shall be treated as an initial issue in accordance with Article 97 (1) item 4 of the APC, which decides on consideration of the case and issuance of the: decision allowing for the removal of trees, decision on development conditions and land management, construction permit, etc. Nonetheless, an initial issue is a legal issue of material character, which occurred during the proceeding on an individual case and is significant for its settlement. As a consequence, the permit on the protection of species should be obtained before the decision allowing for implementation of the Works Contract, if it is obvious that implementation of the Works Contract would be connected with actions banned in reference to the protected species. In case of the environmental impact assessment procedure one shall emphasize that the decision on environmental conditions does not allow for performance of actions banned in reference to the protected species.

During the construction works one shall avoid forming of ruts and land pits, in which water may stay, in order to avoid forming of potential habitats for breeding of amphibians, which – due to the temporary character of that phase of the Works Contract – would be unstable and removed after completion of the works, what may form a risk to the development of tadpoles.

Considering the necessity of minimizing the adverse impact of planned construction works on the environment, including protection against excessive interference of the Works Contract with animal habitats protected based upon the Regulation on the protection of animal species, conclusion of this decision imposes an obligation of implementing the Works Contract in compliance with the following conditions: limitation of logging for trees and shrubs to the necessary minimum allowing for implementation of the Contract; proper protection of trees and shrubs, which may be damaged, against mechanical damage caused by the works; proper protection of the construction site against forming of traps for animals; inspection of the construction site, including the bottom and walls of excavation before their removal in terms of animal presence, and – if necessary – allowing the animals for leaving the excavations, and potentially catching them and releasing beyond the Works Contract area; performance of some of the works under environmental supervision.

The area of works and of technical roads shall be marked in a clear way for operators of heavy equipment, what would allow for avoiding damaged to plants growing beyond the designated area of works.

There are no natural monuments within the area of planned Works Contract.

Areas performing the function of ecological corridors do not directly occur within the area of planned Works Contract. None of the actions undertaken within the framework of planned Works Contract collides with regional routes of migration for wild animals.

#### **Organization of temporary plant and facilities**

The temporary plant and facilities in the form of a reloading/storage/construction yard shall be fenced and hardened using concrete road slabs. Its particular location shall be hardened on the construction stage; however – due to necessary assurance of good communication and maintenance of the greatest possible distance from residential buildings – it is not expected to locate it on the side of Stanisława Kassali Street.

A tight place for fueling and minor maintenance works for construction equipment shall be set out in the area of fenced yard (sealing shall comprise placement of geo-membrane – foil – underneath concrete slabs).

Temporary access roads / technical lanes with a width of about 3 m shall be set out for the works, and they shall be used for traffic purposes and maneuvering with heavy equipment (excavators, bulldozers, etc.). Technical lanes shall run in such a way to avoid logging of trees and shrubs.

#### **Use of materials and raw materials**

The volume of: water, raw materials, material, fuel, and power used during the performance shall result from the adopted technology and from the type of equipment applied.

Construction materials shall be gathered at the temporary plant and facilities' yard, which would be hardened with concrete slabs. It is not expected to store spoil within the Works Contract area – it shall be delivered to the site on an ongoing basis.

In accordance with the EIA Report, the following shall be applied for implementation of the Works Contract:

- Water (for construction works and for social needs of the construction staff) – estimated at few hundred m<sup>3</sup> for the entire time of embankment construction;
- Electric power (also for lighting of the back-up facilities) – estimated at few tens kV;
- Fuel (diesel for machines and vehicles operating at the site) – estimated at up to few hundred liters for the entire time of construction;

- Aggregate (breakstone, rip-rap) – estimated at 2200 m<sup>2</sup>;
- Soil – estimated at about 30 000 m<sup>3</sup>;
- Concrete slabs – estimated at 700 m<sup>2</sup>;
- Mix of grass for sowing after the completion of works.

All materials applied for the performance shall be accepted for application in construction and engineering and have required certificates or attestation. Water shall be delivered in water-carts – it is not expected to take water in from the Biała river bed.

### **Impact on the environment**

Implementation of the Works Contract shall be related to temporary adverse impact on the environmental status, which would be seen and felt during the performance. On the performance stage it is expected to produce waste, domestic waste, and to generate pollutions to the air, and generate noise and vibrations.

A detailed schedule of construction works shall be developed by the Contractor, and its implementation shall be supervised by site managers: an order of implementation for the planned works shall be determined based upon an analysis of the scope of works expected in a technology design and upon the expected use of technical equipment. The expected time of performance was estimated at about 7 months.

The construction shall be done using construction equipment having technical parameters and capacity adapted to the size and character of the works. For the purpose of constructing the embankment it is expected to apply such typical mechanical equipment as: excavators, bulldozers, dumpers, and – if necessary – to manually perform the works. Specialized machines shall additionally be used to develop hydro-insulating membranes.

In conformity with information included in the EIA Report, up to four excavators shall operate simultaneously within the construction site. In order to limit the impact of transportation on the environment, operations of vehicles and construction machines at idle shall be limited during the works. All construction and logistics works shall be done during the day only. Due to the absence of soil storage within the Works Contract area, the expected deliveries shall be scheduled in time, thus intensity of traffic would be reduced to the necessary minimum.

On the performance stage one shall take care about proper protection of the construction site and parking and servicing spots for construction machines against penetration of pollutions into the ground (especially in case of diesel derivatives).

The earthworks may be done using efficient machines and devices only, so they would not cause degradation of the environment through leakage of diesel and fuel.

The Contractor shall have proper materials for immediate neutralization in case of failure leakage of diesel derivatives. The Contractor shall have a relevant proceeding manual in case of exceptional hazard to the environment caused by the construction works, and it shall strictly observe it.

Technical and technological solutions applied shall allow for limiting unfavorable impact of the Works Contract on cleanliness of soil and water environment, both: in case of surface water, as well as ground water.

### **Impact on the air**

Sources emitting gas and dust to the air on the performance stage are mainly the works associated with the use of diesel-propelled heavy construction equipment. On the performance stage there may occur a temporary increase of dusting from the means of transportation and from storage of

construction materials. Those emissions shall however be unorganized. Such pollutions shall be emitted to the air as: sulphur dioxide, nitrogen dioxide, carbon monoxide, PM 10 and PM2.5 suspended particulates, ammonia, benzene, aromatic hydrocarbon, aliphatic hydrocarbon. That emission would be limited by application of modern machines. During the earthworks, transportation and storage of construction materials, dust shall be also emitted (unorganized emission). Those pollutions shall however not reach high concentration, which would adversely affect the environment.

This decision imposes an obligation onto the Investor of meeting several conditions, fulfilment of which shall affect the reduction of dust and gas pollution emission to the air on the performance stage. Those are e.g.: application of protection (e.g. tarpaulins, sheets) on trucks delivering loose materials, which may cause dusting during deliveries; keeping the access roads in a condition limiting dusting and cleaning the course off of gathered mud and soil; assurance of proper organization of the construction works; elimination of operation of machines and devices at idle. Care for good technical condition of the machine base and its rational application shall assure keeping the emission at the lowest possible level. One shall moreover develop and implement such a plan of works to optimize the application of construction equipment and means of transportation, e.g. through reduction of unnecessary deliveries. It allows for stating that on the performance stage there would not be an excessive impact in case of emission to the air due to application of minimizing measures and to the fact that emission of pollutions to the air would be temporary.

Considering the character of works and relatively short time of performance, their impact on the condition of atmosphere shall be limited to the direct neighborhood of the planned works. The aforementioned emissions shall be short-termed and reversable – they shall cease after the completion of construction works. During the use of embankments the emissions shall not occur.

### **Acoustic climate**

Character of the Works Contract makes its acoustic impact noticeable on the performance stage only, as it is necessary to apply heavy construction equipment and to deliver construction materials. During the performance there shall be movable and spot sources of noise associated with preparation of land for implementation (including e.g. logging of trees and shrubs), loading, delivery and offloading of raw materials and materials, construction of the embankment, condensation of the embankment, development of hydro-insulating membrane, and clearance works connected with land leveling and sowing with grass. Exceeding the permissible noise standards may relate to the time of works of heavy equipment and truck deliveries in vicinity of emission sources. The noise generated on the Works Contract implementation stage shall be relatively temporary and shall cease after completion of the works. It results from the scale of Works Contract, applied technology, and the type of Works Contract.

Those impacts remain integrated with the scope of Works Contract and they cannot be completely eliminated. In order to minimize the impact of noise emission one shall e.g.: eliminate operations of machines and devices at idle, avoid unnecessary, excessive concentration of works at application of heavy construction equipment, reduce the number of truck deliveries for construction materials to the necessary minimum. Due to the presence of residential houses in vicinity of the construction site the decision states that it is necessary to perform the construction works with due care and only during the day; a series of other conditions associated with the performance stage was also determined. A solution decreasing the acoustic impact on the performance stage is limitation of emission at the source through application of modern machines and devices meeting standards and

provided with elements reducing emission of noise to the environment. An additional measure reducing the impact of the planned Works Contract on the performance stage on the environment would be the proper organization of works, including e.g.: not allowing for excessive concentration of operations of construction machines, and also performance of the construction works in the shortest possible time and only during the day, i.e. from 6.00 am to 10.00 pm. Furthermore, the temporary plant facilities shall be located in the furthest possible distance from residential buildings. Machines and devices applied at the performance shall meet the levels of acoustic power determined in the Regulation of the Minister of Economics of December 21, 2005 on the essential requirements for devices applied outside of rooms in terms of noise emission to the environment (OJ no. 263, item 2202, as amended). The works shall be done at garden allotments, which remain recreational and leisure areas under acoustic protection. During the use the Works Contract shall not cause emission of noise.

### **Waste management**

During implementation of the Works Contract construction waste shall be produced mainly, and those are: debris, glass, wood, plastics, power and telecommunication cables, water-supply and sewerage pipes, used containers for construction materials, as well as waste related to the development of hydro-insulating membranes, planned logging of trees and shrubs, and operations of the temporary plant and facilities, including domestic waste associated with leaving needs of the employees performing the construction works.

Waste produced during the development and removal of temporary plant and facilities shall be stored in receptacles and containers protected against pollution of the ground. Waste management shall be organized in a way enabling their selective collection in the area of planned Works Contract, what would allow for their subsequent recovery as recycling materials completely or partially, directly or by processing. Waste shall be stored at keeping the safety rules, and then they shall be handed over to specialized companies having relevant permits for taking-over, transportation, recycling or treatment of waste, respectively. Removal of hazardous waste and other than hazardous waste produced during the construction works shall be entrusted to a specialized company having relevant permits for running business related to hazardous waste management. In case of the waste management all provisions of the Act of December 14, 2012 on waste (OJ of 2013, item 21, as amended) shall absolutely be met.

The temporary plant and facilities shall be provided with portable toilets containing tight holding tanks, and sewage produced in them shall be transported to the waste treatment plan, when necessary. During implementation of the Works Contract no technological sewage would be produced.

On the Works Contract use stage waste shall not be collected – the only source of waste production shall be the works associated with mowing of plants on the embankment (waste having a code 20 02 01 *Biodegradable waste*).

### **Impact on the ground and water environment**

Unfavorable impact on the surface of earth during implementation of the Works Contract shall result from the necessary performance of the construction works. Construction of the embankment shall result from transportation of soil, mainly due to the development of embankments.

The expected impact on the surface of earth shall be local. Implementation of the Works Contract shall not require deep excavations.

During implementation of the Works Contract it shall be necessary to remove soil within the route of the designed embankment in order to assure proper parameters for the embankment and for its sealing. Due to the possible use of the entire soil removed within the Works Contract area the impact shall not be significant.

The Works Contract is planned within the body of surface water BSW Biała od Rostówki do ujścia (BSW code RW2000114214899). In conformity with the draft Update of Water Management Plan for the Vistula River Basin [uWMP] the BSW Biała od Rostówki do ujścia has the following characteristics: status – *natural body of water*; assessment of the status for the years 2010-2012 – ecological condition *weak* (rates determining the condition: *Ichthyofauna, Phytobenthos*), chemical status *good*, overall condition *bad*, environmental objective for the BSW *good ecological status* and *good chemical status*. In accordance with the uWMP the assessment of risk of not obtaining the environmental objective for the aforementioned BSW is: *under risk*; time derogation was applied for the planning period of 2016-2021 – departures from environmental objectives were adopted in accordance with Article 4 (4)-1 of the Directive 2000/60/EC of the European Parliament and of the Council of October 23, 2000 establishing a framework for Community action in the field of water policy (OJ UE L of December 22, 2000, as amended) [so-called Water Framework Directive]; a deadline for achieving the established environmental objectives was set out for 2021.

In accordance with a study titled "*Zasady weryfikacji przesłanek z art 4 ust. 7 Ramowej Dyrektywy Wodnej w odniesieniu do przedsięwzięć przeciwpowodziowych realizowanych w stanie prawnym obowiązujący przed i po 18 marca 2011 r.*" ["*Rules of verification for rationale under Article 4 (7) of the Water Framework Directive in reference to flood protection investments implemented according to legal provisions valid before and after March 18, 2011*"], which is available at the website of the State Water Management Authority, construction of new flood embankments may have an adverse impact on the status of water, as given in the Water Framework Directive. In conformity with that document, proper authorities – settling in case of the issuance of a decision on environmental conditions – should, based upon complete evidence, consider social, economic, as well as environmental reasons, and shall assess whether the interest related to implementation of the Works Contract or benefits coming from the implementation surpass the necessity of water protection against deterioration of its ecological function and deterioration of the status of land ecosystems and wet areas, which directly depend on water.

Impact of the Works Contract on chemical status of bodies of water is determined based upon the guidelines given in the Regulation of the Minister of Environment of July 21, 2016 on the classification method for bodies of surface water and on the environmental quality standards for priority substances (OJ of 2016, item 1187). Implementation and further operation of the Works Contract (essentially comprising the maintenance works, i.e. mowing of the embankments) does not provide new chemical substances to the environment, including priority substances. An analysis of the collected evidence proves that implementation of the Works Contract in question shall not adversely affect deterioration of physical-chemical, chemical, biological or morphological elements to the extent, which may cause deterioration of the status of bodies of surface water or not achieving the environmental objectives determined for them. Minor impact of the Works Contract on surface water also results from the fact that its implementation shall be done beyond the river bed, in a distance of about 250 m from the bank slope.

Implementation and further use of the Works Contract shall not deteriorate the water quality rates applied for the assessment of its chemical status. Conditions for the performance and rules for location and organization of the temporary plant and facilities, as determined in this decision, shall

protect surface water and ground water against their possible contamination, with diesel derivatives mainly. Furthermore, anti-filtration membranes planned for the Works Contract shall not reach non-permeable layers, thus the current water relations shall be kept, and extension of the water filtration route through the embankment – using sealing – shall not result in a significant modification for transferring shallow ground water in vicinity of the embankment. Considering that fact, one may state that the planned Construction of the right embankment of the Biala River in the City of Tarnów at local chainage of km 0+000 – 0+695 shall not adversely affect the chemical status of BSW Biała od Rostówki do ujścia.

Good ecological status is measured with the following biological coefficients: Phytobenthos – Multimetric Diatom Index (IO), Macrophytes – Macrophyte River Index, Benthos macro-invertebrates – multimetric coefficient MMI\_PL, Ichthyofauna – EFI+ coefficient. *Ichthyofauna* and *Phytobenthos* remain the coefficients determining the ecological status for BSW Biała od Rostówki do ujścia. The established environmental objective for that BSW is *good ecological status*. Good ecological status is the value of biological coefficients corresponding with Class II. The planned Works Contract – construction of the embankment – shall be implemented beyond the river bed and beyond the junction between the bank and the channel, with which coefficient-related biological organisms refer to; thus, it shall be deemed that in case of the Works Contract in question there shall be no impact on the aforementioned groups of coefficient-related organisms (direct damage to habitats, which may affect the composition and volume of coefficient-related organisms).

As a result of embanking the river valleys (construction of embankments) their retention is reduced, and the accelerated flow of water results in damage to vegetation. One shall however note that the planned Works Contract in fact remains a continuation for the existing embankments of the River Biała, which would be implemented within an urbanized area; thus, concentration of water in the channel and the accelerated discharge during floods in fact remain the current environmental condition. It may be therefore deemed that the planned Works Contract is neutral for biological coefficients; thus, it is neutral for the achievement of environmental objectives determined for BSW Biała od Rostówki do ujścia.

Impact of the Works Contract on the level of ground water shall be temporary and shall only occur during accommodation of flood waves. It shall be associated with the development of hydro-insulating membrane in the embankment body, which would modify the condition of water flow in the ground during floods, when hydraulic gradient is modified through rising the table of water dammed within the embanked area. In normal conditions the ground water levels vary depending on the level of water in the water-course. At designing of a depth of the membrane the type of subbase and the presence of non-permeable layers have been included. Geotechnical tests proved the occurrence of dusty loam, loamy sand, sand and gravel in the ground subbase. Cohesive soil is present in the top part of the subbase up to a depth of 3.5-4.0 m. Loose formations, i.e. sand and gravel, occur underneath loam. During drilling into the ground, water was present in the ground on a depth of about 4.5 m. The ground water reached during the drilling shall not affect the flood embankment foot and its stability, because during average flows and low flows the level of ground water at the river bank is associated with the level of water in the river valley, and it does not depend on the applied hydro-insulating membrane. It shall be varied depending on the level of water-table in the river. At designing a depth for the membrane the type of soil and occurrence of non-permeable layers, which have not been drilled, were taken into account – hydro-insulating membrane with a depth of 8.0 m (located 1.0 m b.g.l., counting from the embankment crest's elevation) shall not close the ground space below (uncontrolled "watering" of the areas shall not occur). Modification of the

ground water level during floods shall be temporary, and after accommodation of a flood wave the ground water shall restore its level from before the event. In accordance with the draft uWMP the Works Contract is simultaneously located within the body of ground water BGW no. 150 (BGW code GW 2200150) – status assessment (2012): chemical status *good*, quantitative status *good*, overall status *good*, risk assessment for not achieving the environmental objective: *not under risk*. It is an area set out for the intake of water to be consumed by people, and the environmental objective for that body of ground water is the maintenance of its good chemical status and good quantitative status. The Works Contract frames do not provide construction of any element that may affect the quantitative status or chemical status of ground water. The planned Works Contract – both: on the performance stage, as well as on the operational stage – shall not affect the quantitative status of the BGW due to the fact that it shall not be connected with organizing the intake of water. The Works Contract comprising construction of the embankment is not linked with development of deep excavations; thus, impact factors associated with modification of the quaternary water-table shall not occur. The Works Contract shall also be not connected with implementation of chemical substances to the ground, and therefore there will be no impact on its chemical status. Within the framework of planned embankment construction, it is planned to develop anti-filtration membranes. The planned membranes shall not reach non-permeable layers, and – in turn – it shall still be possible to discharge ground water towards the River Biała. In accordance with contents of the EIA Report, it is not planned to modify water relations in the area beyond the embankment in case of the Works Contract – in conformity with the natural drop of land water shall be discharged from beyond the embankment with the existing embankment culvert to the River Biała.

In accordance with Article 38e of the Act of July 18, 2001 – Water Law (OJ of 2015, item 469, as amended):

1. The environmental objective for a body of ground water is:
  - 1) Preventing or limiting the discharge of pollutions;
  - 2) Preventing deterioration, and improving the status;
  - 3) Protecting and undertaking recovery measures, as well as assuring the balance between the intake and supply of that water to achieve its good status.
2. Achievement of the objectives discussed in item 1 is particularly done through performance of actions determined in the water and environmental programme for the state, which includes gradual reduction of contamination for the ground water through reversing the significant and constant rise for pollution produced due to human actions. The significant and constant rise statistically and in environmental terms means the significant rise of concentration for polluting substances, group of those substance or a substance treated as a rate for the body of ground water.

Considering the above, implementation and use of the Works Contract cannot affect the quantitative status and the chemical status of the body of ground water. In case of the Works Contract in question the only serious hazard, which may cause adverse impact on surface water and on ground water, may be the potential failure of heavy construction equipment, and especially leakage of diesel derivatives. Hazards of that type are hardly forecastable; thus, for performance of the construction works one shall apply only the fully efficient equipment with tight drive and hydraulic systems, and in case of contamination one shall undertake standard measures to stop the spread of contamination and to remove them as soon as possible, in accordance with the binding regulations. For the purpose of complete elimination of potential possibility of ground water contamination, any locations designated for servicing of vehicles and construction machines shall be sealed (until the completion

of works). Domestic waste shall be collected in tight holding tanks, and regularly taken over by certified units.

Considering the above, one may deem that the Works Contract shall neither affect the chemical status nor the quantitative status of the BGW no. 150; thus it shall not contribute to not achieving the environmental objectives established for it.

An analysis of case documents allows for stating that the planned construction of the right embankment of the River Biała in the City of Tarnów shall not modify the characteristics of BSW or modify the level and features of BGW, which deteriorate the status of body of water or disable achieving the environmental objectives established for them.

Therefore, the adverse impact of the planned Works Contract on the possibility of achieving the determined environmental objectives, as given in the water management plan for the Vistula river basin is not expected [due to Article 81 (3) of the EIA Act].

### **Impact on areas under protection**

The Works Contract is planned beyond the area under protection based upon the Act on conservation of nature.

Within the framework of the environmental impact assessment the authorities verified the expected impact of the Works Contract on particular elements of the natural environment, including protection objectives for Natura 2000 sites.

The Works Contract is planned in a distance of about 2.2 km from the boundaries of Natura 2000 site Biała Tarnowska PLH120090, which covers a narrow valley of the River Biała in a reach from Śnietnica to the vicinity of Tarnów, excluding reaches of the river running through bigger localities. In accordance with the Standard Data Form (SDF) the following natural habitats are protected within the Natura 2000 site Biała Tarnowska PLH120090: Alpine rivers and the herbaceous vegetation along their banks [code 3220], Alpine rivers and their ligneous vegetation with *Myricaria germanica* [code 3230], Alpine rivers and their ligneous vegetation with *Salix elaeagnos* [code 3240], Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Pandion, Alnion incanae, Salicion albae) [code 91E0]. Among the species of animals, the following were identified as subject of protection: Romanian barbel [code 5264], European bullhead [code 1163], Atlantic salmon [code 1106], yellow-bellied toad [1193], thick-shelled river mussel [code 1032]. Generally, in case of Biała the occurrence of 16 fish species belonging to five families have been identified. The most important existing and / or potential hazards for the area are especially the following: regulation (straightening) of river beds, obtainment of gravel from the river beds and gravel-banks, cross-structures within water-courses affecting transportation of river rubble, presence of barriers for migration of ichthyofauna, presence of invasive plant species, removal of forest plants and shrubs from the bank line within the framework of flood prevention, illegal collection of wood, discharge of waste from households, and other pollution of surface water.

Within the framework of environmental impact assessment the Regional Director verified the expected impact of the Works Contract on the objectives of protection for Natura 2000 site Biała Tarnowska PLH120090, and deemed that implementation of the subject Works Contract – due to the lack of interference with the Biała river bed and its biological development – shall not result in the decrease of the number of species populations under protection within the aforementioned site or in the reduction of their occurrence range, and shall also not result in deterioration of the status of natural habitats, reduction of their area of modification of their characteristic features. As a consequence, it shall also be deemed that implementation of the Works Contract shall not

deteriorate integrity of the Natura 2000 site Biała Tarnowska PLH120090, and shall not adversely affect its connection with other sites of Natura 2000 network.

An analysis of collected case evidence proves that the area of planned Works Contract is located beyond water-mud sites, beyond shorelines, beyond areas adjacent to lakes, mountains or forests, beyond protected zones of water intakes and protected areas of in-land water reservoirs, and also beyond the areas, where environmental quality standards have been exceeded. There are no areas under health resort protection in vicinity of the planned Works Contract. The closest area of health resort protection is located in a distance of about 50 km from the location of the planned flood embankment.

### **Impact on cultural heritage**

Implementation of the Works Contract does not collide with archaeological sites and historic objects. According to the register of fixed heritage of the Małopolskie Province dated February 2015, as published by the Provincial Office for Heritage Protection in Cracow, there are the following historic objects – within the distance of about 2 km from the area of planned Works Contract – within the City of Tarnów: urban group of the estate owned by the Nitrogen Plant in Tarnów-Mościce, urban group – Dworcowy Square, PKP railway station, train shelters, area of park, house at 6. Czerwonych Klonów Street in Tarnów, building of a railway gatehouse at 5. Stanisława Kassali Street in Tarnów, war cemetery no. 200 (Tarnów-Chyszów), square with a cornerstone of the “Nasz Dom” (“Za Torem”) Estate at Obrońców Lwowa Street (Tarnów-Mościce), villa with its surrounding at 9. Jarzębinowa Street (Tarnów-Mościce). Implementation and the following use of the Works Contract shall not affect the aforementioned historic objects.

In accordance with a standpoint of the Małopolski Provincial Heritage Conservator in Cracow Office in Tarnów given in a note dated 04/29/2014, ref. no.: OZT.5183.113.2014.MSz-W.1, one shall take special care about the railway gatehouse (Kassali Street) at the railway bridge over the River Biała (section km 0+000-6+060). The object was entered into the heritage register for the Małopolskie Province with a decision dated 08/28/2014, ref. no.: A-1415/M. Implementation of the subject Works Contract does not affect the aforementioned object.

### **Impact on the landscape**

During the environmental impact assessment also the impact of the Works Contract on the landscape was analyzed, and it is essentially related to changes in consideration of the landscape by people, i.e. visual changes or visual and aesthetic changes, also understood as changes to the “spatial order” of the cultural landscape. The subject Works Contract comprises construction of the flood embankment remaining a continuation of the existing embankment within the highly transformed area – in the City of Tarnów. As a consequence, it shall be deemed that the planned Works Contract shall not deteriorate landscape values in the City of Tarnów.

### **Impact on the climate**

Location, character and scale of the Works Contract allow for stating that the planned construction of the right embankment of the River Biała in the City of Tarnów shall not cause the increase of pollution emission, which may affect changes of climate.

## Social conflicts

A risk of a social conflict occurrence was minimized through public hearings at attendance of the Investor and of the Board and owners of garden allotments "Semafor". Informational meetings were held on 06/04/2014 in the office of the Board of FGA "Semafor", and on 03/23/2015 in the City Office of Tarnów, and those formed individual consultation with the citizens.

As a result of public hearing a positive opinion was provided by the Polish Association of Gardeners' Board of FGA "Semafor" in Tarnów for the proposed location of the embankment (note dated 07/14/2014, ref. no.: 37/14).

Additionally, the Presiding Board of the Małopolski Board of the Polish Association of Gardeners in Cracow provided a positive opinion – with a resolution dated 11/21/2014, ref. no.: 76/2014 – for the location of the flood embankment on register plots no. 1/22 and 1/23 area no. 274 in Tarnów, which is currently being used by FGA "Semafor" in Tarnów.

The local society, which shall lose the garden allotments for the purpose of Works Contract implementation, provided the Regional Director with a note dated 04/27/2016 (reception date: 06/17/2016), containing remarks of gardeners on the legitimacy of the planned construction of the flood embankment in the area of FGA "Semafor" in Tarnów. In the opinion of its Authors, the planned Works Contract shall protect a small part of gardeners, and it shall not provide any benefit for the society, and will lead to degradation of the natural environment, including liquidation of habitats for numerous protected animals.

In reference to the opinion provided in the note that the planned Works Contract will protect a small group of gardeners and will not provide any benefits to the society, one shall emphasize that the Works Contract was planned based upon hydraulic and hydrological data and models. Flood plains were established based upon the results of modelling. In accordance with the results of calculations the area of the current flood plain, which shall be removed as a consequence of constructing the embankment, is 0.829 km<sup>2</sup>. In the current conditions Q0.3% water causes hazard to about 320 buildings, and in case of Q1% water – to about 110 buildings. Construction of the embankment in question is compliant with establishments made under the *Investment Programme Analysis for the Dunajec River Basin (API)* – as a measure indicated for implementation; and in accordance with the *Draft Flood Risk Management Programme in the Water Region of Upper Vistula (FRMP)* it was stated for implementation in the first planning cycle.

In reference to the opinion stated in the note that the Works Contract would degrade the natural environment, including removal of habitats for numerous protected animals, one shall emphasize that the Works Contract area is highly transformed – it is an area of garden allotments. As it was mentioned before, the decision on environmental conditions does not allow for implementation of measures banned in relation to protected species.

During the implemented environmental impact assessment and within the established deadline for participation of publics, the Regional Director did not receive any remarks or applications.

The proceeding parties were informed on the completion of evidence hearing for the issuance of a decision on environmental conditions for the planned Works Contract titled "Construction of the right embankment of the Biala River in the City of Tarnów" at local chainage of km 0+000 – 0+695 in the notification dated 10/21/2016; the Regional Director did not receive any remarks, applications or other related notes, and none of the parties attended the Site Issues Department RDOŚ in Cracow to acknowledge the case documentation personally, within the established deadline, when the parties have a right to refer to case evidence and materials and to inform their demands.

### **Transboundary impact**

Due to the character and the range of the Works Contract impact reaching the contract's vicinity it was deemed that the planned Works Contract shall not link with a risk of impact beyond the boundaries of the Republic of Poland; thus, the decision does not impose an obligation of performing a proceeding on transboundary impact on the environment.

### **Accumulated impact**

Accumulated impact of the Works Contract comprising extension of the existing embankments in the City of Tarnów and construction of a new embankment at the existing garden allotments shall be mainly considered in relation to the accumulated impact associated with the Works Contract's implementation stage. Impacts, which may be accumulated, essentially are as follows: impact on the acoustic climate, and impact on the air. Those impacts are integrated with the construction stage, and they cannot be eliminated. This decision imposes a series of obligations onto the Investor, meeting of which shall significantly reduce nuisance of the Works Contract's implementation stage.

The Works Contract is planned as one of many measures entered to the Draft Flood Risk Management Plan for the Water Region of Upper Vistula. Planned solutions have been indicated as necessary measures in the first planning cycle for the Dunajec River Basin. The Works Contract in question is also included in the Investment Programme Analysis for the Dunajec River Basin.

### **Repeated environmental impact assessment**

In the opinion of the Regional Director – at considering provisions under Article 92 (2) of the EIA Act – data provided on the issuance stage for the decision on environmental conditions in reference to the Works Contract allow for exhaustive assessment of the Works Contract impact onto the environment, and it is not necessary to implement an environmental impact assessment within the framework of issuing the decision, as discussed under Article 72 (1) of the EIA Act. The data collected allowed for exhaustive and comprehensive assessment of its impact on the environment, including impacts accumulated with other contracts, and for determining the Works Contract's implementation conditions. The assessment done proves that there is no significant accumulation of adverse impacts.

In accordance with Article 88 (1) items 1 and 2 of the EIA Act, the environmental impact assessment – done within the framework of proceeding on the issuance of or on the modification of a decision discussed under Article 72 (1) item 18 – shall be also implemented upon a request of a unit planning implementation of the Works Contract, submitted to a unit responsible for the issuance of the decision, or if the relevant unit for the issuance of the decision states that the application on the issuance of the decision contains changes in comparison to the requirements defined in the decision on environmental conditions.

### **Preventing the effects of industrial failures**

The Works Contract is not connected with industrial plants causing a hazard of serious industrial failures discussed in the Regulation of the Minister of Economics of January 29, 2016 on types and volume of hazardous substances, which – if present in the plant – decide on its classification to plants under higher risk or plants of high risk of a serious industrial failure (OJ of 2016, item 138). As a consequence, it is not obligatory to determine the requirements on prevention of the effects of industrial failures.

### **Necessary establishment of the restricted use area**

Analyses of the Works Contract impact on particular components of the environment – done for the EIA Report – did not identify a necessity of establishing restricted use areas.

Considering the above, after analyzing the case documentation it was stated that implementation of the subject Works Contract – at application of mitigation measures and conditions determined in this decision – shall not cause excessive nuisance to the environment.

As a consequence, it was decided as given in the conclusion.

### **INSTRUCTION**

The parties may claim against this decision to the General Director for Environmental Protection (52/54. Wawelska Street, 00+922 Warsaw) through the Regional Director for Environmental Protection in Cracow, Site Issues Department in Tarnów (5-9. Solidarności Alley, 33-100 Tarnów) within 14 days from the serving date.

As this decision (resolution) has not been claimed against in time and mode legally provided, it became final on 12/31/2016, and shall be implemented/  
Tarnów, 01/17/2017

pp. Regional Director  
for Environmental Protection in Cracow

Eng. Paweł Kozioł MSc  
Manager of Site Issues Department in Tarnów

REGIONAL DIRECTORATE FOR  
ENVIRONMENTAL PROTECTION IN  
CRACOW

Site Issues Department in Tarnów  
33-100 Tarnów 5-9. Solidarności Alley

Chief Specialist

Eng. Magdalena Budzyn MSc

*Decision released from stamp charge based upon Article 7 (3) of the Act of November 16, 2006 on the stamp charge (OJ of 2016, item 1827).*

### **Appendices:**

- 1. Characteristics of the Planned Works Contract – according to Article 82 (3) of the EIA Act.**

### **Recipients:**

1. Mrs. Małgorzata Jelonek, mkm PERFECT Sp. z o.o., 1/411. Rzemieśnicza Street, 30-363 Cracow.

### **CC:**

1. State District Sanitary Inspector in Tarnów, 10. Mościckiego Street, 33-100 Tarnów;
2. City Office of Tarnów, 2. Mickiewicza Street, 33-100 Tarnów;
3. Proceeding parties – notifications in the mode under Article 49 of the APC:  
/notice board of the CO of Tarnów/  
/notice board of the RDOŚ in Cracow Site Issues Department in Tarnów/  
/notice boards in the location of Works Contract implementation /
4. ST-I file.

**REGIONAL DIRECTOR  
FOR ENVIRONMENTAL PROTECTION  
IN CRACOW**

Tarnów, November 30, 2016

**Appendix to the decision on environmental conditions  
dated 11/30/2016, ref. no.: ST-I.4210.1.2015.MB**

**CHARACTERISTICS OF THE PLANNED WORKS CONTRACT**

in accordance with Article 82 (3) of the Act of October 3, 2008 on providing information on the environment and its protection, public participation in the environmental protection, and on environmental impact assessments (OJ of 2016, item 353, as amended)

The Works Contract considering **construction of the right flood embankment for the River Biała over a length of 695 m in the City of Tarnów, in accordance with variant "2"** shall comprise construction of the right flood embankment of Biała over a length of 695 m in the City of Tarnów . Beginning of the designed embankment shall be located in vicinity of a railway embankment at the Cracow – Medyka route, in the final section of Stanisława Kassali Street. Further on the embankment route shall run along the existing dirt road and through the Family Garden Allotments (FGA) "Semafor". The new embankment shall join the existing embankment in the area of Św. Katarzyny Street.

**Scale and location of the Works Contract**

Implementation of the Works Contract shall be associated with a necessary removal of facilities at the garden allotments, from the area of about 12 ha, due the use of land for the embankment and for the embanked area. Construction of the designed right embankment of the Biała River is mostly located within the garden allotments "Semafor", the area of which shall be reduced after implementation of the Works Contract from 37 ha to 25 ha – any freestanding objects (fences, garden sheds, etc.) located between the new embankment and the river shall be demolished and removed (according to the guidelines of the Regional Water Management Authority in Cracow as the future administrator for that land). The area where the Works Contract shall be located is owned by the Municipality of Tarnów or by the State Polish Railways.

Between the area of garden allotments and the river bed of Biała there are green areas over a width of 40-150 m. The closest residential area is located in a distance of about 200 m due south-east – those are residential buildings at Św. Katarzyny Street and at Tomasza Dąbala Street.

The Works Contract shall be implemented on the following register plots: 1/2, 98/13, 98/14 – area 273, Municipality of Tarnów; 1/1, 1/8, 1/9, 1/14, 1/18, 1/19, 1/20, 1/21, 1/22, 1/23, 1/24, 15/1, 16, 25 – area 274, Municipality of Tarnów; 281, 307 – area 276, Municipality of Tarnów, 66/3, 78/13 – area no. 192, Municipality of Tarnów.

**The scope of works**

Within the framework of constructing the right embankment of the River Biała in Tarnów it is expected to construct an embankment over a length of 695 m (km 0+000 – 0+695). The embankment shall be of trapezoid shape in its cross-section, with inclination of the riverside slope and of the

landside slope of 1:2, and with a crest width of 3.0 m, with slope inclination of 1:2 (riverside and landside), and 3.0 m wide crest.

Height of the designed embankment shall amount to:

- In the area of the railway embankment: about 2.0 m on the embanked area's side and about 0.95 in the area beyond the embankment;
- In the area of Św. Katarzyny Street: about 1.9 m on the embanked area's side and about 3.35 in the area beyond the embankment at Stanisława Kassali Street.

Crest elevation for the designed embankment shall amount to:

- In the area of the railway embankment (beginning of the designed embankment at local chainage km 0+000) – 197.82 m a.s.l.;
- In the area of Św. Katarzyny Street (end of the designed embankment at local chainage km 0+695) – 199.02 m a.s.l.

Rip-rap shall be placed on the crest and on slopes in a reach of about 10 m from the connection between the designed embankment and the railway embankment. At embankment crossings and at the entry road onto the embankment from the flood road (embankment chainage km 0+168-0+180 and km 0+660-0+695) the crest shall be hardened with concrete slabs. Sowing with grass is expected for the remaining area. It is also planned to construct a 3 m wide flood road at the embankment strip footing – reinforced with breakstone over a width of 3.0 m. At the entry road onto the embankment crest it is expected to reinforce it using concrete slabs. In the area of the designed embankment ramps it is expected to develop two entry roads onto the embankment from the road located at the embankment, as well as two entry roads hardened with concrete slabs onto the embankment from the embanked area – having a width of 3.0 m. It is additionally designed to construct 4 embankment turnpikes and 7 hectometer posts.

Within the framework of works to be done it is also planned to:

- Seal the embankment through development of an anti-filtration membrane at its crest on a depth of 1.0 m b.g.l., with a minimum thickness of 0.4 m and a depth of 8.0 m;
- Demolish fencing of garden allotments (including a fence located in the area of the Biała river bed over a length of 1100 m) over a total length of about 8913 m;
- Develop fencing for gardens on the landside of the embankment – over a length of about 500 m;
- Demolish about 175 free-standing objects, so-called garden sheds, at the designed embankment and in the area of shaped embanked area;
- Demolish internal water-supply system and power network located at the designed embankment;
- Redevelop two water-supply valves and a section of water-supply connection reaching a free-standing object;
- Redevelop and protect with protective tubes the existing gas piping – remove the existing piping and develop a new piping section in the same spot;
- Protect the existing teletechnical network through application of protective tubes;
- Redevelop and protect the existing sewerage system, including removal of storm drain's section and of the existing outlet, and discharge of water through the designed outlet and opened ditch to the River Biała; the ditch shall be reinforced using open-work slabs on geotextile and a palisade made of wooden piles; development of concrete stairs is expected in the area of the outlet;

- Redevelop the existing power and lighting network (removal of the existing and construction of 3 new posts, replacement of 1 existing post, removal and development of new overhead power cables, suspension of the existing power cables with new stress and transfer of the existing lighting fitting to the new post);
- Log trees in the amount of 461 and remove shrubs from the area of about 341.8 m<sup>2</sup>;
- Repair access roads, which may be damaged during the performance.

Network of technical infrastructure shall be redeveloped in accordance with technical conditions obtained from its administrators. The aforementioned redevelopment of technical facilities does not form an investment in reference to the provisions of the Regulation of the Council of Ministers of November 9, 2010 on the investments which may significantly affect the environment (OJ of 2016, item 71).

The construction site shall be fenced.

The expected time of Works Contract implementation was estimated at about 7 months.

### **Organization of the temporary plant and facilities**

The temporary plant and facilities in a form of re-loading/storage/construction yards shall be fenced and hardened using concrete road slabs. Its precise location shall be determined on the construction stage, whereas – due to the necessary assurance of efficient traffic and keeping the furthest possible distance from residential buildings – it is expected to set it out on the Stanisława Kassali Street's side. A sealed fueling spot and a place of minor repairs for construction equipment shall be set out within the yard (the sealing shall include placement of geo-membrane – foil underneath concrete slabs).

Construction materials shall be gathered at the temporary plant and facilities' yard, which would be hardened with concrete slabs. It is not expected to store spoil within the Works Contract area – they shall be delivered to the site on an ongoing basis.

### **Temporary roads**

Within the framework of works to be performed, temporary access roads / technical lanes with a width of about 3 m shall be set out for the works, and they shall be used for traffic purposes and maneuvering with heavy equipment (excavators, bulldozers, etc.). Technical lanes shall run in such a way to avoid logging of trees and shrubs.

### **Use of materials and raw materials**

Natural raw materials and also remaining materials shall be applied during the construction works only in technologically required quantities. The work technology shall be typical for the Works Contract related to the construction of flood embankments – those are typical water and amelioration works. The construction shall be done while keeping standards imposed by the construction law and by secondary legislation. All materials applied for the performance shall be accepted for application in civil engineering and shall have all required certificates or attestation. Water shall be delivered in water-carts – it is not expected to intake water from the river bed of Biała.

The following shall be used for implementation of the Works Contract:

- Water (for construction works and for social needs of the construction staff) – estimated at few hundred m<sup>3</sup> for the entire time of embankment construction;
- Electric power (also for lighting of the temporary plant and facilities) – estimated at few tens kV;

- Fuel (diesel for machines and vehicles operating at the site) – estimated at up to few hundred liters for the entire time of construction;
- Aggregate (breakstone, rip-rap) – estimated at 2200 m<sup>2</sup>;
- Soil – estimated at about 30 000 m<sup>3</sup>;
- Concrete slabs – estimated at 700 m<sup>2</sup>;
- Mix of grass for sowing after the completion of works.

Soil necessary for construction of the embankment shall be delivered from beyond the Works Contract site and shall be provided by external suppliers, and not from the embanked area. It shall have application attestation for water engineering. It is not expected to store soil within the Works Contract area – it shall be delivered on an ongoing basis. Any soil produced during the works shall be embedded within the Works Contract. Top layer of the ground (top-soil) shall be removed and selectively stock-piled, and subsequently used for re-shaping of the area.

### **Logging of trees and shrubs**

Prior to the commencement of demolition works within the newly formed embanked area flora shall be inventoried. All identified specimens of plants of alien or invasive species shall be removed from the newly formed embanked area.

It is necessary to remove trees and shrubs directly colliding with the planned Works Contract within its framework – it shall be done only within an area designated for the new embankment. The logging of trees and shrubs shall be limited to the necessary minimum allowing for implementation of the Contract. The logging should be done beyond the hatching season of birds – from October the 16<sup>th</sup> until the end of February. Occasional logging may be done during the hatching season under environmental supervision – only after the ornithologist identifies that there are no bird nests on trees or shrubs to be logged or that they are not inhabited by other animals under protection.

#### Summary of expected logging of:

- Trees – total of 461 units, including: peach – 7 units, silver birch – 14 units, common oak – 2 units, pear – 5 units, common juniper – 4 units, silver fir – 3 units, sycamore – 45 units, common hazel – 5 units, Mirabelle plum – 18 units, apricot – 3 units, blackberry – 2 units, common walnut – 34 units, black locust – 27 units, white pine – 2 units, Scots pine – 17 units, Norway spruce – 7 units, white poplar – 1 unit, black poplar – 1 unit, stately elm – 1 unit, brittle willow – 1 unit, Chinese willow – 18 units, malus – 130 units, wild cherry – 59 units, cherry – 7 units, plum – 38 units, eastern arborvitae – 7 units;
- Shrubs – total area of 341.7 m<sup>2</sup>, including: elderberry – 15.3 m<sup>2</sup>, peach – 3.1 m<sup>2</sup>, Anglojap yew – 2.7 m<sup>2</sup>, Lawson cypress – 10.2 m<sup>2</sup>, common juniper – 3.0 m<sup>2</sup>, mock-orange – 4.4 m<sup>2</sup>, guelder rose – 1.5 m<sup>2</sup>, maple ash – 0.8 m<sup>2</sup>, common hazel – 52.0 m<sup>2</sup>, wild privet – 17.3 m<sup>2</sup>, common lilac – 11.2 m<sup>2</sup>, Mirabelle plum – 12.5 m<sup>2</sup>, prune – 5.5 m<sup>2</sup>, white poplar – 55.9 m<sup>2</sup>, goat willow – 16.8 m<sup>2</sup>, Japanese willow – 4.4 m<sup>2</sup>, brittle willow – 30.4 m<sup>2</sup>, Chinese willow – 6.7 m<sup>2</sup>, purple willow – 5.4 m<sup>2</sup>, basket willow – 38.0 m<sup>2</sup>, eastern arborvitae – 18.6 m<sup>2</sup>, small-leave sweet-briar – 26.0 m<sup>2</sup>.

The necessary logging of trees shall be compensated by replacement planting, the scope and detailed location of which shall be established at undertaking the construction works. The planting shall be done in a location close to the Works Contract.

Alien and invasive species of perennials and shrubs shall be removed from the area of newly developed embankment.

Trees and shrubs, which shall not be logged and which are located within and in vicinity of the construction yard, that may be damaged due to the works, shall be protected against possible mechanical damage.

### **Work technology**

Implementation of the Works Contract shall be done using construction equipment having technical parameters and capacity adapted to the size and character of the works. For the purpose of constructing the embankment it is expected to apply such typical mechanical equipment as: excavators, bulldozers, dumpers, and – if necessary – to manually perform the works. Specialized machines shall additionally be used to develop hydro-insulating membranes.

Within the framework of protection against leaks it is expected to develop an anti-filtration membrane within the crest – with minimum thickness of 0.4 m and depth of 8.0 m – over the entire length of the planned embankment. It shall be located 1.0 m b.g.l. at the embankment crest. Anti-filtration protection has been designed according to the currently applied standard of technical solutions. It expects application of CDM Method – Continuous Deep mixing Method, and high-pressure injection method, i.e. jet-grouting, at crossings with the existing underground facilities. CDM Method applies a special device – trencher, which contains a caterpillar chassis with a blade, where a movable cutting-mixing device is assembled, which operates similarly to a chain-saw. That device develops an anti-filtration membrane continuously (continuous anti-filtration membrane). The treated soil is mixed with injected sealing mix (through a system of pipe hoses connected with a mixer). Due to in-situ mixing of the ground on site with a bentonite-cement mix, the CDM Method provides very good results for developing a tight membrane. At crossings of the designed embankment with the existing underground facilities (gas piping, water-supply pipes, sewerage piping) a hydro-insulating membrane shall be developed using high-pressure injection, so-called jet-grouting. A process of reinforcing the subbase – done with application of high-pressure stream injection – comprises damaging of the natural ground structure with a stream of inject, usually basing upon cement leaven, spread in the ground at high energy. Applied working pressure of 50 MPa and high speed of inject flowing out of injection nozzles (about 100 m/s) cause separation and mixing of ground particles with the injected leaven. Pulling the drilling pole up during the injection with simultaneous rotation results in forming of injection piles in the ground. Lighter fractions are washed off of the injection pole to the surface, while forming technological spoil, which is removed and usually treated as a post-production waste. However, a ground and cement mix is formed below the ground, and – after combining – it reaches high strength – comparable to concrete. The mixing process for bentonite and cement leaven shall be done within the Works Contract site, in accordance with the technology adopted by the Contractor, and water shall be delivered in water-carts.

Slopes for the embankment shall be made of natural soil. Any mineral soil, i.e. non-cohesive soil of various granulation and weak- and medium-cohesive soil shall be useful for that purpose. In case organic soil or soil polluted with organic parts would be provided, those soils would be embedded at the top part of the slope as a subbase for biological development. Soil to be embedded at the slope shall be accepted by the Engineer prior to the application. The acceptance shall be done on an ongoing basis during the earthworks, based upon the Contractor-provided results of microscope field works, as determined under PN-74/B-04452 Construction grounds, field tests.

The most optimal parameters for the development of embankments – in relation to stability, filtration, and other coefficients – may be achieved while using soil determined according to the Feret Diagram.

Proper percentage share of sandy, dusty, and loamy fractions shall occur in a given soil:

- For the landside slope:
  - Sandy fraction 25-40%,
  - Dusty fraction 15-60%,
  - Loamy fraction 15-35%;
- For the riverside slope:
  - Sandy fraction 25-40%,
  - Dusty fraction 25-55%,
  - Loamy fraction 20-35%.

Proper relation between particular fractions may be obtained through mixing of soil (rarely from natural deposits). According to requirements of WTWiO one shall observe the following conditions for the construction of embankments:

- Soil with lower permeability should be placed in the middle of the embankment,
- Soil with higher permeability should be placed close to the slopes,
- Soil at the slope should not form lens or layers facilitating filtration or sliding.

Soil should be compacted in such a way to achieve the condensation rate of  $I_s \geq 0.92$ . Proper compaction of embankments shall be obtained through placement and compaction of the ground in layers with thickness of about 20 cm. The aforementioned requirements shall be met within the framework of the planned Works Contract. Due to the absence of a sufficient source of soil within the Works Contract site, the soil shall be delivered from beyond the Works Contract area and shall be provided by external suppliers. It shall be necessary to assure provision of about 30 000 m<sup>3</sup> of soil for construction of the flood embankment. It is not expected to intake soil from the embanked area, and the Works Contract does not also foresee intake of aggregate from the river bed. No works shall be done within the river bed. Implementation of the Works Contract shall not require development of deep excavations.

Detailed technical solutions shall be determined on the stage of construction design.

As this decision (resolution) has not been claimed against in time and mode legally provided, it became final on 12/31/2016, and shall be implemented/  
Tarnów, 01/17/2017

pp. Regional Director  
for Environmental Protection in Cracow

Eng. Paweł Koziół MSc  
Manager of Site Issues Department in Tarnów

REGIONAL DIRECTORATE FOR  
ENVIRONMENTAL PROTECTION IN  
CRACOW

Site Issues Department in Tarnów  
33-100 Tarnów 5-9. Solidarności Alley

Chief Specialist

Eng. Magdalena Budzyn MSc