DHV POLSKA Sp. z o.o.
02-672 Warszawa
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ENVIRONMENTAL IMPACT ASSESSMENT FOR THE AUGUSTÓW BYPASS

WITHIN THE NATIONAL ROAD NO. 8

from the junction of the national road no. 8 with the national road no. 61
to the "Airport" junction

REQUIRED WITHIN PROCEDURE FOR ISSUING A DECISION ON ENVIRONMENTAL CONDITIONS OF AUTHORISATION FOR IMPLEMENTATION OF THE PROJECT

XI. SUMMARY IN THE NON-SPECIALIST LANGUAGE HARMONISED TEXT

Warsaw, 2009

GENERAL INFORMATION

Constructed facility: national express road no. S8 Warszawa-Suwałki-Budzisko (Via Baltica)"

1) Variant through Białystok: the section Augustów – Suwałki, from the "Augustów" junction to the "Airport" junction, from 0+000 km to 34+500 km (in the preferred variant III);
2) Variant through Łomża: the section Raczki – Suwałki from the "Szkocja" junction to the "Airport" junction, from 0+000 km to 15+460 km, including the liaison road to Augustów as well as the northern bypass of Raczki, from the "Augustów" junction" through the "Szkocja" junction to the connection with the voivodeship road no. 655 Raczki – Olecko, from 0+000 km to 23+239 km (in the preferred variant IIIA).

Name of the project (investment title): Construction of the Bypass of Augustów within the national road no. 8.

Location: Podlaskie Voivodeship, Augustów and Suwałki Poviats (land and municipal) Communes: Augustów, Raczki and Suwałki and cities: Augustów and Suwałki (with poviat laws).

Type of the project: construction of the national express road no. 8 on the new route or development of existing national road no. 8 to express road parameters.

Investor: General Directorate for National Roads and Motorways
Division Białystok
Ul. Zwycięstwa 2, 15-703 Białystok

Unit performing PK: DHV POLSKA Sp. z o.o.
Ul. Domaniewska 41, 02-672 Warszawa

Unit performing EIA: DHV POLSKA Sp. z o.o.
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Abbreviations:
PK – preliminary road concept of the Augustów Bypass within the national road no. 8 (conceptual design of the bypass)
EIA – environmental impact assessment for the Augustów Bypass within the national road no. 8

Authors team members

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Key Experts leading Expert Teams / responsible for studies in particular areas	**Name and family name**
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Resources of relics, archaeological sites and cultural environment	mgr inż. Jerzy Brzozowski
Natural resources of habitats, phytosociology, botany and ecology of plants, including field studies	prof. dr hab. Stanisław Kłosowski dr Paweł Pawlikowski mgr Ewa Jabłońska mgr Filip Jerzombkowski
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Noise measurement in 1 measuring cross-section on a rout of each variant as well as on a route of existing national road no. 8 in Augustów	mgr inż. Łukasz Orzech
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I. SUMMARY OF THE REPORT IN THE NON-SPECIALIST LANGUAGE

IA. DESCRIPTIVE PART

1. Subject matter

This summary of the environmental impact assessment of the Project involving construction of the Agustów bypass within the national road no. 8 with parameters of an express road presents in the abbreviated form the most important conditions of the implementation of report and conclusions arising from the analysis of available materials, environmental inventories, local visions and prognosis made for the evaluation of the environmental impact of the Project.

The beginning of the study is located at the crossroads of the national road no. 8 with the national road no. 61 and the end in the "Airport" junction at the south-western peripheries of the Suwałki city. The subject of assessment are three main investment variants: variant I (formerly IVL), variant II (passage in the vicinity of Chodorki), variant III (passage in the vicinity of Raczki) and variant "0" – not implementing the construction of the bypass, presented in detail in the part II – Description of the project analysed. All variants were developed with a comparable accuracy. The investor of the project under assessment is the General Directorate of National Roads and Motorways.

In addition to the construction of the Augustów bypass the project shall also include re-construction of sections of existing roads intersecting the projected route and the re-construction of above- and underground infrastructural network conflicting with it (electrical, telephone, gas, waterworks, sewage systems, etc.).

This study constitutes a part of the report on the impact of Agustow bypass on the environment that shall be applied within the administrative proceedings concerning the environmental impact assessment aiming at issuing the decision about environmental conditions of approval for implementation of the project pursuant to the art. 71 of the Act on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment in conjunction with the art. 33-35a of the Nature Conservation Act. The scope of the report is consistent with the scope established in the art. 66 and 67 of the Act on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment.

The Agustów bypass projected is treaded as a section of the international express road called commonly as the Via Baltica, that is I Pan-European Transport Corridor. Part I: road corridor. The evaluation included all the above-mentioned variants of the project assuming two different road courses of the Via Baltica – as: Budzisko – Suwałki – Białystok – Warszawa (variants I, II, III) and as: Budzisko – Suwałki – Ełk – Łomża – Warszawa (variants IA, IIA and IIIA). All variants have been developed with comparable accuracy. The new express road shall limit burdens associated with the transit traffic (particularly the heavy traffic), however will not reduce all inconveniences for citizens of Augustów associated with the motor vehicle traffic.

The authors team received for evaluation variants of the investment presented at the Figure no. 1 with the exception that variant II and III require development of their course in a way maximally reducing collisions with buildings. During implemented works the optimal course of the road was designed that is a documented alternative for the variant passing through the Rospuda Valley analysed previously, what was presented in the preliminary road concept. The concept developed is presented on maps attached to this Summary.

- Comparing the optimisied course of variants in relation to the shortest straight line connecting the begging and the end of the designed road section with the length of 27.1 km, the length of the express road on the analysed section of the Bypass has been established, while the longest variant is the variant III and the shortest one is the variant I.

The study was performed by a team consisted of experts in various fields. In order to prepare the evaluation a series of staring materials for analysis and prognosis has been developed, including traffic prognosis for the entire road network, on which the construction will impact (in particular the network of roads and streets in Agustów) for the year 2010 and 2020. These prognosis include both the situation, when the bypass is constructed and the situation, when the bypass is not constructed.

The environmental inventory of the entire area covered with the evaluation has been performed, including field works and the previously performed studies concerning this matter have been analysied. The inventory was related to both plants and animals, as well as their habitats. The result of the inventory was development of maps presenting distribution of the data analysed. These and other data have been presented on detailed maps of the area analysed.

The role of the comparative material for performed mathematic analysis concerning impact of noise for human health was the study of data coming from noise measurements made in points located on the route of each variant and the route of the existing national road no. 8 in Augustów. Noise measurements have been correlated with measurements of traffic during the noise measurement performed, measurement of speed of moving vehicles and register of meteorological conditions.

The study was made with methods consistent with the current Polish Law that takes into account provisions of the international law, including the European Union law. Furthermore, also scopes of the country and region development determined in strategic documents associated with the evaluated project have been taken into account, and particularly these associated with the Via Baltica road, programmes of national roads constructions for the years 2008 – 2012, social and economic development of the Eastern Poland. High natural and landscape values of areas of the North-Eastern Poland have been taken into account defined, among others, in documents of the regional association Green Lungs of Poland.

2. Formal basis of the study

The formal basis of this report is the agreement no. 2122/2008 of 5th of June 2008 concerning "Development of materials for the application for issuing the decision on environmental conditions for the project including construction of the Augustów Bypass within the national road no. 8" concluded between the Employer – the General Directorate of National Roads and Motorways, headquarter in Warszawa and the Contractor – the DHV Polska Sp. z o.o. with its established office in Warszawa.

3. Main substantial basis of the study

The main substantial basis for the development of this study is the project – preliminary road concept of the Augustów Bypass within the national road no. 8 (conceptual design of the bypass) performed under the so called agreement.

This study takes into account provisions of the following, basic legal regulations:
1. Constitution of the Republic of Poland of 2nd of April 1997 (Dz. U. 1997, no. 78, item 483);
2. Act of 27th of April 2001 – Environment Protection Act (Dz. U. 2006, no. 129, item 902 as amended);
3. Act of 3rd of October 2008 on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment (dz. U. 2008, no. 199, item 1227);
4. Act of 27th of April 2001 on waste (consolidated text, Dz. U. 2007, no. 39, item 251 as amended);
5. Act of 18th of July 2001 – Water Law (consolidated text, Dz. U. 2005, no. 239, item 2019 as amended);
6. Act of 7th of July 1994 – Construction Law (consolidated text, Dz. U. 2006, no. 156, item 1118 as amended);
7. Act of 27th of March 2003 on planning and land use (Dz. U. 2003, no. 80, item 717 as amended);
8. Act of 16th of April 2004 on Environment Protection (Dz. U. 2004, no. 92, item 880 as amended);
9. Act of 28th of July 2005 on spa treatment, spas and spa protection areas as well as spa municipalities (Dz. U. 2005, no. 167, item 1399);
10. Act on the protection of agricultural and forest lands of 3rd of February 1995 (Dz. U. 1995, no. 95, item 1678 of 22nd of February 1995);
11. Act of 23rd of July 2003 on monuments protection and preservation of monuments (Dz. U. 2003, no. 162, item 1568, consolidated text);
12. Act of 13th of September 1996 on maintaining cleanliness and order in municipalities (consolidated text, Dz. U. 2005, no. 236, item 2008);
13. Act of 28th of October 2002 on road transportation of hazardous products (Dz. U. 2002, no. 199, item 1671 as amended);

14. Regulation of the Minister of Environment of 9th of July 2004 concerning species of wild plants under protection (Dz. U. 2004, no. 168, item 1764);
15. Regulation of the Minister of Environment of 28th of September 2004 concerning species of wild animals under protection (Dz. U. 2004, no. 220, item 2237);
16. Regulation of the Minister of Environment of 14th of June 2007 concerning allowable levels of noise in the environment (Dz. U. 2007, no. 120, item 826);
17. Regulation of the Minister of Environment of 3rd of March 2008 concerning levels of certain substances in the air (Dz. U. 2008, no. 47, item 281);
18. Regulation of the Minister of Environment of 5th of December 2002 concerning reference values for certain substances in the air (Dz. U. 2003, no. 1, item 12);
19. Regulation of the Minister of Environment of 11th of February 2004 on classification for presenting condition of surface and ground water, methods of performing monitoring and interpretation and presentation of condition of these waters (Dz. U. 2004, no. 32, item 284) approved for application until announcement of new regulation;
20. Regulation of the Minister of Environment of 4th of October 2002 on requirements to be met in respect of inland water being habitat of fish in natural conditions (Dz. U. 2002, no. 176, item 1445);
21. Regulation of the Minister of Environment of 24th of July 2006 on conditions to be met when introducing waste water to water or to soil and on substances particularly hazardous for the water environment (Dz. U. 2006, no. 137, item 984);
22. Regulation of the Minister of Environment of 23rd of December 2002 on criteria for selection of water sensitive for contamination with nitrogen compounds from agricultural sources (Dz. U. 2002, no. 241, item 2093);
23. Regulation of the Minister of Culture of 14th of May 2004 on maintain the register of monuments, national, voivodeship and municipal register of monuments and the national register of monuments stolen or unlawfully exported (Dz. U. 2004, no. 124, item 1305);
24. Regulation of the Minister of Culture of 9th of June 2004 on performing conservatory and preservation works, construction works, conservatory and architectural examinations, as well as other measures on monuments listed in the register of monuments and archaeological works and researches for hidden or abandoned movable monuments (Dz. U. 2004, no. 150, item 1579);
25. Regulation of the Minister of Transport and Maritime Economy of 30th of May 2000 on technical conditions that shall be met by road engineering objects and their locations (Dz. U. 2000, no. 63, item 735);
26. Regulation of the Minister of Transport of 4th of June 2007 on hazardous products which transport shall be subject to notification (Dz. U. 2007, no. 107, item 742);
27. Regulation of the Suwałki Voivode no. 8/91 of 10th of May 1991 on the establishment of silence zone on waters and areas in their vicinity and leisure areas in the Suwałki Voivodeship, Official Journal of the Suwałki Voivodeship no. 17, Suwałki, 15th of May 1992;
28. Regulation of the Suwałki Voivode no. 116/92 of 13th of August 1992 on the establishment of silence zone on waters and areas in their vicinity and leisure areas in the Suwałki Voivodeship, Official Journal of the Suwałki Voivodeship no. 41, Suwałki, 18th of August 1992;
29. Regulation of the Minister of Environment of 27th of September 2001 on the catalogue of waste (Dz. U. 2001, no. 112, item 1206);
30. Regulation of the Minister of Environment of 14th of February 2006 on specimen of documents applied for the register of waste (Dz. U. 2006, no. 30, item 213);
31. Regulation of the Minister of Environment of 9th of September 2002 on the soil quality standards and ground quality standards (Dz. U. 2002, no. 165, item 1359 of 4th of October 2002);
32. Regulation of the Minister of Economy, Work and Social Politics of 2nd of April 2004 on methods of safe use and disposal of products containing asbestos (Dz. U. 2004, no. 71, item 649);

This study takes into account also requirements of the European Union law, including particularly the following directives, international conventions, documents of the European Commission:

1. Council Directive 85/337/EEC of 27 June 1985 the assessment of the effects of certain public and private projects on the environment (amended with the Directive 97/11/EC of 3rd of March 1997 and the Directive 2003/35/EC of 26th of May 2003);
2. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the so called Habitat Directive);
3. Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (the so called Bird Directive);
4. Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment;
5. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (O. J. EC 327 of 22.12.2000);
6. Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (O. J. EC of 27.12.2006);
7. Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise;
8. Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage transposed with the Act of 13th of April 2007 on prevention and remedying of environmental damages (Dz. U. 2007, no. 75, item 493);
9. The European Landscape Convention. Florence 2000 (Dz. U. no. 14, item 98 of 29th of January 2006);
10. The Bern Convention on the Conservation of European Wildlife and Natural Habitats, drawn up in Bern on 19th of September 1979;
11. The Convention on the Conservation of Migratory Species of Wild Animals, drawn up in Bonn on 23rd of June 1979;
12. The Convention on Wetlands of International Importance, especially as Waterfowl Habitat, drawn up in Ramsar on 2nd of February 1971;
13. The Convention on Biological Diversity, drawn up in Rio de Janeiro on 5th of June 1992;
14. The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, drawn up in Aarhus on 25th of June 1998;
15. Communication From The Commission To The Council, The European Parliament, The European Economic And Social Committee And The Committee Of The Regions. Thematic Strategy for Soil Protection, Brussels, on 22.09.2006 COM (2006)231 final version.

4. Sources of information for the report development

Preparing this report and its summary the information and conclusions contained in the following documents have been applying:

- Herbich J., Adamski P., Bartel R., Bereszyński A., Kepel A., Witkowski Z., Gromadzki M., Sudnik-Wójcikowska B., Werblan-Jakubiec H., (red). 2004. Poradniki ochrony siedlisk i gatunków Natura 2000 – methodological handbook. Ministry of Environment, Warszawa.
- Kaźmierczakowa R., Zarzycki K. (red) 2001. Polish Red Book of Plants. The Institute of Plant Protection, Polish Academy of Sciences and the W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków.
- Głowaciński Z. 2001. Polish Red Book of Animals. Vertebrata. Państwowe Wydawnictwo Rolnicze i Leśnie, Warszawa.
- Zarzycki K., Szeląg Z. 2006. Red list of the vascular plants in Poland – [in:] Z. Mirek, K. Zarzycki, W. Wojewoda, Z. Szeląg (red.), Red list of plants and fungi in Poland: 11-20. W. Szafer institute of Botany, Polish Academy of Sciences, Kraków.
- SPEC – Species of European Concern, endangered species of birds in the European scale, defined pursuant to criteria of the BirdLife International 2004.
- Sidło P., Błaszkowska B., Chylarecki P. 2004. Ostoje ptaków o znaczeniu europejskim w Polsce, OTOP, Warszawa.
- Guidelines of the European Commission. Assessment of plans and projects significantly affecting the Natura 2000 areas.
- http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_pl.pdf
- Managing the Natura 2000 areas. Provisions of the article 6 of the Habitat Directive 92/43/EEC. The study has been originally published in English as "Managing Natura 2000. The provisions of Article 6 of the 'Habitat' Directive 92/43/EEC by the Office for Official Publications of the European Communities, European Communities, 2000. Polish translation: WWF Polska, 2007.
- Studies and composition of design documentation for roads and bridges in the project preparation phase – introduced with the ordinance no. 30 of the General Director of National Roads and Motorways of 8th of November 2005.
- French national calculation method "NMPB-Routes – 96 (SETRA-CERTU-LCPC-CSTB)", determined in "Arrêté du 5 mai 1995 relatif au bruit des infrastructures routières, Journal Officiel du 10 mai 1995, art. 6" and French standard "XPS 31-133". In relation to input data concerning the emission these documents refer to "Guide du bruit des transports terrestres, fascicule, prévision des niveaux sonores, CENTUR 1980".
- Guidelines for prognosis of concentration of general suspensions and petroleum hydrocarbons in waste water coming from national roads, the General Directorate of National Roads and Motorways, 2006.

The information on current and planned condition of environment in the vicinity of the planned road has been collected using the following sources:

- General data included in the "Atlas Rzeczypospolitej Polskiej" developed by the Polish Academy of Sciences and published by the Chief National Surveyor in Warszawa in the years 1993 – 1997, in the "Słownik geograficzno-krajoznawczy Polski", PWN, Warszawa 2000 as well as in current background maps in various scales (1:1000, 1:50 000, 1:500 000);
- Materials of the Panstwowy Zasób Geodezyjny i Kartograficzny, Centralny Ośrodek Dokumentacji Geodezyjnej Kartograficznej, Główny Urząd Greodezji i Kartografii, Warszawa (orthophotomaps, data to the Numeric Terrain Model, digital topographic maps);
- Data obtained thanks to courtessy of the Regional Directorate of State Forests in Białystok (results of natural valorization of the NATURA 2000 area in a digital form: layers of numerical map of soils and habitats for forest inspectorates, programme of nature protection in a digital form for forest inspectorates in Szczebra and Suwałki);
- Data of the Vovideship Inspectorate for Environmental Protection in Białystok, office in Suwałki, Suwałki (data concerning the condition of environment in the voivodeship);
- Collection of multi-annual meteorological observations of the Institute of Meteorology and Water Management in Warszawa;
- Regional Water Management Board in Warszawa (data concerning the water quality);

- Studies in the spatial planning, including particularly the abovementioned studies concerning conditions and directions of spatial planning of municipalities;
- Studies concerning road constructions, including particularly studies concerning the road network and measurements of the road traffic;
- Outcomes of sit inspections (as photographic documentation);
- Site interviews, including direct contacts with local authorities.

The study applies rules and methods for performing impact assessments of road investments on the environment provided in the following basic methodic materials and publications:

- Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provision of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission Environment DG, 2002;
- Impact assessment of roads on the environment, GDDP, Warszawa, 1999;
- Stages and composition of design documentation for roads and bridges in the preparatory phase, GDDP, Warszawa, 2000;
- Guidelines for street design (WPU). General Directorate of Public Roads, Warszawa, 1992;
- Guidelines for roads design (WPU), General Directorate of Public Roads, Warszawa, 1995;
- Environment protection principles in design, construction and maintenance of roads, General Directorate of Public Roads, Warszawa, 1980;
- Environment protection principles in road construction, General Directorate of Public Roads, Warszawa, 1999;
- Catalogue of road measures of environment protection, General Directorate of National Roads and Motorways, Warszawa, 2002;
- Guidelines for estimation of concentrations of general suspension and petroleum hydrocarbons in waste water coming from national roads, General Directorate of National Roads and Motorways, Warszawa, 2006;
- Handbook of good practices for performing environmental studies for national roads, General Directorate of National Roads and Motorways, Warszawa, 2008;

The quantitative forecasts of levels of road noise and levels of air and water contaminations apply principles and calculative methods generally described in the abovementioned publications, and in particular in the content of the report for the Augustów Bypass. The basis of the abovementioned quantitative prognosis were outcomes of measurements of actual noise, road traffic prognosis taking into account the new bypass, included in a separate, professional study.
Developing the Report on the environment impact also other studies developed in recent years, concerning the impact of the project on the environment of the Augustów Bypass and assessing the following variants of the project have been analysed.

- Study entitled: Ocena Oddziaływania na Środowisko" for the Augustów Bypass, Białystok, April 1997;
- Study entitled: Przegląd ekologiczny wariantów koncepcji projektowania budowy mostu przez rzekę Rospudę w ciągu obwodnicy Augustowa, Białystok, July 2001;
- Study entitled: Raport o oddziaływaniu na środowisko planowanego przedsięwzięcia polegającego na budowie obwodnicy Augustowa w ciągu drogi krajowej S8 granica państwa – Wrocław – Warszawa – Białystok – Suwałki – granica państwa – w granicach gmin: Nowinka, Augustów, miasto Augustów, for proceedings aiming at obtaining a decision on conditions of construction and land use, Białystok, April 2002;
- Study entitled: Raport o oddziaływaniu na środowisko planowanego przedsięwzięcia polegającego na budowie obwodnicy Augustowa w ciągu drogi krajowej S8 (Psie Pole) – Kępno – Sieradz – A1 (Łódź) A1 (Piotrków Trybunalski) – Warszawa – Ostrów Mazowiecka – Zambrów – Choroszcz – Knyszyn – Korycin – Augustów – Budzisko – granica państwa (Kowno) w granicach gmin: Nowinka, Augustów, miasto Augustów; required for the application for issuing as building permit for the road construction, Białystok, April 2004;
- Study entitled: Raport o oddziaływaniu na środowisko planowanego przedsięwzięcia polegającego na budowie obwodnicy Augustowa w ciągu drogi krajowej S8 (granica państwa – Wrocław – Warszawa – Białystok – Suwałki – granica państwa w granicach gmin: Nowinka, Augustów, miasto Augustów), *attachment to the application for issueing a decision on environmental conditions of a permit for implementation of the project*, Białystok, 2005;
- Study entitled: Aneks do raportu oddziaływania na środowisko z tytułu realizacji inwestycji obwodnica Augustowa na obszarze Natura 2000 – Augustów Primeval Forest, Białystok, 2005;

- Study entitled: Aneks do raportu oddziaływania na środowisko planowanego przedsięwzięcia polegającego na budowę obwodnicy Augustowa w ciągu drogi krajowej nr 8 (granica państwa – Wrocław – Warszawa – Boałystok – Suwałki – granica państwa w granicach gmin: Nowinka, Augustów, miasto Augustów), *attachment to the application for issueing a decision on environmental conditions of a permit for implementation of the project*, Białystok, 2005.

None of the recent environmental impact assessment included assessment of impact on the subject of protection of the Natura 2000 area "Augustów Primeval Forest" in accordance with requirements of the Habitats Directive binding in Poland after joining the European Union.

5. Adaptation of the report content to requirements of provisions of art. 66 of the Act of 3 October 2008 on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment (Dz. U. no. 199, item 1227)

Provisions of the article 66 of the Act of 3rd of October 2008 on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment (Dz. U. no. 199, item 1227)	Report on environmental impact of the Augustów Bypass within the national road no. 8 from the intersection of the national road no. 8 with the national road no. 61 to the "Airport" junction
Art. 66.1. Report on impact of the project on the environment shall include:	
1) description of the project planned and particularly: a) characteristics of the entire project and conditions of land use during construction and exploitation or use; b) main characteristic features of production processes; c) foreseen types and quantities of waste arising from operations of the project planned;	**Chapter II: Description of the Project** **Chapter II: Description of the Project** **not applicable** **Chapter IV:** Assessment of impact of analysed variants on the environment and cultural heritage • natural resources – IV.1; • Assessment of agricultural usefulness of soils – IV.2; • Air contamination – IV.3; • Acoustic climate – IV.4; • Vibrations – IV.5; • Waste management – IV.6; • Impact on surface and ground water resources – IV.7; • Assessment of possible hazards and damages for monuments protected pursuant to provisions on monuments protection and preservation of monuments, and particularly archaeological relics – IV.8; • Landscape – IV.9; • Assessment of impact on geological structures and underground water – IV.10; • Anticipated impacts on the environment of analysed variants in case of major accidents (road disasters) and methods of reduction of adverse impact on the environment – IV.11; • Impact of the project on the human health – IV.12; • Encountered difficulties during the development of the report – IV.13;
2) Description of natural elements of the environment included in the scope of anticipated impact of the planned project on the environment, including environmental elements protected pursuant to the Act of 16th of April 2004 on nature conservation.	**Chapter III:** Characteristics and valorisation of condition of the environment and the cultural heritage in the area of the anticipated impact of the project analysed; **Chapter V:** Assessment of impact of analysed variants on the Natura 2000 areas.

Provisions of the article 66 of the Act of 3rd of October 2008 on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment (Dz. U. no. 199, item 1227)	Report on environmental impact of the Augustów Bypass within the national road no. 8 from the intersection of the national road no. 8 with the national road no. 61 to the "Airport" junction
3) Description of monuments, protected pursuant to provisions on the protection of monuments and preservation of monuments, existing in the vicinity or direct impact range of the planned project.	**Chapter III.4:** Objects of the cultural heritage, including resources of archaeological sites and resources of architectural and technical monuments, as well as historic cemeteries.
4) Description of anticipated environmental impacts in case of refraining from implementing the project.	**Chapter IV:** Assessment of impact of analysed variants on the environment and the cultural heritage; Chapter V: Assessment of impact of analysed variants on the Natura 2000 areas.
5) Description of analysed variants, including:	
a) the variant proposed by the Applicant and reasonable alternative variant; b) the most favourable variant for the environment including justification of its selection;	description of all variants is included in the **Chapter II: Description of the Project** **Chapter IX:** Conclusions
6) Identification of the anticipated impact of analysed variants on the environment, including also cases of major industrial accidents and possible trans-boundary environmental impact;	**Chapter IV.11:** Anticipated impact on the environment of analysed variants in case of major accidents (road disasters) and methods of reduction of adverse impact on the environment;
7) Justification of the variant proposed by the Applicant, including indication of its impact on the environment, and particularly on: a) people, plants, animals, fungi and natural habitats, water and air; b) ground surface, including mass movements of soil, climate and landscape; c) material goods; d) monuments and cultural landscape covered by the existing documentation, particularly the register or records of monuments; e) mutual interactions between elements mentioned in letters a-d;	**Chapter IV:** Assessment of impacts analysed variants on the environment and cultural heritage; **Chapter V:** Assessment of impacts of analysed variants on the Natura 2000 areas; **Chapter IX:** Conclusions;
8) Description of methods of prognosis applied by the Applicant and description of anticipated, serious impacts of the planned project on the environment, including direct, indirect, secondary, cumulated, short-, medium- and long-term, constant and temporary impacts on the environment arising from: a) existence of the project; b) using natural resources; c) emissions;	**Chapter I:** Introduction; **Chapter IV:** Assessment of impacts analysed variants on the environment and cultural heritage; **Chapter V:** Assessment of impacts of analysed variants on the Natura 2000 areas; **Chapter VI:** Possibilities and methods of preventing and reducing the adverse environmental impact;
9) Description of anticipated actions aiming at preventing, reduction or natural compensation of adverse impacts on the environment, particularly on objectives and the subject of protection of the Natura 2000 area and integrity of this area;	**Chapter VI:** Possibilities and methods of preventing and reducing the adverse environmental impact;

Provisions of the article 66 of the Act of 3rd of October 2008 on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment (Dz. U. no. 199, item 1227)	Report on environmental impact of the Augustów Bypass within the national road no. 8 from the intersection of the national road no. 8 with the national road no. 61 to the "Airport" junction
10) for roads being projects that could always have a significant impact on the environment: a) identification of assumptions for: - rescue researches of identified monuments located on the area of the project planned, revealed during construction works; - preservation programme for existing monuments against adverse impacts of the planned project and protection of the cultural landscape; b) analysis and evaluation of hazards and damages for monuments protected pursuant to provisions on the protection of monuments and preservation of monuments, particularly archaeological relics, in the vicinity or direct impact range of the planned project	**Chapter VI.5:** Conservatory guidelines, assumptions for rescue researches of identified monuments and the programme of preservation of existing monuments against negative impacts of the planned project and protection of the cultural landscape; **Chapter IV:** Assessment of impacts analysed variants on the environment and cultural heritage;
11) If the project planned is related to the application of installation, the comparison of proposed technology with the technology meeting requirements, as referred to in the article 143 of the Act of 27th of April 2001 – Environment Protection Act;	**not applicable**
12) Indicating, whether for the project planned it is necessary to establish the area of restricted use pursuant to the Act of 27th of April 2001 – Environment Protection Act and determination of borders of such area, restrictions concerning land destination, technical requirements concerning construction objects and methods of using them; not applicable to projects including construction of the national road;	**Chapter VII:** Limited use area
13) Presentation of issues in a graphic form;	**Graphic attachments** to the Report Z.I, Z.IV. – Z.XIII
14) Presentation of issues in a cartographic form in a scale consistent with the subject and level of details of issues analysed in the report and allowing for a comprehensive presentation of performed analysis of the environmental impact of the project;	**Graphic attachments** to the Report Z.I, Z.IV. – Z.XIII
15) Analysis of possible social conflicts associated with the planned project	**Chapter VIII:** Analysis of possible social conflicts associated with the planned project
16) Presentation of proposals of impact monitoring of the planned project on the construction stage and exploitation or use, particularly on objectives and the subject of protection of the Natura 2000 area and integrity of this area;	**Chapter VI.8:** Proposals of environmental monitoring

Provisions of the article 66 of the Act of 3rd of October 2008 on providing information about the environment and its protection, participation of society in the environment protection and environmental impact assessment (Dz. U. no. 199, item 1227)	Report on environmental impact of the Augustów Bypass within the national road no. 8 from the intersection of the national road no. 8 with the national road no. 61 to the "Airport" junction
17) Indication of difficulties arising from technical deficiencies or gaps in the common knowledge that have been encountered during preparation of the report	**Chapter IV.13:** Difficulties encountered during preparation of the report
18) Summary in the non-specialist language of information included in the report in relation to each element of the report	**Attachment Z.XIV:** Summary in the non-specialist language
19) Name of a person or persons preparing the report	**Chapter I.2:** Composition of the team of authors
20) Sources of information being a basis for development of the report	**Chapter I.4:** Basis of implementation
Art. 66.2. The information, as referred to in paragraph 1, point 4-8, shall take into account the anticipated impact of analysed variants on objectives and the subject of protection of the Natura 2000 area as well as integrity of this area.	**Chapter V:** Assessment of impacts of analysed variants on the Natura 2000 areas;
Art. 66.3. If there is any possibility of trans-boundary environmental impact, the information, as referred to paragraph 1, points 1-16, shall take into account identification of the project planned outside the territory of the Republic of Poland;	**not applicable**
Art. 66.4. If for the project planned it is necessary to establish a limited use area, the report should contain a copy of a cadastral map confirmed by the proper authority with indicated borders of the area, where it is necessary to establish the limited use area;	**Does not apply to projects involving construction of a national road.**
Art. 66.5. If the planned project involves application of an installation covered by a requirement to obtain the integrated permit, the report on environmental impact of the project shall contain a comparison of the technique proposed with best available techniques;	**not applicable**
Art. 66.6. The report on environmental impact of the project shall take into account impact of the project on stages of its implementation, exploitation or use as well as liquidation;	**These requirements have been included in the following chapters:** **Chapter IV:** Assessment of impacts analysed variants on the environment and cultural heritage; **Chapter V:** Assessment of impacts of analysed variants on the Natura 2000 areas; **Chapter VI:** Possibilities and methods of preventing and reducing the adverse environmental impact;

6. General description of the Project

The Project consists of the construction of the Augustów Bypass within the national road no. 8 with parameters of the express road, at a section Augustów – Suwałki, that is from 0+000 km to 34+531 km.

The projected bypass of Augustów shall be located in the Podlaskie Voivodeship, in Augustów and Suwałki Poviats in the following cities and municipalities: cities: Augustów and Suwałki, municipalities: Augustów, Raczki and Suwałki. Impact of the Project covers the northern part of Augustów Primeval Forest, southern part of the city of Suwałki, city of Augustów and countryside with fields and meadows.

The beginning of the study was established at the crossroads of the national road no. 8 with the national road no. 61 in Augustów and the end in the "Airport" junction located partially in administrative borders of the city of Suwałki.

The location of the project has been presented on two reconnaissance maps (Attachment no. S1.1 and S1.2).

The projected bypass (in fact the express road from Augustów to Suwałki) aims at:

- creating safe section of the express road ensuring a high comfort of a long-distance and high-speed traffic;
- adjusting the road no. 8 to the anticipated traffic with simultaneous relief of the existing road network from the transit traffic;
- adjusting the road to current technical conditions for adoption of the express road class market with the "S" letter with the design speed V_p = 100 km/h (the design speed is not directly connected with the acceptable speed limit, it ensures a safe ride of a single vehicle in normal conditions);
- geometric and altitude solution of intersections with transverse roads;
- solution of support for the adjacent area.

The planned construction of the section of express road between Augustów and Suwałki is a part of a larger investment, that is the construction of the express road within the I Pan-Europeans Transport Corridor from Warszawa to the border with Lithuania in Budzisko.

The express road has been designed as a dual carriageway (each way with two lanes) with a reserve of land in the middle for construction of an additional, third lane to each way of the road; in some variants of the investment location, due to anticipated low volume of traffic, there will also be sections of single carriageway express roads (two lane) with a land reserve for expanding it to 2 x 3 traffic lanes. The length of the road planned is, depending on the variant, from 32 to 34 km. Partially it runs on embankments and in excavations. On selected sections the road shall be surrounded by acoustic screens (anti-noise walls or shafts). The width of the carriageway is 7 m (2 x 3.5 m), while ultimately it shall be 10.5 m (3 x 3.5 m). The width of the middle lane separating vehicles moving in opposite directions was assumed as 12.5 m and ultimately, after construction of the third lane – 5.0 m. The width of the road planned with roadsides shall be 34.5 m. Service roads are of 3.5 m or 5 m of width plus 2 x 0.75 of roadsides, that is 5 or 6.5 m in total.

In addition to the main linear project the scope of the project include also the reconstruction of existing sections of roads intersecting the express road and the reconstruction of interfering with it above- and underground infrastructural networks (electric, telephone, gas, water, sewage, etc.).

Access to the projected express road shall be possible only in junctions. Therefore, along the new route there shall be numerous, additional local roads providing access to buildings and agricultural lands and, additionally, there shall be transverse, collision-free road passages across the road (without entry to or exit from the main road) for local, mainly poviat and municipal, roads.

The investment shall be implemented comprehensively, that is fully equipped with safe-traffic devices, environmental protection, rest areas, service circuits, shall include reconstruction (construction) of the communication system accompanying the Augustów Bypass operating in the adjacent areas and additional equipment related to energy industry, telecommunication wire network and installations (water and gas lines, sewage and rain drainage).

The following table present, by specific variants of the project implementation, a summary of villages, through which the designed Augustów Bypass runs.

Variant I		**Variant IA**	
Augustów City	AUGUSTÓW 1	Augustów City	AUGUSTÓW 1
Augustów County	MAZURKI	Augustów County	MAZURKI
Nowinka County	TOPIŁÓWKA PIJAWNE POLSKIE SZCZEBERKA STARE GATNE NOWE GATNE SZCZEPANKI OLSZANKA FOLWARK OLSZANKA	Nowinka County	TOPIŁÓWKA PIJAWNE POLSKIE SZCZEBERKA STARE GATNE NOWE GATNE SZCZEPANKI OLSZANKA FOLWARK OLSZANKA
Suwałki County	PŁOCICZNO TARTAK DUBOWO PIERWSZE DUBOWO DRUGIE ZIELONE KAMEDULSKIE ZIELONE KRÓLEWSKIE	Suwałki County	PŁOCICZNO TARTAK DUBOWO PIERWSZE DUBOWO DRUGIE ZIELONE KAMEDULSKIE ZIELONE KRÓLEWSKIE PODBUDÓWEK
Suwałki City	SUWAŁKI	Suwałki City	SUWAŁKI

Variant II		**Variant IIA**	
Augustów City	AUGUSTÓW 1	Augustów City	AUGUSTÓW 1
Augustów County	MAZURKI PRUSKA WIELKA BIERNATKI JANÓWKA JABŁOŃSKIE POSIELANIE MIKOŁAJÓWEK	Augustów County	MAZURKI PRUSKA WIELKA BIERNATKI JANÓWKA JABŁOŃSKIE POSIELANIE MIKOŁAJÓWEK
Raczki County	SŁOBODA WRONOWO SUCHA WIEŚ KURIANKI STOKI KRUKÓWEK JÓZEFOWO	Raczki County	SŁOBODA WRONOWO SUCHA WIEŚ KURIANKI STOKI KRUKÓWEK JÓZEFOWO
Suwałki County	PODBUDÓWEK DUBOWO DRUGIE ZIELONE KAMEDULSKIE ZIELONE KRÓLEWSKIE	Suwałki County	PODBUDÓWEK DUBOWO DRUGIE ZIELONE KAMEDULSKIE ZIELONE KRÓLEWSKIE

Variant III		**Variant IIIA**	
Augustów City	AUGUSTÓW 1	Augustów City	AUGUSTÓW 1
Augustów County	MAZURKI PRUSKA WIELKA BIERNATKI JANÓWKA JABŁOŃSKIE POSIELANIE MIKOŁAJÓWEK	Augustów County	MAZURKI PRUSKA WIELKA BIERNATKI JANÓWKA JABŁOŃSKIE POSIELANIE MIKOŁAJÓWEK
Raczki County	SŁOBODA WRONOWO SUCHA WIEŚ PLANTA SZKOCJA DOWSPUDA RUDNIKI KONIECBÓR KRUKÓWEK FRANCISZKOWO JÓZEFOWO BAKANIUK	Raczki County	SŁOBODA WRONOWO SUCHA WIEŚ PLANTA SZKOCJA DOWSPUDA RUDNIKI KONIECBÓR KRUKÓWEK FRANCISZKOWO JÓZEFOWO BAKANIUK RACZKI MOCZYDŁY
Suwałki County	PODBUDÓWEK DUBOWO DRUGIE ZIELONE KAMEDULSKIE ZIELONE KRÓLEWSKIE	Suwałki County	PODBUDÓWEK DUBOWO DRUGIE ZIELONE KAMEDULSKIE ZIELONE KRÓLEWSKIE
Suwałki City	SUWAŁKI	Suwałki City	SUWAŁKI

6.1 Analysed route variants of the Augustów Bypass

According to the subject of the contract (terms of reference) the orientation course of investment variants has been optimized. In the preliminary road study of the abovementioned project the following investment variant of the S8 road in the area of Augustów and Suwałki has been adopted:

a) assuming that the Pan-European Transport Corridor (Via Baltica) shall run through the route Budzisko – Suwałki – Białystok – Warszawa:

- Variant I – adopted as a modification of the construction design of the Augustów Bypass, implemented as the former IVL variant, however with the provision that the section from the end of the bypass on the existing road no. 8 and next within the designed Suwałki Bypass; the entire projected section of the S8 road Augustów – Suwałki shall lie within the Via Baltica road corridor;
- Variant II – adopted in order to minimise the collision of the variant I with the Natura 2000 area "Augustów Primeval Forest", applying the narrowing in the width of this area in the Chodorki village; the entire projected section of the S8 road Augustów – Suwałki shall lie within the Via Baltica road corridor;
- Variant III – adopted in order to avoid the collision of variants I and II with the Natura 2000 area "Augustów Primeval Forest", using the lack of protection, within the Natura 2000 network, a short section of the Rospuda Valley in the area of Raczki; the entire projected section of the S8 road Augustów – Suwałki shall lie within the Via Baltica road corridor;

b) modification of the abovementioned variants, on the area subjected to the assessment for variants I, II, III in order to present technical capacities to develop construction design, assuming that the I Pan-European Transport Corridor (Via Baltica) shall run through the route Budzisko – Suwałki – Ełk – Łomża – Warszawa:

- Variant IA – adopted as a modification of the construction design of the Augustów Bypass, implemented as the former IVL variant, however with the provision that the section from the end of the bypass on the existing road no. 8 and next within the designed Suwałki Bypass; the entire projected section of the S8 road Augustów – Suwałki shall not lie within the Via Baltica road corridor;
- Variant IIA – adopted in order to minimise the collision of the variant I with the Natura 2000 area "Augustów Primeval Forest", applying the narrowing in the width of this area in the Chodorki village; the projected section of the S8 road Augustów – Suwałki shall lie within the Via Baltica road corridor only on the section Raczki – Suwałki;

- Variant IIIA – adopted in order to avoid the collision of variants I and II with the Natura 2000 area "Augustów Primeval Forest", using the lack of protection, within the Natura 2000 network, a short section of the Rospuda Valley in the area of Raczki; the projected section of the S8 road Augustów – Suwałki shall lie within the Via Baltica road corridor only on the section Raczki – Suwałki;

Within the route, on the section crossing the Rospuda Valley in variants I and IA, large, unusual bridge constructions have been planned. These are large-scale bridges (depending on the accepted variant, 10-span, suspension or cable-stayed bridge) or a tunnel under the Rospuda Valley.

In case of fragments of the designed express way overlapping with the Augustów Bypass covered by the construction project and already partially implemented (according to the IVL variant – now known as the variant I), it was established that technical parameters adopted in this project do not meet technical provisions concerning the design express road and therefore necessary corrections of this project have been provided.

The environmental impact assessment was conducted also for the "0" variant – refraining from constructing the bypass, assuming that two abovementioned variants of I Pan-European Transport Corridor; however for the year 2010 only the construction of the section of the S8 road (Via Baltica) between Warszawa and Wyszków was assumed, and in the year 2020, alternatively on the entire route Warszawa – Białystok – Budzisko excluding the section Augustów – Suwałki or on the entire route Warszawa – Łomża – Ełk – Budzisko excluding the section from Raczki to Suwałki.

At the beginning of the projected bypass within boundaries of the city of Suwałki all variants run parallel to the existing road Augustów – Raczki, south of several villages located along the existing route. The planned route runs through flat and slightly corrugated agricultural areas of a cultural character. It crosses plains of fields, meadows and buffer strips. Within the route the "Borki" junction has been planned. Some of lands dedicated for the construction of the route have already been prepared for the investment. At the height of Wójtowskie Włóki there is a road fork. Variants II and III run further towards Raczki, while variants I and IA turn in a gentle arch to the north. The route crosses the existing road Augustów – Raczki with a viaduct, in which vicinity there shall be a "Włóki" junction constructed and next the route runs through flat meadows towards the forest complex of Augustów Primeval Forest. The viaduct has already been partially constructed.

Variant I and IA
After crossing the flat meadow area, the route shall step into the forest of the Augustów Primeval Forest, which area was included into the Natura 2000 network as the special habitats protection area "Augustów Primeval Forest" with a code PHL 200005, the special habitats protection area "Augustów Primeval Forest" with a code PHL 200002, at the beginning running at its border and then crossing it inside the complex. On this section of the Augustów Primeval Forest there was an "ecoduct" for animals planned. Further, the planned road crosses the Rospuda Valley. Depending on the variant, there will be differences in bridge solutions – beam trestle (variants I.1 and I.2); cable-stayed bridge (variant I.3), suspended bridge (variant I.4). In the variant I.5 the road shall run through a tunnel under the Rospuda Valley.

After crossing the Rospuda Valley the route crosses on the relatively short section the complex of the Augustów Primeval Forest surrounding gutter of the Rospuda Valley from the north. Next, the route runs through flat and slightly corrugated areas among plains of fields, meadows and buffer strips of a cultural and agricultural character on the "Rospuda Valley" Protected Landscape Area. It crosses the Szczeberka village, where close to each other two viaducts over the bypass shall be constructed, and next it runs among fields under another viaduct up to the junction with the national road Augustów – Suwałki in Poniatowo.

In the area of Poniatowo the "Gatno" junction has been planned. The planned route on the section of existing road between "Gatno" and "Dubowo" junctions had to be extended to required dimensions. With short sections the route crosses villages of Poniatowo, Szczepki (where a viaduct over the route was planned) and Olszanka. In the variant I, outside Juryzdyka the Service Circuite has been planned. It shall be located on a large part of formerly forest area. On the long section from Olszanka to Dubowa the route runs through the area of Augustów Primeval Forest. In both variants four passages for animals has been planned on the area of Augustów Primeval Forest. Ecoducts and passage embankments shall not be visible in the forest landscape, because they shall be covered. However viaducts themselves shall be visible from both sides of the road Augustów – Suwałki.

After the "Dubowo" junction the route turns to the west, crosses a minor part of the Augustów Primeval Forest and then crosses the Dubowo Pierwsze village and comes into the axis of the existing road Dubowo Pierwsze – Dubowo Drugie.

It runs through agricultural landscapes, changing character of space from agricultural into technical, due to the field of vision.

After crossing the road Raczki – Suwałki, on a flat, agricultural area, the "Airport" junction is located on the area of meadows and fallows between the road Raczki – Suwałki and the railway line. Variants I and IA differ significantly on that section – in terms of the course of route, location and geometry of the junction, as well as its scale. The Variant IA is significantly more expanded (full cloverleaf). The variant IA includes the Service Circuit near the Podbudówek village.

Variant II and IIA
From the height of the "Włóki" junction the variant II (as well as the variant III) runs further parallel to the road Augustów – Raczki, almost without differences in terms of changes in the landscape, causing effects described for the variant I on agricultural lands between Augustów and Raczki. Just before Wójtowskie Włóki a passage for animals has been planned that shall be strongly exposed in flat and forestless agricultural land. On that section, after passing Wójtowskie Włóki (Kolonia Augustowska) on both sides of the road there are rest areas. The section between Augustów and Raczki is very long, and therefore the wide road will visible from far distance, strongly interfering with the landscape. The route runs parallel to the 110 kV line. The route passes in the same distance villages Wójtowskie Włóki, Mazurki, Janówka, Jabłońskie. In the area Mikołajówki there is a junction "Janówka" located with many transverse connections with local roads, erected above the land. Further, towards Raczki, in the area of villages Słoboda and Wronowo-wybudowania, a viaduct above the route has been planned.

The variant II differs from the variant IIA only in the area of Sucha Wieś. In the variant IIA, to the south-west of Sucha Wieś, between villages Wronowo and Sucha Wieś the "Wronono" junction has been located (full cloverleaf), which connects further to the south-west with the Via Baltica route. Further the route runs as in the variant II.

In the variant II the route turns in a wide arc to the north-east and crosses Sucha Wieś, where another junction "Sucha" has been planned. Further the route in variants II and IIA runs within common trail to the north, harmonically crosses the landscape interior, steps into Protected Landscape Area "Rospuda Valley" and the Natura 2000 area, next is runs near the village Chodorki. It crosses touristic trails and the canoe trail – on the Rospuda River. The road designed passes close to the existing bridge. The new bridge through the Rospuda River in the vicinity of Chodorki is relative large (length: 160 m, width: 28,8 m), which makes it a dominant technical element of the cultural landscape. It will be exposed in the picturesque landscape, particularly from water, however from short distance, due to the shape and land cover. The route all the time runs parallel to the 110 kV line. After crossing the river it enters a corrugated agricultural area. Further to the north the route crosses the village Kurianki with a viaduct within the road axis. The route shall runs close to the school building, which makes it necessary to demolish buildings. To the north of Kurianki the route crosses the Szczeberka River on the bridge construction, of a smaller scale than in the case of Rospuda near Chodorki. To the east from Stoki, about the middle of the distance between Szczeberki and Las Koniecbór, an ecoduct for animals has been planned. The route still runs into the Protected Landscape Area (OCHK) "Rospuda Valley", next is crosses the forest area of the Koniecbór Forest. To the north of the forest it crosses the village Józefowo, running close to one building. Then it passes through legible, flat and harmonious landscape interior of an agricultural character, still running parallel to the 110 kV line up to the village Józefowo. Between these two villages, in the middle of the landscape interior, there shall be Rest Areas on both sides of the road, causing complete transformation of the current landscape. In Józefowo there are no planned demolitions, however visual impacts will be significant due to the proximity of the investment. To the north of Józefowo, the route runs on corrugated agricultural areas. They create further legible landscape interiors, closed from the north-east with the forest complex of the Augustów Primeval Forest covered with protection as OCHK "Augustów Primeval Forest and Lakes". Also in this area an ecoduct has been planned. Next, the route passes from the west the OCHK area. To the north-west the landscape changes, it becomes more varied, corrugated with numerous depressions and in-filed ponds, rushes, small marshes and clumps of trees, covering distant vision axis. The route runs between villages Kierzak and Poddubówek, causing no demolitions. Furhter the route runs in a gentle curve to the north-west, approaching another village – Dubowo Drugie. The road finishes with the "Airport" junction, the same for both variants. The junction is located close to suburbs of Suwałki, in the vicinity of the industrial zone.

Variant III and IIIA
From a place in the area of Wronowo, where variants II and IIA splits to the north-east, up to the Sucha Wieś, the variant III runs towards Raczki, to the north-west, crossing flat, slightly corrugated agricultural landscapes of a cultural character. They cross plains of fields, meadows and buffer strips causing effects described for previous

sections. In the area of village Szkocja a passage for animals has been planned. The route approaches to the village Szkocja, where the bypass runs on the land area, while the local road on a viaduct over the bypass.

At the height of the Szkocja village, designs of variants III and IIIA are completely different. The variant III passes the village with a wide arch, and then the new local road runs on the viaduct over the bypass. The bypass crosses the former historical road being an vision axis from Dowspuda to Szkocja, once planted with trees. Then it crosses the road Augustów – Raczki, running on the viaduct over the existing road. On the crossroads of the bypass and the existing road Augustów – Raczki close to Dowspuda the "Raczki" junction has been planned. The route runs perpendicularly to the road Raczki – Augustów and comes into the OCHK and the Rospuda River flowing behind the greenery strip. The new bridge on the Rospuda River between Dowspuda and Raczki is relatively large (length: 160 m, width: 28,8 m) which makes it a dominant technical element of the landscape, particularly from water.

The variant IIIA requires implementation of the interchange of the cloverleaf type on the western side of the Szkocja village. The junction shall be a part of the Via Baltica route. New sections of the route splits from the junctions in four directions, cutting the land formerly used as agricultural. One of the sections has been described, second runs towards Roaspuda as in the variant III, another extends it in the opposite direction towards Ełk (Via Baltica) and the fourth runs towards Raczki, passing the village from the west (where the Service Circuite shall be constructed) up to the connection with the road towards Olecko.

The route of the variant III is consistent with the variant IIIA after crossing the already existing road Augustów – Raczki. The bypass crosses the Rospuda River on a bridge, not very visible in the landscape, because hidden in the greenery. Further to the north the route crosses wide, harmonious landscape interior , running almost parallel to the road Raczki – Suwałki. Between Rospuda and the Rudniki village a passage for animals has been planned. The road crosses the Rudniki village on a viaduct within the bypass, erected above the local road and the terrain. To the north of the village Rest Areas on both sides of the road have been planned. Further the route crosses the local road Koniecbór – Stoki that runs on a viaduct over the bypass. After crossing this road the route enters the Protected Landscape Area "Rospuda Valley", runs to the north towards the Koniecbór Forest, crossing the Szczeberka River, which requires construction of another bridge. After crossing the Rospuda River, the road runs through flat and gently corrugated agricultural landscapes, crosses plains of fields, meadow and buffer strips causing effects described for previous sections. Intersecting the Koniecbór Forest will cause effects on the landscape analogous to these for the intersected Augustów Primeval Forest.

After leaving the forest the road crosses the Franciszkowo village, running on a viaduct above the local road elevated over the ground level on a very long section.

After passing Francisszkowo, the road runs on a corrugated land, with numerous depressions and in-field ponds, rushes, small marshes and clumps of trees.

Just before the Poddudówek village a passage for animals has been planned. Further to the north the route crosses the Poddubówek village that shall be crossed on a viaduct erected above the local road. Further the road runs through areas of an agricultural character between Poddubówek and Dubowo II.

The road ends at the "Airport" junction, the same for both variants III and IIIA, such as for the variant II in the area of industrial suburbs of Suwałki.

6.2 Scale of the Project

The length of the analysed section of the express road shall, depending on the variant, amount to about 32.2 – 35.1 km, including:
- in variant I: 32 252 m
- in variant II: 32 990 m
- in variant III: 34 531 m
- in variant IA: 32 551 m
- in variant IIA: 33 453 m
- in variant IIIA: 35 090 m

The Project involves implementation of the following main construction works included in the conceptual design of the road being an integral part of the Report on the environmental impact of the project:

a) in the variant I:
- Construction of new, asphalt road surface and reconstruction of existing surfaces;

- Construction of the "Augustów" junction at 0+463 km, at the intersection of the planned road S8 with the existing national road no. 61 Łomża – Augustów;
- Construction of the "Borki" junction at 2+254 km, at the intersection of the planned road S8 with the existing national road no. 16 Ełk – Augustów;
- Construction of the "Włóki" junction at 5+682 km, at the intersection of the planned road with the existing road no. 664 Augustów – Raczki;
- Construction of the "Gatno" junction at 16+511 km, at the connection of the planned road with the existing road no. 8 Augustów – Suwałki;
- Construction of the "Dubowo" junction at 25+999 km, at the connection of the planned road with the existing road no. 8 Augustów – Suwałki;
- Construction of the "Airport" junction at 29+438 km, at the intersection of the planned road with the existing road no. 655 Olecko – Raczki – Suwałki;
- Construction of new engineering objects, including viaducts in the abovementioned junctions, bridges over rivers Kamienny Bród (Zalewianka), Rospuda and Szczeberka, viaducts over transverse roads, passages for animals and passages below roads and exit roads;
- Construction of parallel service roads (maintenance) with roadways made of an asphalt concrete;
- Construction of the road drainage systems;
- Reconstruction of infrastructure networks;
- Construction of environmental protection facilities.

b) in the variant II:

- Construction of new asphalt road surface and reconstruction of existing surfaces;
- Construction of the "Augustów" junction at 0+463 km, at the intersection of the planned road S8 with the existing national road no. 61 Łomża – Augustów;
- Construction of the "Borki" junction at 2+254 km, at the intersection of the planned road S8 with the existing national road no. 16 Ełk – Augustów;
- Construction of the "Janówka" junction at 12+949 km, at the intersection of the planned road with the existing poviat road Janówka – Rutki – Rajgród;
- Construction of the "Sucha" junction at 18+436 km, at the intersection of the planned road with the existing road no. 664 Augustów – Raczki;
- Construction of the "Airport" junction at 30+133 km, at the intersection of the planned road with the existing road no. 665 Olecko – Raczki – Suwałki;
- Construction of new engineering objects, including viaducts in the abovementioned junctions, bridges over rivers Kamienny Bród, Rospuda and Szczeberka, viaducts over transverse roads, passages for animals and passages below roads and exit roads;
- Construction of parallel service roads (maintenance) with roadways made of an asphalt concrete;
- Construction of the road drainage systems;
- Reconstruction of infrastructure networks;
- Construction of environmental protection facilities.

c) in the variant III:

- Construction of new asphalt road surface and reconstruction of existing surfaces;
- Construction of the "Augustów" junction at 0+463 km, at the intersection of the planned road S8 with the existing national road no. 61 Łomża – Augustów;
- Construction of the "Borki" junction at 2+254 km, at the intersection of the planned road S8 with the existing national road no. 16 Ełk – Augustów;
- Construction of the "Janówka" junction at 12+949 km, at the intersection of the planned road with the existing poviat road Janówka – Rutki – Rajgród;
- Construction of the "Raczki" junction at 21+012 km, at the intersection of the planned road with the existing road no. 664 Augustów – Raczki;
- Construction of the "Airport" junction at 31+654 km, at the intersection of the planned road with the existing road no. 665 Olecko – Raczki – Suwałki;
- Construction of new engineering objects, including viaducts in the abovementioned junctions, bridges over rivers Kamienny Bród, Rospuda and Szczeberka, viaducts over transverse roads, passages for animals and passages below roads and exit roads;
- Construction of parallel service roads (maintenance) with roadways made of an asphalt concrete;
- Construction of the road drainage systems;
- Reconstruction of infrastructure networks;

- Construction of environmental protection facilities.

d) in the variant IA:
- Construction of new asphalt road surface and reconstruction of existing surfaces;
- Construction of the "Augustów" junction at 0+463 km, at the intersection of the planned road with the existing national road no. 61 Łomża – Augustów;
- Construction of the "Borki" junction at 2+254 km, at the intersection of the planned road with the existing national road no. 16 Ełk – Augustów;
- Construction of the "Włóki" junction at 5+682 km, at the intersection of the planned road with the existing road no. 664 Augustów – Raczki;
- Construction of the "Gatno" junction at 16+511 km, at the connection of the planned road with the existing road no. 8 Augustów – Suwałki;
- Construction of the "Dubowo" junction at 25+999 km, at the connection of the planned road with the existing road no. 8 Augustów – Suwałki;
- Construction of the "Airport" junction at 29+300 km, at the intersection of the planned road with the existing road no. 655 Olecko – Raczki – Suwałki (Via Baltica), providing access road to the road no. 655 Olecko – Raczki – Suwałki;
- Construction of new engineering objects, including viaducts in the abovementioned junctions, bridges over rivers Kamienny Bród (Zalewianka), Rospuda and Szczeberka, viaducts over transverse roads, passages for animals and passages below roads and exit roads;
- Construction of parallel service roads (maintenance) with roadways made of an asphalt concrete;
- Construction of the road drainage systems;
- Reconstruction of infrastructure networks;
- Construction of environmental protection facilities.

e) in the variant IIA:
- Construction of new asphalt road surface and reconstruction of existing surfaces;
- Construction of the "Augustów" junction at 0+463 km, at the intersection of the planned road with the existing national road no. 61 Łomża – Augustów;
- Construction of the "Borki" junction at 2+254 km, at the intersection of the planned road with the existing national road no. 16 Ełk – Augustów;
- Construction of the "Janówka" junction at 12+949 km, at the intersection of the planned road with the existing poviat road Janówka – Rutki – Rajgród;
- Construction of the "Wronowo" junction at 0+600 km, at the intersection of the planned road with the express road Ełk – Raczki – Suwałki (Via Baltica), providing access road to the road no. 655 Olecko – Raczki – Suwałki and the road no. 664 Augustów – Raczki (with the western bypass of Raczki);
- Construction of the "Airport" junction at 13+305 km, at the intersection of the planned road with the existing road no. 665 Olecko – Raczki – Suwałki;
- Construction of new engineering objects, including viaducts in the abovementioned junctions, bridges over rivers Kamienny Bród, Rospuda and Szczeberka, viaducts over transverse roads, passages for animals and passages below roads and exit roads;
- Construction of parallel service roads (maintenance) with roadways made of an asphalt concrete;
- Construction of the road drainage systems;
- Reconstruction of infrastructure networks;
- Construction of environmental protection facilities.

f) in the variant IIIA:
- Construction of new asphalt road surface and reconstruction of existing surfaces;
- Construction of the "Augustów" junction at 0+463 km, at the intersection of the planned road with the existing national road no. 61 Łomża – Augustów;
- Construction of the "Borki" junction at 2+254 km, at the intersection of the planned road with the existing national road no. 16 Ełk – Augustów;
- Construction of the "Janówka" junction at 12+949 km, at the intersection of the planned road with the existing poviat road Janówka – Rutki – Rajgród;
- Construction of the "Szkocja" junction at 0+600 km, at the intersection of the planned road with the express road Ełk – Raczki – Suwałki (Via Baltica), providing access road to the road no. 655 Olecko – Raczki – Suwałki and the road no. 664 Augustów – Raczki (with the western bypass of Raczki);

- Construction of the "Airport" junction at 12+583 km, at the intersection of the planned road with the existing road no. 665 Olecko – Raczki – Suwałki;
- Construction of new engineering objects, including viaducts in the abovementioned junctions, bridges over rivers Kamienny Bród, Rospuda and Szczeberka, viaducts over transverse roads, passages for animals and passages below roads and exit roads;
- Construction of parallel service roads (maintenance) with roadways made of an asphalt concrete;
- Construction of the road drainage systems;
- Reconstruction of infrastructure networks;

6.3 Land occupancy and demolitions

In order to ensure an appropriate width of the road lane it is necessary to take over forest, agricultural and building lands as well as demolitions of residential and household buildings. All these buildings will be demolished at the expense of Investor and their owners will receive compensations of the value determined individually by an appraiser. Summary of preliminary determined numbers of residential buildings, colliding with the route of the S8 road and intended for demolition in particular variants of the road are provided in the **table 1**.

The project occupies, depending on the variant, from about 1440 ha to about 1726 ha. Detailed summary of land occupancy divided into agricultural, forest and building lands, etc. have been presented in the **table 1** below.

Table 1. Summary quantitative comparison of course variants of the planned Augustów Bypass

No.	Quantitative factor	Variant I	Variant II	Variant III	Variant IA	Variant IIA	Variant IIIA
1.	Length of the S8 road [km]	32.25	32.99	34.53	32.55	33.45	35.09
2.	Road extension[1)] [%]	19.0	21.7	27.4	20.1	23.4	29.5
3.	General land occupancy [ha]	404	439	450	407	446	448
4.	Buildings intended for demolition[2)] [items]	11	8	6	14	10	7

Comments:
1) determination in relation to the shortest straight line connecting the beginning and the end of the designed section of the road of a length of 27.1 km;
2) only residential buildings on building lands and agricultural and habitats (that is without household buildings).

6.4 Construction staging for the Augustów Bypass

Based on traffic forecasts the single stage implementation of the Augustów Byass on the entire section between Augustów and Suwałki. The adventage of this solution is the fastest possible obtaining the communication and social effect in a form of relieving the city of Augustów from the transit traffic on the existing road no. 8.

In the case of variants IIA and IIIA the following staging could be adopted:

- In the variant IIA: stage I: (Ełk) – Wronowo – Suwałki, stage II: Augustów – Raczki;
- In the variant IIIA: stage I: (Ełk) – Szkocja – Suwałki, stage II: Augustów – Raczki.

However, the adoption of such staging depends then on the implementation of the section of the express road between Ełk and Wronowo or Szkocja (because only then the full communication effect would occur) and from strengthening the surface on the voivodeship road no. 664 between Augustów and Raczki (where the heavy transit traffic towards Białystok shall be directed during the period between completion of stages I and II).

6.5 Impact of the Project on existing elements of the road network

The investment shall:

- Increase comfort of ride and level safety of traffic within the road corridor between Augustów and Suwałki;
- Relieve the existing road system from the transit traffic;
- Reduction of travel times within the impact zone of the road S8.

The construction of the Augustów Bypass shall change the road traffic distribution in the area of Augustów and Suwałki, particularly it shall:

- Load the planned express road with the traffic;
- Decrease of the traffic on the existing national road no. 8, section passing through Augustów;
- Decrease of the traffic on the existing voivodeship ship no. 664 Augustów – Raczki (only in variants II, IIA, III and IIIA);
- Decrease of the traffic on the existing voivodeship ship no. 665 Raczki – Suwałki (only in variants IA, II, IIA, III and IIIA);
- Increase of the traffic on transverse roads towards junctions.

Refraining from constructing the road S8 Augustów – Suwałki (zero variant) will cause gradual increase of the road traffic on existing elements of the road network, including particularly the national road no. 8 in Augustów and Suwałki. The situation will cause further decrease of travel speed and periodical blocking of crossroads on this route, and therefore the increase of traffic on alternative routes, for example on the voivodeship route Augustów – Raczki – Suwałki as well as on poviat and municipal roads, particularly these located in the vicinity of urban area. In the near future, the situation may lead to complete blockade of the road traffic during peak hours in Augustów and Suwałki, and therefore to further significant increase of inconveniences associated with the transit traffic for local residents.

7. Characteristics and valorization of the environmental condition and cultural heritage within the foreseen impact of the Project analysed

The area in question is located in the province Eastern Baltic – Belarusian Low Land, sub-province Wschodniobałtyckie Lake Region and is a part of two macro-regions: Litewskie Lake Region and Mazurskie Lake Region. The Litewskie Lake Region is represented by the mesoregion Zachodniosuwalskie Lake Region being the western part of the Litewskie Lake Region and bordered on the south-east with the mesoregion Augustowska Plain (also a part of the Litewskie Lake Region). The Mazurskie Lake Region represents the mesoregion Ełckie Lake Region, which southern and westernmost parts are situated to the north-west of Augustów.

The bypass route is located in the area of the Mazury climate district characterised, in addition to mountain areas, by the most harsh climate in Poland.

The main river in the area in question is Rospuda that flows from north-west to south-east to the Rospuda and Necko lakes. It is a shallow and wide river of a meandering riverbed that flowing from the Necko Lake changes its name into Netta River. The eastern part of the area is drained by the tributary of Rospuda – the Blizna River together with its own tributary Szczeberka. The north-western part of the is drained by Zalewianka flowing to the Necko Lake in narrow and deeply eroded valley, while the south-east and south part – a regulated Netta River and its tributary Turówka. In river valleys there are groundwater effusions. The area of designed investment variants of the Augustów Bypass is the area of the Necko Lake catchment and in its southern section, directly to the Netta River catchment, which – together with the Augustów Canal – discharge surface water to the Biebrza River. The assessed beginning of variants of bypass route is located about 1 km from the Augustów Canal and about 1.5 km from the Sajno Lake and the end of the route – in the variant I in the area between Olszanka and Szczeberka rivers, while in variants II and II – in the area belonging the Szczeberka River catchment being a tributary of the Blizna River.

In the area of the planned Augustów Bypass there are three lakes: Necko connected with Rospuda and Jałowo. Due to the genesis these lakes belong to glacial ribbon lakes. The largest one – Necko of the area exceeding 400 ha and depth 25 m, in the east, through the Klonowiecki Canal is connected with the Białe Lake and in the south, through the Bystry Canal with the Sajno Lake.

Developing the report on the environmental impact of the investment available materials concerning occurrence in the area in question of architectural and technical monuments as well as archaeological sites have also been taken into account. In the area there are the following monuments located:

- Former orthodox church, nowadays the Church of Our Lade of Częstochowa in Augustów built in the second half of the 19th century;
- Neo-Gothic church in Janówka built in the first quarter of the 20th century;
- Part of the former manor-garden complex in Koniecbór, wooden manor in Koniecbór and the mansion park;
- Remains of the manor-garden complex in Dowspuda, ruins of the manor and the building called "guardhouse" as well as the manor park;

as well as other objects extensively described in the Report, that is cemeteries, technical monuments such as canals, railways and urban and rural monuments.

The area included in the assessment is located in the north – east part of Poland, in the region described as "Green Lungs of Poland". Boundaries of the abovementioned region are presented in the figure below. The region for the first time described in July 1983 in the "Światowid" monthly magazine, in an article of Krzysztof Wolfram entitled: *Green Lungs of Poland*. In this region the larges system of protected areas has been established including: 4 National Parks: Białowieża National Park (included in the UNESCO Natural Heritage List), Biebrzański, Narwiański and Wigierski, 13 Landscape Parks, over 270 natural reserves, about 5 700 natural monuments, generally about 43.7% of the area of the Green Lungs of Poland is covered by various forms of legal protection.

The area included in the assessment is partially located in the Augustów Primeval Forest, and one of the variants of the road crosses the Rospuda Valley. The Augustów Primeval Forest, together with its continuation in Litwa and Belarus, is the largest, comprehensive primeval forest complex in this part of Europe. It was then, when the project to create a vast natural reserve covering the marshy valley and adjacent forest there – however the project has not been implemented yet.

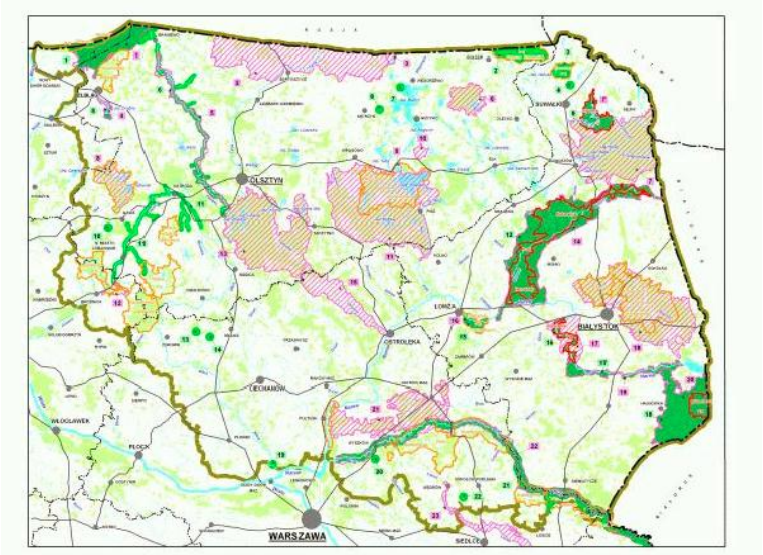

Fig. 1. Green Lungs of Poland (Source: Internal documents of the Green Lungs of Poland Association. 2008)

For the purpose of the Report on the environmental impact of the project the natural inventory of natural habitats, species of plants and animals, including field researches, has been conducted. Results of the natural inventory and valorisation have been presented on maps and in the descriptive part containing description of the methodology applied, photographic documentation and discussion on outcomes in the Annex IV to the Report (Z. IV). Modified variants – the so called A variants are located in the area covered with the assessment for variants I, II, III.

Until recently, the only forms of nature protection appointed in the area covered by the study have been two areas of protected landscape ("Rospuda Valley" in the area of rural communes: Nowinka, Raczki and Suwałki and the "Augustów Primeval Forest and Lakes" in the area of rural communes: Niwinka and Augustów as well as urban communes Augustów and Suwałki), several ecological lands (lime and hornbeam alley leading to the Pac palace in Dowspuda in the Raczki commune, as well as several individual trees and groups of trees, mainly scots pines, in the Szczebra Forest Inspectorate in the area of the Nowinka commune and the city of Augustów). Currently the large part of the Primeval Forest has been covered by the Natura 2000 programme and constitutes the Special Birds Protection Area "Augustów Primeval Forest" PLB 200002 and the Special Habitats Protection Area "Augustów Primeval Forest" PHL 200005. In the upper course of the Rospuda River there are also planned possible special habitats protection areas that had been included in the Shadow List 2008: "Upper Rospuda Valley and Zocie Moor.

The cultural landscape of the area covered by the study may be described as mixed. There are layouts of fields preserved here and locations of villages, colonies and habitats have not been significantly changed until the middle of the 20th century. Despite the dominant in the landscape modern buildings, in some villages there still are old residential and household buildings. The area in question is characterised by a significant share of natural landscape elements (geo-morphology and waters). In the vicinity of the variants analysed there are monuments and complexes of architectural monuments preserved, as well as individual technical monuments, historic cemeteries and burials, two historic urban systems. Available data about 53 archaeological sites have been collected – all of them are flat sites invisible on the surface. One of the most precious monuments is the Augustów Canal.
The area covered by the assessment is partially located in the area of the Augustów Primeval Forest and one of the route variants – variant I and variant II – crosses a fragment of the Rospuda Valley located in the Augustów Primeval Forest. The Augustów Primeval Forest and its continuation in Litwa and Belarus is the largest comprehensive primeval forest complex in this part of Europe. Until recently, the only forms of nature protection appointed in the area covered by the study have been two areas of protected landscape – Rospuda Valley and Augustów Primeval Forest and Lakes, several ecological lands and individual trees. Currently the Augustów Primeval Forest is a part of the area protected within the European network Natura 2000 – established pursuant to the so called habitats Directive the Special Habitats Protection Area "Augustów Primeval Forest" and pursuant to the Birds Directive the Special Birds Protection Area "Augustów Primeval Forest". The aim of the study was, among others, assessment of the impact of construction of Augustów Bypass (for particular variants of the investment) on the subject and objective of protection on the Natura 2000 area – "Augustów Primeval Forest". This was equivalent to the answer to the question, whether and for which variants analysed in the Report

the implementation of the Project may have significant and adverse effect (pursuant to the Directive 92/43/EEC) on plant and animal populations as well habitats, for which protection the abovementioned areas Natura 2000 have been established.

In the area covered by the study, the most precious natural object is the Rospuda Valley. It is the only, so large and well preserved moss flow moor in Europe in our climate zone. In this zone the climate for centuries contributed to development of human societies and virgin areas have been managed and transformed so to satisfy human needs. The process affected also peaty river valleys occupied mainly for agriculture. Centuries ago, moors of the same type as Rospuda were common, characteristic elements of the landscape. The Rospuda Valley that preserved in a condition close to the natural can be considered today to be "natural relic" that allows us to imagine, how European river valleys looked like in the pre-settlement period. Due to the fact that moors similar to Rospuda that preserved in the non-transformed form are very rare and usually occupy small areas, also plants characteristic to them are now a rarity.

The Special Birds Protection Area "Augustów Primeval Forest" is extremely rich in terms of breeding birds species. Several species living here are very rare and endangered nationwide, such as: Short-toed Snake Eagle, Greater Spotted Eagle, Eurasian Eagle-Owl. In the area covered by the study necessary for the development of the Report, between the years 2005 – 2008 occurrence of 34 species listed in the Attachment I to the Birds Directive has been detected.

The Augustów Primeval Forest is an important for the country refuge of protected large predatory mammals listed in the Attachment II to the Habitats Directive – wolf and lynx.

The monitoring of levels of noise in the vicinity of the Project have been performed by the Voivodeship Inspectorate for Environmental Protection in Białystok – office in Suwałki. In the Podlaskie Voivodeship the industrial noise is not a significant problem. However a significant and increasing problem is the communication noise. The largest impact on noise annoyance in Suwałki and Augustów has the share of heavy vehicles in the traffic. Pilot studies specific noise annoyances proved that the only effective method to combat the noise in Suwałki and Augustów would be construction of bypasses for both these cities.

As for the air quality in the annual assessment of levels of substances in the air and classification of areas of the Podlaskie Voivodeship in 2003 developed by the Inspectorate for Environmental Protection in Białystok, the Augustów Poviat has been included in the class A (not exceeding the permissible level) for all studied contaminations. The office of the Inspectorate in Suwałki, as of 2008, does not have any registered plants (facilities) that might significantly affect the environment in areas in the direct vicinity of analysed variants of the Augustów Bypass.

For the purpose of this environmental assessment, a certified testing laboratories performed measurements of noise in one measurement intersection on route of each investment variants and on the route of the existing route of the national road no. 8 in Augustów, in order to determine the acoustic background in its current state.

The detailed study concerning measurements performed has been attached to this Report in the Attachment **Z. I**.

The environmental assessment, particularly in terms of air quality and acoustic climate, includes the fact that pursuant to the specification of Ministry of Health, published on the web site of the Ministry, as of the year 2008, Augustów shall be considered as a health resort. However, the status of this resort shall be understood as the transitional period to the complete fulfilment of requirements of the Act of 28th of July 2005 on health resort therapy, health resorts and resort protection areas. It shall also be highlighted that according to current provisions the Rospuda River below the village of Raczki was covered by the silence zone.

The characteristics of the area to be assessed covered geological and hydrogeological conditions in the area of the Augustów Bypass planned. The main source of water supplies for people living the Podlaskie Voivodeship are underground waters (Tertiary and Quaternary), which total operational resources have been estimated as 658.7 hm^3 (GUS, 2005). The amount of water resources in the voivodeship has been reduced by 1.5 hm^3 in relation to 2004. Underground waters are characterised by relatively good quality, however, due to the sensitivity and low renewability require special protection. It shall be noted that the route of the Augustów Bypass variants does not cross areas of main aquifers of national importance.

In areas that are located in the direct vicinity of variants of the Augustów Bypass that are subject of this environmental assessment no plants (facilities) that could significantly affect the environment have been detected.

8. Impact assessment of analysed variants on the environment and cultural heritage

8.1 Potential impact of the Project on the environment

In relation to the closest vicinity of the Augustów Bypass planned, the biggest ecological problems shall be inconveniences related to traffic noise and air and soil pollutions (caused by exhaust gases from engines of vehicles travelling on that road) and furthermore the problem will be the possibility of contamination of ground and surface waters in rivers due to failures (accidents) of a tank containing hazardous material moving on the road.

If the planned bypass is not equipped with appropriate environmental protection measures, then after commissioning the environment will be exposed to excessive, adverse impacts of factors associated with the large traffic volume, particularly in relation to:

- Noise disturbance for surrounding residential buildings;
- Surface water contamination in adjacent rivers and drainage ditches;
- Road accidents with wild animals, what in the longer perspective may cause a significant decline of number of these animals;
- Increased levels of air contaminations;
- Soil, crops and plants contaminations.

8.2 Plants and animals

The study has been developed by a team consisted of experts in various fields. In order to perform the assessment series of input materials for analysis and prognosis have been studied, including the traffic prognosis for the entire road network, on which the implementation of the bypass will impact (particularly on the network of roads and streets in Augustów) for the year 2010 and 2020. Prognosis take into account both the situation, when the bypass is implemented and when it is not implemented.

The environmental inventory of the entire area covered with the evaluation has been performed, including field works and the previously performed studies concerning this matter have been analysed. The inventory was related to both plants and animals, as well as their habitats. The result of the inventory was development of maps presenting distribution of habitats and species of plants and animals in the area covered by the study.

The analysed variants of the Augustów Bypass have been subjected to the botany valorisation in order to select the variant with the least adverse impact on the vegetation of the area in question. Each of variants was analysed with the same parameters. In addition, also the analysis of all previous studies has been performed, including Reports on the Environmental Impact Assessment for variants of the I group (formerly IVL), delivered by the Principal. Then, with ArcGIS 9.2 and MapInfo 8.0 software, spatial relations between elements of the natural environment and the planned route of variants of the Augustów Bypass. A set of habitats and topographic maps including course of planned road variants has been developed.

Due to the fact that analysed variants can have potential adverse impact on the refuge Augustów Primeval Forest (PLH 200005), the habitat evaluation was also performed for particular variants, in accordance with requirements of the article 6 of the Habitats Directive 92/43/EEC.

The comparison of variants shows that the most precious areas in terms of value of plants is crossed by the variant I of the investment planned. Values of plants along variants II and III are similar are significantly smaller than along the variant I, however for the variant II it is slightly more valuable than for the variant III. The comparative assessment of variants, analysis of impact on plants outside the Natura 200 area as well as the habitat assessment clearly show that the variant that brings the least damages for plants of the area analysed is construction of the Augustów Bypass in the variant III. The construction of the bypass in the variant I is definitely the most harmful for natural values.

The analysis of particular variants of the Augustów Bypass in terms of its impact on animals, excluding birds, allows to conclude that the variants II and IIA (“Chodorki”) as well as III and IIIA (“Raczki”) have significantly lower adverse impact in comparison with variants of the group I, as well as in comparison with the variant 0. Variants III and IIIA (“Raczki”) completely bypass habitats of animals located within the Natura 2000 area,

which decides on its less interference in the natural environment. Variants III and IIIA mostly contribute to general prospects of sustaining the ecological integrity of the north-east part of Poland.

Refraining from construction of the Augustów Bypass (in the absence of other communication solution, for example the Via Baltica road), which will cause further increase of the traffic, particularly the heavy motor vehicle on the existing national road no. 8. Large intensity of the vehicular traffic on the existing national road causes significant losses in the fauna of the area in question, including the protected area of Natura 2000 – Augustów Primeval Forest. Sustaining such condition will be detrimental to the protection of birds and other animals living in the Augustów Primeval Forest.

Due to the extremely rich in fauna part of the primeval forest and swamps in this area of Rospuda, the construction of the road in accordance with variants of the group I shall cause extremely adverse impacts on the entire natural complex. Directly or indirectly many habitats of breeding birds will be endangered, including extremely rare species and endangered on a nation scale.

In the case of variants II and IIA the route crosses the narrow, final western part of the "Augustów Primeval Forest". It cannot be excluded the adverse impact of the planned investment in accordance with variants II and IIA on protected species of birds and their habitats. However, due to the peripheral location of the variant in relation to the Natura 2000 area and possible impact on a small part of population of protected species, it will not significantly affect their favourable protected status nor it will affect the integrity of the entire area of the "Augustów Primeval Forest". Variants II and IIA are definitely more favourable (also in terms of protection of natural value of the Natura 2000 area – "Augustów Primeval Forest") in relation to variants of the group I, however less favourable in relation to variants III and IIIA.

The route led in accordance with variants III and IIIA bypasses naturally valuable areas, including the area of the "Augustów Primeval Forest". Without doubts it can be excluded that the construction of the road in accordance with variants III and IIIA will have significant adverse impact on protected species of birds and their habitats, as well as for the integrity of the entire area "Augustów Primeval Forest".

Due to the will to minimise the risk of collisions with animals it has been proposed to fence the bypass planned on its both sides. Introduction of road fences forces the construction of passages for animals that will allow for connection of habitats crossed by the road and increase the capacity of ecological corridors.
On habitat areas crossed by the planned road the concentration of passages for animals has been adjusted to spatial requirements of species, taking into account the average size of individual areas established pursuant to special studies. The number of passages and their types differ depending on the variant.

Types of passages	**Number of objects**		
	Variant I (IVL)	**Variant II ("Chodorki")**	**Variant III ("Raczki")**
Trestle bridges or tunnels	1	-	-
Upper passages	6	3	4
Lower passages + extended bridges	7	12	14
Extended passages	42	20	22
Joint passages	-	-	1

The variant I (IVL) to the greatest extent affects valuable habitats of many species of animals. In this variants, even the construction of large number of passages cannot compensate losses arising from the fragmentation and breach of habitats. Variants II ("Chodorki") and III ("Raczki") have lower degree of interference with animal habitats and the passages proposed aim at ensuring the possibility of migration of animals outside the area of the Augustów Primeval Forest. Differences in the number of passages for particular variants arise from their location and the land topography. The variant III ("Raczki") is the most favourable one, because not affecting valuable habitats of priority and protected species it creates the largest possibilities of proper location of passages of animals. The variant II ("Chodorki") passes relatively more urban areas and more flat in the same time, which reduces possibilities to determine possible locations od passages for animals. Therefore the general capacity for animals (after construction of passages) in the variant III ("Raczki") shall be higher than in the variant II ("Chodorki").

8.3 Soils

From the perspective of the use value of soils for the agriculture and impacts on productivity of the fragmentation of soils of the high agricultural value the variant I (formerly IVL) is the least interference in the agriculture landscape. It arises from the relatively short section of this variant and small share of soil complexes with high agricultural value.

The assessment of retention capacity of soils in particular variants indicates that they are similar, however the variant I (IVL) per unit of area has the largest capacity to retain water in the soil profile in relation to variants III "Raczki" and II "Chodorki", although much shorter route of this variant.

The assessment of habitat functions of soils associated with peats and organic formations, as a reservoir of water, being an element of swampy ecosystems important for preservation of the biological diversity of the landscape, indicates that variants are similar. However, it shall be clearly noted that the assessment of the natural value of areas around route variants cannot be reduced to the indicator analysis of soils. The analysis of soils performed indicates that the smallest interference into productivity potential of the space is associated with the variant I (IVL), while only to a slightly lesser degree with variants III "Raczki" and II "Chodorki".

Concluding, it has to stated that the assessment of investment variants in terms of agricultural value of soils indicates that variants are comparable. This assessment as a part of the environmental impact assessment of the Augustów Bypass is of secondary significance, while the most important criterion shall be the analysis of the natural landscape value.

8.4 Air

Combustion of fuels in engines of vehicles will cause air contamination. The main adverse components of exhaust gases include nitrogen oxides, hydrocarbons, carbon monoxide, sulphur oxides and suspended dust. In order to establish the impact of the implemented investment on the air quality the prognosis of concentration of air contaminations in the vicinity of designed road variants for years 2010 and 2020 has been performed.

Based on traffic prognosis and factors of air pollutants emissions from motor vehicle the emission of air pollutants for particular sections has been calculated. Then, the computer modelling of propagation of pollutants in relation to the road designed has been performed, taking into account such factors as the current contamination, dominant wind directions and the type of the terrain.

Results of calculations of concentrations of air pollutants in the vicinity of the designed road variants do not indicated any possibilities of exceeding allowable concentrations of air contamination.

Excessive values occur only in non-investment variants for a fragment of Al. Kard. St. Wyszyński in Augustów adjacent to the health resort area in relation to benzene, for which the background itself, that is the current state (4.3 $\mu g/m^3$) depletes the concentration standard for health resorts (4 $\mu g/m^3$).

The percentage increase of concentration of pollutants in relation to the current state ranges from few to 23% for nitrogen oxides (NO_x), from 0.5% to 7% for the nitrogen dioxide (NO_2), from 0.05% to 0.4% for benzene (C_6H_6) and from 0.2% to 0.9% for sulphur dioxide (SO_2).

Deterioration of the air quality can be reduced through the application of isolating greenbelts being an universal protective measure for:

- Soils;
- Crops, forests and other plants;
- Natural and cultural landscape protection as well as protection of scenic values of monuments located closest to the road;
- Protection against noise as a supplement of other measures of acoustic protection;
- Road traffic safety, including protection of the road against snow blown into, side gusts of wind and glares.

Furthermore, for the protection of forest complexes can assume reconstruction of the forest stands towards species with increased tolerance for communication contaminations.

8.5 Noise

Another environmental component that was thoroughly investigated was the acoustic climate. In the vicinity of the designed road, there are agricultural cultivations, forests and area with rural homestead buildings. In accordance with the current provisions on the environmental protection the areas of agricultural cultivations and forests do not require protection against noise, however for particular area it is necessary to provide levels of noise not exceeding acceptable values. The existing national road no. 8 on the section crossing Augustów runs on the edge of the health resort for which restricted acceptable levels of noise apply.

In order to evaluate the future condition of acoustic climate in the vicinity of both designed and existing roads, the computer noise modelling has been performed for all variants including the zero variant for years 2010 and 2020. The modelling performed includes the impact of topography and the model itself has been calibrated based on noise measurements performed by an authorised company.

The final results of prognostic calculations of traffic noise levels for years 2010 and 2020 indicate that in all variants application of acoustic screens shall allow for the overall protection of residential buildings in the vicinity of designed roads against the excessive noise.

The total number of objects in the vicinity of existing road networks for which acceptable noise levels are exceed is as follows:

Course of the I Pan-European Transport Corridor	**"0"**	**I**	**II**	**III**
Budzisko – Suwałki – Białystok – Warszawa	742	665	592	639
Budzisko – Suwałki – Ełk – Łomża – Warszawa	749	553	549	581

From the analysis performer for this Report it arises that within the forecasted area of excessive impacts of road traffic there will be residential buildings located that shall be protected against noise. The zone will occur not only along the Augustów Bypass, but also along transverse roads leading to junctions with the bypass. It means that at this roads the noise level will exceed in 2020 the acceptable level outside the road lane, if no protective measures are applied.

In order to bring forecast noise levels outside designed road lane to values equal or lower than acceptable it is necessary to construct acoustic screens protecting areas of the planned and existing residential buildings in a form of anti-noise walls with absorbing properties. Applying this kind of solutions shall allow to meet required by the law acceptable noise levels outside the area of the investment.

8.6 Waste

Implementation of the road transport infrastructure and then its operation is associated with the generation of large amounts of waste – particularly during the construction phase. Regardless the selection of the variant of designed express road the type of generated waste remains unchanged.

Execution of road, bridge and infrastructure works during the construction of the express road shall include generation of construction waste such as removed parts of road surfaces, elements of constructions coming from demolished buildings, bridges and passages, remains of plastics, used wood, metal walls, empty packaging, etc. There may be hazardous waste, such as cans containing remains of paints used for painting of bridge constructions or deconstructed fragments of pitched road surface. The proper organisation of the current waste management system and the proper organisation of the construction site, its back-up facilities and engines, as well as observing occupational safety principles and management of hazardous waste, shall contribute to the minimization of the direct impact of waste on human health and life as well as on the environment.

During operation of the bypass the following solid and liquid waste will be generated:

- Accidental municipal waste (for example empty packaging), left by road users or neighbouring people within the road lane;
- Substances generated as a result of wear of tires and the road surface;
- Substances generated as a result of wear of vehicle clutches;
- Contaminations coming from vehicles (lubricants, fuels, aerosols, etc.);
- Anti-black ice agents;
- Accidental waste generated due to accidents and road collisions;
- Waste generated due to works associated with road maintenance;

- Sediments and contaminated sand deposited in separators and retention tanks;
- Hazardous waste generated due to road accidents with vehicles carrying hazardous substances.

Measures allowing for removing waste shall be secured by the road manager. For removing waste from the road and adjacent areas shall be responsible authorities appointed by the road manager and in cases of emergency situations, particularly in a case of risks arising from possibilities of contamination with hazardous substances – professional units of Fire Brigade. Therefore the risk of "littering" the environment with waste during operation of the investment, except for serious emergency situation, is assessed as minimal.

8.7 Surface and ground waters

The scale of actual surface water contaminations will be similar for all variants of the bypass and will much lower than in the zero variant, because the new road will be equipped with protective measures and the existing road will not be reconstructed and will not have such measures.
In order to protect surface waters from rainwater flows from the constructed bypass and emergency flows of toxic liquids a system of cleaning equipment consisting of the following elements shall be applied:

- Grass roadsides retaining some contaminations in the grass blanket;
- Internal grassy slopes of ditches retaining some contaminations in the grass blanket;
- Grassy roadside ditches retaining some contaminations in the grass blanket;
- Settling tanks on the bottom of sewers (inlet) retaining partially general suspended solids;
- Retention tanks (sediment) installed in roadside ditches or rain drainage used for decreasing maximum flows within the drainage network of the road and to cleaning rainwater flows from general suspended solids applying sedimentation, that is depositing contaminations on the bottom of the tank;
- Emergency tanks used for retaining harmful substances coming from broken cistern vehicles and possibly reduction of flood flows.

The abovementioned retention tanks in addition to improvement of water quality will play a large role in preventing inundating of adjacent areas in case of torrential rains or suddenly thawing snow, because they will limit maximum flows in the external network of watercourses and drainage ditches. Detailed locations of theses tanks as well as their dimensions and capacities shall be determined in accordance with water-legal permits.

In relation to designed passengers service equipment and technical facilities it will be necessary to install at the end of sanitary and rainwater sewage systems domestic and rainwater waste water treatment plants.

In order to protect underground waters it should not be allowed to supply the underground waters with contaminated rainwater flows from roads. The final protection of underground water shall be supported by a layer of ground base designed on the bottom of the abovementioned grassy ditches and retention tanks, what arises from the analysis described. The necessary condition for proper cleaning of rainwater infiltrating the ground is locating the bottom of ditches and retention tanks at least 1.5 m above the level of ground waters.

Detailed design study for the final clarification of all elements of the investment planned involving construction of the Augustów Bypass and obtaining decision on issuing permission for implementation of the road investment shall be prepared at the stage of developing the water-legal permit. Compliance of the report with environmental protection requirements shall be determined at the stage of issuing permit for road investment within works on re-report on environmental impact of the project.

8.8 Material and cultural goods

A separate part of the assessment performed was the evaluation of possible risks and damages for monuments protected pursuant to provisions on protection and preservation of monuments, particularly archaeological relics. When a variant refraining from constructing the bypass is implemented the collision of the investment with existing monuments it the most distinct. The current course of excessively exploited route has significantly adverse impact on the preservation of the abovementioned objects and its possible expansion in the future would cause a serious collision of the investment with these objects. The variant I has been assessed as the most favourable, among other due to the fact that most of completely recognised archaeological sites have already been subjected to archaeological researches. The implementation of variants II and III is characterised by the significant uncertainty as for the impact on the archaeological relics.

From the perspective of impact on the environment of the assessed variants of the Augustów Bypass the worst seems to be the variant I passing through the Rospuda Valley. Its implementation will cause impacts on the valuable and extremely valuable landscapes, unique both in the country and in Europe, of international importance. These are model-preserved and large moors extremely sensitive to interferences. Due to the implementation of the route, regardless the variant of bridge construction and method of crossing the valley, there will occur significant adverse impacts on the landscape. The route of the variant II (passage in the area of Chodorki) passes through fields, in some places forests, at long sections it runs along a power line, and therefore within the technical section. Variants II and III as well as sections of the variant I outside the Rospuda Valley will cause changes in the land use, reflected in typical for road construction changes in the landscape. Comparison of variants II, IIA, III and IIIA proves the variants III are the most favourable, particularly when the Via Baltica route runs through Budzisko – Suwałki – Ełk – Łomża – Warszawa. The variant involving refraining from construction of the bypass causes adverse impacts on the perception of extraordinarily valuable landscapes of the area of the Augustów Canal. Furthermore, it adversely impacts on the landscape of the Augustów Primeval Forest intersected due to the increased heavy transit traffic.

In accordance with assumptions presented in the Report before the implementation of the investment it is necessary to search the available archives, collection and the literature in order to finally determined the resource of archaeological sites known at the moment in the area in question. The study presented in the Report includes current, complete resource of these sites and meets the abovementioned requirements. However, the necessity of detailed recognition of the land located in the area endangered by the investment has been indicated prior to commencing ground works related to the construction of the road. It is also recommended to apply the Archaeological Photography of Poland methodology within the band 100 – 150 m on each side of the road planned.

Next, all verified and newly discovered archaeological sites located within boundaries of the investment shall be subjected to prospections in order to clarify the scope, character and stratigraphic situation as well as the chronology.

The final stage of the field researches are archaeological rescue studies of all sites interfering with the road. Researches shall be conducted in accordance with the methodology appropriate for particular categories of sites and after completion of field works develop the scientific study of results obtained.

It has been explained that the objective of rescue archaeological researches is discovery, recognition, exploration and documentation of archaeological objects in areas threatened with destruction of possible archaeological sites. Archaeological excavation researches are performed as prior to commencing proper construction works related to the road investment. The entire planned ground works shall be conducted under constant archaeological supervision.

The archaeological rescue researches include: archaeological supervision, archaeological prospections, and archaeological excavation researches. The archaeological supervision is performed in the area of the investment in question, particularly for ground works that could lead to discovery and violation of historic layers of soil and therefore to destruction, formerly unknown, archaeological objects. The archaeological researches include discovering, extracting and analysis of remains of historic human cultures remaining in the soil or water.

Authors of the annex to the Report indicated that all types of archaeological researches can be conducted exclusively by qualified archaeologists. If there are irregularities detected in rescue researches, the Voivodeship Conservator of Monuments may, through an administrative decision, withdraw the authorisation for performing researches and therefore suspend works.

8.9 Impact of the Project in emergency situations

During preparation to the development of this Report also the possibility of impact of the bypass designed in emergency situations and road accidents has been taken into account, as well as possibility to apply risk minimising methods. According to the data of the General Inspectorate for Environmental Protection operation of routes, particularly these loaded with heavy traffic, may be accompanied with disasters involving fuel leakages from tanks of vehicles or release of hazardous substances, including also fuels, from cisterns, as an effect of collisions or car accidents or leakage of tanks caused by other circumstances. Transport of hazardous substances is the second source, besides industrial facilities, of major accidents. The risk of a road accident is higher at intersections, junctions and exit roads than on other road sections. Furthermore, over marshes there frequently are fogs and during autumn and winter also the black ice. On bridges elevated above rivers, bottom of valley or other rivers, as well as on sections of the road located on high embankments increases the risk of serious effects of falling out of the road and consequences of falling from height. N bridges and in transitional areas between forests and open terrain, sudden wind gusts should be expected. On bridges, forest areas and in the vicinity of marshes the road surface may be dangerously slippery due to the high humidity of the air and condensation of the humidity on the road surface.

It shall also be assumed that collisions and accidents on the passage through the Rospuda Valley with the greater length (in variants WI – 1.1, 1.2, 1.3, 1.4) may be more frequent than in variants II and III, where the length of the bridge passage through the Rospuda Valley and other rivers is much shorter. Furthermore, there are other factors increasing the risk of major accidents, associated with the character of the terrain, frequency of fogs and high humidity that can contribute to formation of a layer of water and/or ice.

In case of emergency there may occur contamination of the surface layer of permeable ground layer above the level of ground waters and in a case of major accident it is also possible that pollutants would penetrate into underground waters of the first aquifer layer without natural insulation. The current rescue system allows for taking immediate and effective rescue actions, which reduces the possibility of contamination of underground waters to minimum – even in a case very serious failure. In summary, it has to be noted that the application of appropriate technical measures and proper traffic management shall minimise the risk of water and soil contamination (including also bridges), however, even if such event occurred, chemical and ecological emergency services would be able to minimise its impacts.

The transit location of the Podlaskie Voivodeship and growing tourism in this region may contribute to increase the number of accidents with potentially serious consequences for human health and life as well as for the natural environment. The road transport of hazardous substances and materials (most of them are: gasoline, diesel oils and propane – butane gas) in the area of the Podlaskie Voivodeship is associated with location of border crossing points in Budzisko, Kuźnica Białostocka and Bobrowniki.

Introduction of the traffic outside built-up areas of Augustów and Suwałki and construction of collision-free intersections in a form of road junctions, separation of lanes in opposite directions through applying dividing lanes and protective barriers shall contribute to decrease of frequency of accidents – also these transporting hazardous materials and substances. It is assumed that applying solutions presented in this Report, the impact of the road investment on the environment shall be minimised and shall be significantly lower than nowadays.

8.10 Impact of the Project on people

It cannot be denied that transport contributes to increase of emissions of pollutants into air and noise to the environment. Unfortunately, the assessment of health impacts of exposure of populations living in a particular area is a complex and very complicated process, among other, due to the large number of other pollution sources, simultaneous exposure on the same substances coming from other sources, inability to identify all hazardous factors or individual sensitivity of an organism.

Determination of the impact of road investment on human health is also associated with the assessment of health risk and is difficult and sometimes even ambiguous. During estimating the health risk the level of pollution of environment is associated with human health. The risk is qualitative or quantitative characteristics of the probability of adverse health impacts on human or on a population due to exposure on certain hazardous factors. It shall be, however, noted that the final health effect is also affected by the interference between particular pollutants, frequently coming from other, distant sources.

Analysing the potential impacts of the Augustów Bypass designed on people in computer models used in prognosis of emissions of pollutants to air and noise to the environment; the data concerning the current condition of the environment have been used. It shall be noted that for the present Report, noise measurements have been conducted and data concerning the current air contamination coming from the Voivodeship Inspectorate for Environmental Protection have been used, which allows for assuming in the modelling sources of emission of pollutants to air other than the road designed. However, it is expected that after applying anticipated environmental protection measures, situation and altitude solutions, as well as the proper traffic organisation the current standards of the environmental quality in the vicinity of the road shall be met and the adverse impact on human health shall be minimised.

8.11 Impact of the Project broken into particular stage of the investment and mutual relations between them

The detailed description of impacts of the Augustów Bypass designed has been presented in particular chapters of the Report on environmental impact of the Project. The table below includes summary of the most important information on the scope of impacts of the road designed on the environment.

	Type of effect/ variants in which the effect occurs	Effects										
		during the construction phase	during the operation phase	during decommissioning	direct	indirect	secondary	short-term	medium-term	long-term	temporary	permanent
People	Extended or excessive exposure to noise/ all variants	●				●				●		●
	Emission of pollutants into air/ all variants					●				●		●
	Road safety/ all variants		●			●				●		●
	Risk of accidents and failures/ all variants		●			●			●		●	
	Annoyance of construction works/ all variants	●				●			●		●	
Flora	**Destruction of habitats within the road course**											
	Direct mechanical destruction/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●	●	●					●		●
	Shading/ only in the zero variant	●	●			●				●		●
	Destruction due to vibrations/ all variants	●				●				●	●	
	Hydrological changes											
	Drainage during construction/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●		●		●	●	
	Changes in dynamics of surface flows/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●	●		●				●		●
	Penetration of the peat layer/ only variants: A, IA	●	●	●		●				●		●
	Penetration of the aquifer below the moor/ only variants: A, IA	●	●	●		●				●		●
	Penetration of the aquifer on the height/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●	●		●				●		●
	Pollution											
	Vehicle emissions/ all variants	●	●	●		●				●		●
	NaCl used to ice removal/ all variants		●			●				●	●	
	Changes of land use/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●	●			●			●		●
	Increased human interference/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●	●	●					●	●	●
	Faciliated dispersion of foreign species/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●	●			●			●		●
	Fragmentation of habitats/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●	●	●					●		●

	Type of effect/ variants in which the effect occurs	Effects										
		during the construction phase	during the operation phase	during decommissioning	direct	indirect	secondary	short-term	medium-term	long-term	temporary	permanent
Soils	Fragmentation of soils with high agricultural usefulness/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Distortions of retention capacity/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Distortions of habitat functions of soils/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Distortion of production functions of soils/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
Fauna	**Effects on animal habitats and capacity of ecological corridors**											
	Population decline/ all variants		●			●				●	●	
	Decrease of growth rate/ all variants		●				●					●
	Decrease of availability of habitats for breeding and feeding/ all variants		●		●					●		●
	Decrease of breeding rate/ all variants		●				●			●		●
	Increase in mortality/ all variants		●		●					●		●
	Decrease of genetic variability/ all variants		●				●			●		●
	Fragmentation of populations/ all variants		●			●				●		●
	Reduction of re-colonisation of potential habitats/ all variants		●			●		●			●	
	Reduction of migrations and gene exchange between sub-populations/ all variants		●			●				●		●
	Effects on birds areas											
	Liquidation of habitats on areas occupied by the road/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	Deterioration of habitats in areas adjacent to areas/ all variants		●		●					●		●
	Significant decrease of the number of birds/ all variants	●	●			●				●		●
	Increase in mortality of birds due to collisions with vehicles/ all variants		●		●					●		●
	Decreased reproductive success of birds nesting in the vicinity of the road/ all variants		●			●				●		●

Type of effect/ variants in which the effect occurs		Effects										
		during the construction phase	during the operation phase	during decommissioning	direct	indirect	secondary	short-term	medium-term	long-term	temporary	permanent
	Fragmentation of populations/ all variants		●		●					●		●
	Changes in composition of vertebrata groupings/ all variants		●			●				●		●
	Significant changes in bird habitats/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
Atmospheric air	Pollutants of atmospheric air/ all variants	●	●	●		●				●		●
Acoustic climate	Effects on buildings protected from communication noise/ all variants		●			●				●		●
	Effects on health resorts/ only the zero variant		●			●				●		●
	Acoustic annoyances for bird areas within the Natura 2000 area/ only variants 0, I, IA, II, IIA		●			●				●		●
Vibrations	Violation of the river valley/ only variants I, IA	●				●				●		●
	Congestion of the moor/ only variants I, IA	●	●			●			●			●
	Destruction of peat structure and its hydration/ only variants I, IA	●				●				●		●
	Compaction and Congestion of the peat/ only variants I, IA	●				●				●		●
Surface water	Contamination of surface waters/ only the zero variant		●			●				●		●
	Changes in water relations/ only the following investment variants: I, IA, II, IIA, III, IIIA		●			●				●		●

Type of effect/ variants in which the effect occurs		Effects										
		during the construction phase	during the operation phase	during decommissioning	direct	indirect	secondary	short-term	medium-term	long-term	temporary	permanent
Waste	Waste generation/ all variants	●	●			●		●			●	
Monuments	Exhibition collision of the investment with architectural monuments/ all variants	●			●					●		●
	Collision of the investment with archaeological sites/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	Collision of the investment with the cultural landscape/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
Geological structures and underground waters	Land surface transformation and changes in lithology of surface formations/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●			●				●
	Relocations of the subsoil/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Destruction of the surface layer of soil/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	Distortions of soil structure due to compaction and vibrations/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Distortions of the hydrological regime of hydrological objects/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Periodical reduction of underground water level/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Water (rain) and wind erosion and relocation of soil particulate/ only the following investment variants: I, IA, II, IIA, III, IIIA	●	●			●				●		●
	Propagation of communication pollutants and winter road service measures/ all variants		●			●				●		●

	Type of effect/ variants in which the effect occurs	Effects										
		during the construction phase	during the operation phase	during decommissioning	direct	indirect	secondary	short-term	medium-term	long-term	temporary	permanent
Landscape	Heavy vehicle traffic/ all variants	●				●		●			●	
	Noise/ all variants	●				●		●			●	
	Air contamination, mainly dust emission/ all variants	●				●		●			●	
	Vibrations/ all variants	●				●		●			●	
	Lightning/ all variants	●				●		●			●	
	Access impediments/ all variants	●				●		●			●	
	Disturbances in operation of adjacent roads/ all variants	●				●		●			●	
	Occupancy of areas formerly used for other functions and permanent building the ground surface/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	De-foresting/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	Grubbing/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	Levelling works/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●		●			●	
	Drainage/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Changes of flows of watercourses/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Intersections of aquifers/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Addition of new elements to the landscape/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	Destruction of valuable landscape forms/ only the following investment variants: I, IA, II, IIA, III, IIIA	●			●					●		●
	Local landscape dissonance/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●		●			●	
	Geological changes/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Hydrological changes/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Natural changes/ only the following investment variants: I, IA, II, IIA, III, IIIA	●				●				●		●
	Point dominant/ only the following investment variants: I, IA, II, IIA, III, IIIA		●			●				●		●
	Line dominant/ only the following investment variants: I, IA, II, IIA, III, IIIA		●			●				●		●
	Fragmentation/ only the following investment variants: I, IA, II, IIA, III, IIIA		●		●					●		●
	Modification of the character of the landscape from natural into technical/ only the following investment variants: I, IA, II, IIA, III, IIIA		●			●				●		●
	Violation of touristic resources/ only variants I, IA, II, IIA		●			●				●		●

	Changes in the landscape perception/ only the following investment variants: I, IA, II, IIA, III, IIIA		●			●				●		●
	Distortion of touristic use/ only variants I, IA, II, IIA		●		●					●		●

9. Impact assessment of analysed variants on the Natura 2000 areas

As a part of works on the Report on the environmental impact of the Augustów Bypass construction (for particular variants of the Project) on the subject and objective of area protection within the Special Habitat Protection Area "Augustów Primeval Forest" (PLH200005) and the Special Birds Protection Area "Augustów Primeval Forest" (PLB200002). This equivalent to the answer to the question, whether and for which variants analysed in the Report the implementation of the Project may indicate significant and adverse impact (within the meaning of the Directive 92/43/EEC) on plant and animal populations, as well as on habitats, for which protection the abovementioned Natura 2000 areas have been established.
The Pan-European network of protected areas Natura 2000 is an essential, form of legal protection of the nature in states of the European Union. The legal basis for the existence and operation of the network are contained in two EU Directives:

- Council Directive 79/409/EEC, the so called Birds Directive, and
- Council Directive 92/43/EEC, the so called habitats Directive.

The Natura 2000 includes two types of protected areas:

- Special Birds Protection Areas (OSOP) established in order to protect endangered bird species;
- Special Habitat Protection Areas (SOOS), established in order to protect endangered natural habitats of selected species of plants and animals other than birds.

Principle rules concerning operation of both types of areas, as well as opportunities for implementation of projects that could impact on them are contained in the article 6 of the Habitats Directive. These provisions have been transposed into the national law. The interpretation of the provisions of the article 6 of the Habitats Directive is contained in two studies of the European Commission that have also been applied during preparation of this report.

The evaluation of the impact of the Augustów Bypass designed has the scope compliant with the scope of first three stages of the procedure for environmental impact assessment (qualification, general assessment and evaluation of alternative solutions), performed within the assessment of tasks and projects that could have significant effects on the Natura 2000 area described in methodological guidelines of the European Commission.
Therefore, the objective of authors was first of all:

- Determination whether the project is directly connected or necessary for implementation of objectives of the protection within the Natura 2000 area;
- Characteristics of the Natura 2000 area;
- Description of the planned project and possible other projects that linked with it may significantly affect the Natura 2000 area;
- Identification of possible effects of implementation of the project on the Natura 2000 area;
- Significance assessment for each of identified impacts for the implementation of objectives of protection of a particular Natura 2000 area.

It has been assumed that the planned project may impact on the area located between the west border of the Augustów Primeval Forest refuge and the currently existing national road no. 8 (the "0" variant), including the 2 km wide lane adjacent to that road from the east. This section is of a crucial importance for operation and preservation of values of the entire protected area and violation of its integrity means, as a consequence, a significant distortion of processes and structures determining the integrity of the entire refuge.

In order to precisely assess the impact of designed Augustów Bypass on the special habitats protection area, the basic conditions of protection of all species and habitats, for which protection the area has been established. Also the most important for preservation of the area in an unchanged form structures and processes affecting the condition of particular habitats and species of animals and plants have been determined. A similar scheme of assessment has been applied for the special birds protection area determining crucial structures and processes important for preservation of the population of protected birds.
Assessing possible effects of the implementation of the project, all probable impacts had been identified and then their spatial scope was established. In the area of possible impacts, species of protected plants and animals have been listed. Furthermore, importance factors of particular actions have been established. Due to the fact that the designed Augustów Bypass is the only project that could impact on objectives of protection of the Natura 2000 area, there was no need to perform the cumulated effects assessment.

Variants of the route subjected to the assessment have studied in terms of impacts of the investment on the subject and objectives of the protection of the Natura 2000 area – "Augustów Primeval Forest". Intersection of

this naturally valuable area, particularly the moors in the Rospuda Valley as well as forest and woods of the Augustów Primeval Forest on highlands (variant I, all analysed bridge solutions and the tunnel) will cause irreversible changes in the ecosystem. This report analyses impact of the express road, however, it has to be clearly stated, that none of the abovementioned adverse impacts on species and habitats can be excluded also for other width of the road, mainly due to road traffic prognosis in subsequent time periods.

In conclusion, for all variants of the group I (I.1, I.2, I.3, I.4, I.5, IA.1, IA.2, IA.3, IA.4, IA.5) the significant adverse impact on the integrity of the Special Habitat Protection Area and Special Birds Protection Area "Augustów Primeval Forest" cannot be excluded. Due to alternative variants, for which such adverse impacts can be excluded, there is no basis for developing the compensation programme (within the meaning of the article 6 of the Habitats Directive). Due to the impact on animal populations, in longer time horizon, together with the increase of road traffic also the significant impact on the integrity of SOOS and OSOP "Augustów Primeval Forest" cannot be excluded for the 0 variant – refraining from construction of the bypass. For variants II, IIA, III and IIIA it is required to implement minimising measures necessary for the protection of animal populations (allow for dispersion and migration). For variants II, IIA, III and IIIA the significant adverse impact on the integrity of SOOS and OSOP "Augustów Primeval Forest" can be excluded.

Due to the existence of alternative solutions, for which there are no significant adverse impacts, it shall be assumed that all variants from the group I (I.1, I.2, I.3, I.4, I.5, IA.1, IA.2, IA.3, IA.4, IA.5), as well as the zero variant – pursuant to the article 6.4 of the Habitats Directive – cannot be implemented or – in the case of the zero variant – considered to be the target. Therefore, in accordance with applied sequence of action, the proposal of compensation actions – if the proposal of efficient measures was possible at all – is not necessary.

Pursuant to the habitats Directive, the variants that could be implemented are as follows: variants II and IIA or III and IIIA, however it has to be noted that in the context of dispersion of mammals and the integrity of the Natura 2000 network, mitigating measures will be more effective, when variants of the group III (IIII, IIIA) are selected.

Considering the abovementioned findings and results of detailed considerations of the impact on species and habitats under protection within the Special Habitat Protection Area "Augustów Primeval Forest" and Special Birds Protection Area "Augustów Primeval Forest" it shall be recommended to implement the Augustów Bypass in accordance with the route of variants III and IIIA. The macro-scale assessment – taking into account relationships between particular areas of the Natura 2000 network in the north-east Poland – indicates the variant IIIA (course of the I Pan-European Transport Corridor in the road section through Łomża, Ełk, Suwałki) as the best solution.

10. Environmental protection measures

In order to reduce or eliminate these adverse effects of the road on the environment the design of the bypass shall be supplemented with the following environmental protection measures:

a) Acoustic screens as well as anti-noise soil embankments and barriers protecting residential areas against the road noise (which locations and main parameters have been specified in tables VI-1 – VI-6);
b) Grassy pits, retention tanks and separators cleaning the rainwater flow from the road prior to discharge into external tanks;
c) Passages for small, medium and large animals allowing collision-free passage of wild animals across the road (which locations and main parameters have been specified in tables VI-7 – VI-12);
d) Protective afforestation around passages for medium and large animals;
e) Fences for animals on both sides of the road along the entire express road, directing animals to transverse passages across the road;
f) Insulating greenery lanes improving aesthetic and landscape values of the road neighbourhood and protecting it against air, soil, crops and plants pollution.

Due to the anticipated high annoyance caused by the Augustów Bypass for the neighbourhood, all the abovementioned protective measures shall be constructed prior to commissioning the road.

11. Monitoring

In case of applying the abovementioned environmental protection measures (described in details in the report) and occurrence of traffic streams on the Augustów Bypass not exceeding these assumed in the traffic prognosis, the standards for the environment quality outside the road lane shall be met up to the year 2030.

However, in case of greater increase of the road traffic than the assumed, the quality standards may not be met outside the designed road lane before the year 2020. To confirm existence of such extraordinary situation the condition of environment shall be monitored at least once every five years in areas adjacent to the bypass, while the first monitoring shall be conducted 2 years after issuing the permit for use.

The scope of the local emission monitoring of the environment condition shall include at least performance of the following measurements:

- Noise;
- Air pollution with nitrogen oxides;
- Water contamination with general suspensions and petroleum hydrocarbons.

The monitoring of environmental changes induced by the construction of the road shall include indicators of the proper protection of crucial animal species populations as the target parameters for which protection the Natura 2000 area has been established. General rules for designing the animal monitoring shall be consistent with the current methodological standards. Authors of the report propose to apply the monitoring within the experimental layout, which means recording appropriate parameters both before and after implementation of the investment in places affected by its impacts and in control points, remaining unaffected by the implementation of the investment (the method has been described in details in the report).

In order to capture possible adverse changes in the flora composition of plant systems located in the direct vicinity of the investment, it is necessary to determine permanent research fields, where phyto-sociological researches shall be repeated every three years applying the same methodology. In order to illustrate the zero state, with which results of the monitoring performed in future years shall be compares, it is required to conducts for each point the first field studies before starting construction works at a particular road section. The monitoring shall be performed for at least 15 years from the date of commissioning of the road. The report indicates the scope of proposed solutions, parameters that shall be recorded as well as the time of implementation and series of other factors that shall be monitored.

The natural assessment prior to implementation of the investment shall include the data coming from inventories of wolf and lynx collected by the Forest Inspectorates and National Parks that are managed by the Mammal Research Institute of the Polish Academy of Sciences as well as the hunting data coming from inventories of hoofed mammals collected by the Forest Inspectorates and Hunting Associations.

It is necessary to conduct monitoring of passages for animals in accordance with the methodology proposed in the publication “Analiza możliwości wdrożenia systemu monitoringu przejść dla zwierząt w Polsce” (Pierużek-Nowak S., et al. 2007). It should include the information coming from the natural monitoring, technical inspections of the passage and its vicinity, as well as human activities on the passage. The data base shall gather both descriptive and spatial elements, which shall allow for quick classification and location of the data collected in relation to the course and mileage of the road.

12. Difficulties encountered

The basic difficulty encountered during development of this report is the uncertainty of road traffic prognosis and associated with it possibly large and increasing in time deviations between forecasted and actual environmental effects of the road. The scope of the uncertainty does not differ from other traffic and network analysis associated with such studies. Anticipated levels of environmental annoyance of the road in terms of the air and water pollution as well as traffic noise levels depends to a great extent on the proper assessment of the road traffic. Therefore, it is necessary to remember that calculated levels of noise and concentration of pollutants may be subject to errors arising from the uncertainty related to the adopted input data. Depending on the actual increase of the traffic on the road, the actual impacts of the road may differ from these calculated.

Another difficulty encountered is the lack of accurate (computational) methods for determining possible scopes of abnormal pollutions of surface and underground waters in the vicinity of the newly designed road, which makes the assessment of possible hazards for the human health difficult.

Another issue is the uncertainty of base emissions assumed for the perspective for motor vehicles and lack of method for effective assessment of measures protecting from air pollution such as greenery lanes, screens and buildings for future (design) states.

Numerous gaps in the current knowledge and available source materials can be encountered within the scope of the assessment of the actual impact of the traffic noise level on birds. Therefore it is difficult to clearly determine the impact of the traffic noise on birds living in habitats through which the Augustów Bypass passes.

Due to the early stage of the investment preparation the geological and hydrological conditions of the area covered by the study have not been completely recognised and recorded. Therefore the impact assessment of the investment on the abovementioned conditions may be subject to some error.

Another issue difficult to clear interpretation is the possibility of thickening of peat due to works related to the construction of the tunnel under the Rospuda Valley (in variants I.5 and IA.5).

13. Possible social conflicts

Conflicts are an integral part of the social life. Road investments raise many objections visible particularly in confrontations of groups representing conflicting interests. Causes of most of them may be found in fears of residents of areas located in the vicinity of investment that their properties may lose value and that they may have reduced capacity to administer their own lands, including anxiety of hampered access to fields. The uncertainty related to the capacity of providing basic needs of families and therefore a will to retain own land often passed through generations accompanies many citizens of rural areas. The abovementioned issued are often covered through highlighting issues associated with the health and life, as well as natural environment protection.

There is a consensus as to the position that in Poland there is a need to improve the quality of the transport system. However, taking decision, concerning means of transport and selection of location variants is considered to raise possible conflicts. Previously developed reports on the environmental impact of the Augustów Bypass planned did not assumed issues related to the analysis of possible social conflicts associated with the project planned or presented them to a limited extent.

The lack of specific investment proposals as solutions alternative for the road transport may be considered to be one of causes of social conflicts related to plans of construction of the express road in the area of the country with high natural values (the so called Green Lungs of Poland). The concept of using the rail network in the described transport corridor is at the moment subject of preliminary studies.

Uncertainties associated with the relationship between making decision and lack of broad social consultations at the concept stage for the future express road Via Baltica with making decisions associated with extension of particular sections of the road no. 8 to parameters of the express road and the Augustów Bypass itself may be one of causes of the social conflict. At the same time the weigh applied to strategic documents in years prior to the year 2008 and related to the abovementioned issues and social participation in preparation of these documents shall be considered to be insufficient.

Social consultations associated with plans of construction of the Augustów Bypass conducted from the first meeting of the Round Table on the Augustów Bypass on 9th of January 2008 have been limited mainly to receiving by administrative bodies written comments. The administrative hearing, open for the society, recommended for situations, when the social conflict is strong and which is considered to be one of measures dedicated to conflict resolution has not been organised.

Main interest groups in the issue considered are as follows:

- Local associations and protest committees of residents of the city of Augustów;
- Residents of areas, where there was no road with significant road traffic, who organise local societies, such as for example in the Raczki commune;
- Non-governmental ecological organisations;
- Scientific communities;
- Political communities;
- Truck drivers and regional associations of carriers;
- Authorities of particular cities located in the area of the possible course of the Augustów Bypass or the via Baltica road;
- Local economic organisations, including leaders of the Suwałki Special Economic Zone and the agri-business;
- Local government associations;
- Tourists and people exploiting the health resort facilities in Augustów;
- Road users from the outside of the region.

From January 2008 that is from the beginning of works of the Round Table on the Augustów Bypass there is a possibility to introduce the information programme and social consultations within the abovementioned new organisational form for this issue.

The development of social conflict was supported by strengthening in time the decision making process concerning the location of the Via Baltica express road, that is the I Pan-European Transport Corridor in the Podlaskie Voivodeship. The decision making process related to the Augustów Bypass is inherent to the decision making process related to the Via Baltica. The local conflict may be significantly limited when governmental

strategic decisions on location of the abovementioned express road are taken and have financial sources, in a form of funds from the European Union, secured.

Protesting residents of Augustów indicated that, in their opinion, the works are performed very slowly, while the bypass is extremely needed, because several millions of trucks pass through the city each year and the residents are forced to live in the city, where acceptable noise and air pollution standards are significantly exceeded. During subsequent pickets and blockades the protesters raised slogans: "I am a part of the Natura 2000 protected area. I demand protection! Human being", "We demand human rights protection", "We demand safe way to school", "Set us free from trucks", "We want to live" and "We demand the continuation of construction of Augustów Bypass", "We demand the construction of Augustów Bypass", "We fight for the bypass", "On crossings we want to be safe".

Each of considered variants of the course of Agustów Bypass has its own supporters and opponents. The variant IIIA raises many concerns of residents of the Raczki commune, through which it is to pass, however is accepted by ecological organisations. The variant I in turn, though inconsistent with current provisions of both national and international law has been accepted by some part of opponents of the variant IIIA, but raises objections of ecological organisations.

Concerns of residents are associated with expected annoyance for life and health – especially noise, increased air, soil and water pollution. Crossing homestead buildings by the designed road may raise questions and generate communication barriers impeding the current development of villages and towns.

On the other hand, ecologists warn that it may cause irreversible harms, primarily in naturally valuable areas, especially in areas protected by the Special Habitats Protection Area "Augustów Primeval Forest" (PLH200005) and Special Birds Protection Area "Augustów Primeval Forest" (PLB200002).

Authors of the Annex stressed that the society of the cities of Augustów and Suwałki impatiently wait for the bypasses that will allow for moving some of the transit traffic away from the city boundaries. Residents of the Raczki commune understand that the road construction in necessary, however they express their concerns related to the possibility of annoyance and deterioration of quality of life. Therefore, also the need of informing parties involved about further stages of the investment process.

Authors of the Annex explained that in the light of the current law and methodology applied, the cost analysis of road accidents, collisions, injured and fatalities is not a subject of the Report on environmental impact of the Project. It has been explained that economic issues are not a subject of reports on environmental impact of projects, due to their framework scope determined in articles 66-67 of the OOŚ act (Dz. U. no. 199, 2008, item 1227) and the costs of road accidents and victims are estimated and analysed at the stage of developing the Costs and Benefits Analysis performed in accordance with the methodology contained in the Blue Book, Road Infrastructure, Jaspers, December 2008.

Because another raising questions issue was not including in the Report the acquisition of properties for roads and compensations, it has been indicated that these issues are regulated by the Act of 10th of April 2003 on specific rules of preparation and implementation of investments involving national roads (Dz. U. 2008, no. 193, item 1194).

It has been emphasised that the course of a national road, border line and changes in the technical network are determined in the next stage of prepared investment that is issuing a decision on a permit for implementation of the road investment (ZRID). Lines dividing the investment area, determined with a decision on a permit for implementation of the road investment, are borders dividing properties. Only then professionals appointed by the Voivode may make a valuation of properties and compensations to be paid for losses of goods and properties.

14. Limited use area

There is no need to establish the limited use area around the constructed bypass, because the available technical measures for environmental protection shall provide sufficient protection of the vicinity of new road against annoyances of the road traffic in each scenario of development of the ecological situation.

In a case of faster than expected increase of annoyance of the road traffic for the vicinity there are technical possibilities of extension of environmental protection measures, for example through elevating and extending acoustic screens so to bring environmental quality levels outside the road lane to levels required in regulations.

15. Justification for the selection of the IIIA variant and final conclusions

15.1 Introduction

The planned construction of the Augustów Bypass within the national road no. 8 is a part of a greater investment project that is the construction of the express road within the I Pan-European Transport Corridor from Warszawa to the border with Lithuania in Budzisko.

The express road has been designed as a dual carriageway road (each road with two lanes) with a land reserve for construction of an additional, third lane to each of roads. In some location variants of the investment, due to anticipated low traffic volume, there will also be sections of single way express roads (two-lane) with a reserve for construction of an extension to the intersection 2 x 3 lanes.

In addition to the main linear project the scope of the project includes also reconstruction of existing sections of roads crossing the express road and reconstruction of interfering with it both above- and underground infrastructural networks (electric, telephone, gas, water supply systems, sewage, etc.).

An access to the designed express road shall be possible only in junctions. Therefore, along the new route there will be numerous, additional local roads providing access to buildings and agricultural lands, and in addition there will be collision-free transverse road passages across the road (without entry and exit routes from the main road) for local roads, mainly poviat and commune.

The investment shall be implemented comprehensively, that is fully equipped with safety traffic devices, environmental protection measures, rest areas, service circuits, it shall also involve reconstruction (construction) of the communication network associated with the Augustów Bypass supporting adjacent areas and additional energetic devices, telecommunication fibre networks and installations (water supply systems, gas pipes, sewage and rain water drainage systems).

The Report on environmental impact is a document assessing effects of the planned investment on the environment. The purpose of authors of the Report is to indicate technical, technological and organisational solutions that will guarantee meeting quality standards of the environment outside borders of the area, to which the investor has a legal title. The prepared Report on the impact of the Augustów Bypass on the environment includes the presentation and assessment of variants, shows a scale of possible effects caused by the project planned, as well as presents the analysis and selection of actions aiming at preventing or reducing significant adverse effects of the projected road on the natural environment, human health and protected monuments.

The Report on environmental impact of the Augustów Bypass has been focused on issues related to effects of the investment on people and natural environment, particularly on areas included in the Natura 2000 network. Pursuant to indications of the Round Table, entire set of investment variants for the Augustów Bypass has been subjected to environmental impacts assessment and multi-criteria analysis. **The assessment of environmental impact has been performed in compliance with all variants of the Augustów Bypass, taking into account minimisation possibility of pressures of the road investment on the natural environment, the quality of life and environment in the vicinity of the road designed. Also the possible effects of the implementation of investment as well as possible methods of their elimination or mitigating their influence have been assessed**.

The multi-criteria analysis of variants of the Augustów Bypass within the national road no. 8 performed in accordance with findings of the Round Table may be understood as a form of supplement. The multi-criteria analysis allows for assuming immeasurable effects, both environmental and non-environmental. The appropriate identification of criteria and wages is important. It shall also be noted that the multi-criteria analysis is arbitrary. It means that points and wages of particular criteria may change depending on the person assessing. The multi-criteria analysis includes criteria determined by particular parties of the Round Table, which in addition to the group of criteria related to the natural environment protection includes also transport, economic and social environment protection criteria.

15.2 Collective assessment of Project variants

The expert assessment involves all factors consider to be environmental risks for this type of projects, in accordance with provisions of part I.4 in this Report, entitled Methodology. The detailed methodology applied for the assessment of effects on particular environmental elements and assessment of impact of the project on the subject of protection of the Natura 2000 area and the integrity of this area, has been presented in particular

thematic sections of the Report. The summary of assessment of analysed project variants pursuant to selected criteria has been presented in the **Table S.1**.

The area covered by the assessment of all investment variants overlaps with the Natura 2000 area. The assessment of the effects on the subject of protection of the Natura 2000 area ant the integrity of the abovementioned area has been performed in three assessment stages (phases):
I. Qualification (recognition) of the project (sceening);
II. Proper assessment of effects of the project on the environment;
III. Assessment of alternative solutions.

The assessment aimed at excluding the significant adverse effects of the project on the Natura 2000 area.

Pursuant to provisions of the Habitats Directive in case of significant impact of a particular project on the subject of protection of the Natura 2000 area and the integrity of the abovementioned area, the multi-criteria analysis is not sufficient for selection of the location variant of the investment.

Pursuant to the article 6(4) of the Habitats Directive, it shall be concluded that all variants of the group I, that is I and IA, cannot be allowed for implementation, because it has been established that their implementation causes significant adverse effects on the subject of protection and the integrity of the Natura 2000 area – "Augustów Primeval Forest" and at the same time none such significant effects have been detected for the implementation of alternative variants: II, IIA, III and IIIA.

Therefore, in accordance with the relevant sequence of conduct, proposals of compensating actions – if proposals of effective actions were at all possible – are not necessary.

Pursuant to the Directive 92/43/EEC variants that could be implemented are as follows: variant II or III (for both courses of the I Pan-European Transport Corridor, part I: road corridor), however it shall be noted that in the context of dispersion of mammals and the integrity of the Natura 2000 network, mitigating actions will be more effective in case of selection of variants of the group III. Taking into account the above as well as results of detailed analysis of impacts on species and habitats covered by the protection within the Special Habitats Protection Area "Augustów Primeval Forest" and Special Birds Protection Area "Augustów Primeval Forest" it is recommended to implement the Augustów Bypass in compliance with the course of the variant III and IIIA. After taking into account relations between particular areas of the Natura 2000 network in the north-east part of Poland – **from the perspective of assessment of impacts on the subject of protection and the integrity of the Natura 2000 area – "Augustów Primeval Forest" the variant IIIA (course of the I Pan-European Transport Corridor in its road part through Łomża, Ełk, Suwałki) may be indicated as the best solution**.

Taking into account the criteria selected (Table S-1) associated with the environmental health, that is impact of the project on human health, the preferred option in term of:

- **Air pollution – is the variant IIIA;**
- **Acoustic climate – is the variant IIA;**
- Conflict associated with drinking water intake stations – lack of preferences;
- **Effects of major accidents/road crashes (effects on both people as well as natural values of the land) – are the variants III, IIIA.**

Due to the high, documented landscape values of the land subjected to the assessment, the through assessment of effects on the landscape has been performed. **Taking into account the impact on the landscape the preferred variant is the variant IIIA.**

There are no preferences in terms of impact of air pollutants on the soil quality, because in the case in question there are no factors that could contribute to exceeding normative values **and in terms of the trans-boundary impacts**, due to the lack of such impacts for the road section under consideration.

The environmental impact assessment includes also criteria for impact on natural resources, besides the assessment on the subject of protection of the Natura 2000 area. The variants have been differentiated in terms of loss of environmental value of the area, including the fragmentation of habitats, distortions of travel corridors for animals. **Taking into account the abovementioned criteria, the preferred variant – are the variants: III and IIIA**.

Also the environmental impact has been differentiated in terms of waste generation. Taking into the account the abovementioned criterion, **the preferred variant is the variant II**.

In addition to the abovementioned environmental risk, the assessment of all variants in terms of remaining issues included in the environmental impact assessment has been performed, that is:

- **From the perspective of agricultural and environmental values (assessment of the agricultural usefulness of soils) – there are no preferences;**
- **Protection of monuments and archaeological resources – there are no preferences.**

As the most favourable for the environment variant of the Augustów Bypass, taking into account provisions of the Habitats Directive 92/43/EEC indicates"

- **The variant IIIA, that is the passage in the vicinity of the village of Raczki, assuming that the I Pan-European Transport Corridor (Via Baltica) shall run through the route: Budzisko – Suwałki – Ełk – Łomża – Warszawa;**
- **The variant III, that is the passage in the vicinity of the village of Raczki, assuming that the I Pan-European Transport Corridor (Via Baltica) shall run through the route: Budzisko – Suwałki – Białystok – Warszawa.**

These variants meet requirements of the Habitats Directive in relation to projects that could be implemented in the context of effects on the integrity of the Special Habitats Protection Area and Special Birds Protection Area "Augustów Primeval Forest" and have been evaluated (in accordance with criteria included in the table below) as preferred among the alternative variants, for each which implementation, after adopting recommendations, preventive measures and measures reducing the environmental impact, shall not cause any significant adverse impacts on the environment.

Pursuant to the article 6(4) of the Habitats Directive, in the light of alternative solutions described in the Report, the following variants cannot be considered as implementation variants:

- variant I (formerly IVL), regardless two considered concepts of alternative variants of the course of the I Pan-European Transport Corridor (Via Baltica) on the route: Budzisko – Suwałki – Białystok – Warszawa or Budzisko – Suwałki – Ełk – Łomża – Warszawa;
- variant "0" – refraining from constructing the bypass.

Among the alternative variants within the understanding of the Habitats Directives, the variant IIIA has been evaluated as the best one in accordance with selected criteria (included in the table). As such it obtained the lowest score of points describing the strength of adverse impacts that is 13.7 points.

The remaining alternative variants obtained the following number of points describing adverse impacts on the environment:

- the variant III that is the passage in the vicinity of the village of Raczki, assuming that the I Pan-European Transport Corridor (Via Baltica) shall pass on the route: Budzisko – Suwałki – Białystok – Warszawa: 19.5 points;
- the variant IIA that is the passage in the vicinity of the village of Raczki, assuming that the I Pan-European Transport Corridor (Via Baltica) shall pass on the route: Budzisko – Suwałki – Ełk – Łomża – Warszawa: 22.5 points;
- the variant II that is the passage in the vicinity of the village of Raczki, assuming that the I Pan-European Transport Corridor (Via Baltica) shall pass on the route: Budzisko – Suwałki – Białystok – Warszawa: 24.0 points.

Table S-1: Summary of assessment of analysed variants of the Augustów Bypass project

Caption:
Variants I, II, III – assuming that the I Pan-European Transport Corridor (Via Baltica) shall pass on the route: Budzisko – Suwałki – Białystok – Warszawa;
Variants IA, IIA, IIIA – assumeng that the I Pan-European Transport Corridor (Via Baltica) shall pass on the route: Budzisko – Suwałki – Ełk – Łomża – Warszawa.

Variants:
Variants I and IA – formerly IVL, passage through legally protected moors and forests in the Rospuda Valley;
Variants II and IIA – passage through a legally protected part of the Rospuda Valley in the area of the village of Chodorki;
Variants III and IIIA – passage through a part of the Rospuda Valley not covered by the legal protection in the area of the village of Raczki;
Variant "0" – refraining from constructing the bypass (in accordance with "do nothing" principle).

Group of variants I and IA:
Variants I.1 and IA.1: passage over the Rospuda Valley on a trestle bridge of a length of 620 m (implementation technology assumes application of technological bridge);
Variants I.2 and IA.2: passage over the Rospuda Valley on a trestle bridge of a length of 620 m (implementation of technology assumes sliding trestle spans, without the technological bridge);
Variants I.3 and IA.3: passage over the Rospuda Valley on a cable stayed bridge of a length of 780 m;
Variants I.4 and IA.4: passage over the Rospuda Valley on a suspension bridge of a length of 660 m;
Variants I.5 and IA.5: passage over the Rospuda Valley in a tunnel of a length of 1580 m.

No.	Criterion \ Variant		I					IA					II	IIA	III	IIIA	"0"
			I.1	I.2	I.3	I.4	I.5	IA.1	IA.2	IA.3	IA.4	IA.5					
1.	Assessment of impact on the subject of protection of the Natura 2000 area and the integrity of that area**	Observed significant adverse impacts (+ = yes, - = no)	+	+	+	+	+	+	+	+	+	+	-	-	-	-	+
		Exclusion of a variant (EXCL)/ alternative variant (ALTERN)	EXCL	EXCL	EXCL	EXCL	EXCL	EXCL	EXCL	EXCL	EXCL	EXCL	ALTERN	ALTERN	ALTERN	ALTERN	EXCL
2.	Loss of natural value of the land, including fragmentation of habitats, distortion of migrations corridors of animals		10	10	9	9	8	10	10	9	9	8	3	3	1	1	6
3.	Loss of natural value of the land due to impact on plant species and natural habitats		10	10	9	9	10	10	10	9	9	10	3	3	2	2	1
4.	Air pollution		4	4	4	4	4	1	1	1	1	1	2	1.5	1	0.7	7
5.	Surface and underground water, drinking water intake stations		9	9	9	9	9	8	8	8	8	8	1	1	0	0	10
6.	Acoustic climate and vibrations		6	6	6	6	6	1	1	1	1	1	4	2	7	3	10
7.	Agricultural usefulness of soils and soil pollution		1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
8.	Protection of monuments and archaeological resources		0	0	0	0	0	0	0	0	0	0	1	1	1	1	2
9.	Impact on the landscape		10	10	10	10	10	10	10	10	10	10	5	4	2	1	6
10.	Impact of a major accident/ road crash		4	4	4	4	4	4	4	4	4	4	2	2	1.5	1.5	5
11.	Waste generation		1	1	1	1	1	1	1	1	1	1	1	2	2	3	0
12.	Material goods		2	2	2	2	2	3	3	3	3	3	1	2	1	1	0
	Total:		57	57	55	55	55	49	49	47	47	43	24.0	22.5	19.5	13.7	47
	Final rating:		**EXCL**	**EXCL**	**EXCL**	**EXCL**	**EXCL**	**EXCL**	**EXCL**	**EXCL**	**EXCL**	**EXCL**	**24.0**	**22.5**	**19.5**	**13.7**	**EXCL**

* Point scale: 0 = neutral or not applicable 10 = significantly adverse impact
** Impact on people is partially determined with criteria 4, 6 and 12
*** - pursuant to the article 6(4) of the Habitats Directive – due to existence of alternative variants without significant adverse impacts on the subject of protection of the Natura 2000 and the integrity of the abovementioned area

From analysis performed reflected in the scoring presented in the table S.1 it is clear that **the most naturally favourable variant is the variant IIIA** – mainly due to relatively low natural collision, minimal adverse impact on the landscape and significant reduction of annoyance of the road traffic for people (air pollution, noise and vibrations). Therefore, GDDKiA **indicates finally that variant as the variant proposed by the Investor pursuant to the article 66.1.7 of the Act on the Environmental Protection Law** (Dz. U. of 2008, no. 199, item 1227).

15.3 Impact of the Project on the Natura 2000 network (criterion no. 1 in the table S.1)

It has been stressed that the most important element of the Report on effects of designed variants of the course of the Augustów Bypass was the assessment of construction of the Augustów Bypass (for particular project variants) on the subject and objective of land protection within the Special Habitats Protection Area "Augustów Primeval Forest" (PLH200005) and the Special Birds Protection Area "Augustów Primeval Forest" (PLB200002). The assessment was to answer to the question whether and for which analysed in the Report variants the implementation of the project may significantly negatively (within the meaning of the Directive 92/43/EEC) impact on plant and animal populations, as well as on habitats, for which protection the abovementioned Natura 2000 areas have been established.

After performing appropriate analysis it has been concluded that pursuant to the Directive 92/43/EEC variants that can be implemented are variants II, IIA, III or IIIA, however, it has to be noted that in the context of the dispersion of mammals and the integrity of the Natura 2000 network, mitigating actions shall be more efficient if variants of the group III are selected. Taking this into account as well as results of particular analysis of impacts on species and habitats covered by protection within the Special Habitats Protection Area "Augustów Primeval Forest" and the Special Birds Protection Area "Augustów Primeval Forest"it is recommended to construct the Augustów Bypass in accordance with the variant III or IIIA. Taking previously into account relations between areas included in the Natura 2000 network in the north-east Poland.

15.4 Impact of the Project on the nature (criteria no. 2 and 3 in the table S.1)

In this section, the authors of the study referred to the method of scoring reflecting the degree of adverse impact of particular variants of the course of the bypass in question, in the following categories:

- Loss of natural value of the land due to effects on animal species and their habitats as well as distortion of migrations of animals and
- Loss of natural value of the land due to impacts on plant species as well as natural habitats.

The scoring has been assigned proportionally to the degree of adverse impact of each variant, in relation to variants with the greatest and the lowest adverse impacts.

In the case of the category "loss of natural value of the land due to effects on animal species and their habitats as well as distortion of migrations of animals" the lowest number of scores has been assigned to variants III and IIIA, while the greatest number of scores has been assigned to variants of the group I and IA (for these variants it is impossible to exclude the significant adverse impact on the integrity of the Natura 2000 refuge).

In the case of the category "loss of natural value of the land due to impacts on plant species as well as natural habitats" the lowest number of scores has been assigned to the variant "0", due to the fact that implementation of the investment will have lower adverse impact on plants than the road construction in accordance with any of other variants.

The greatest number of points has been obtained by variants of the group I and IA. These variants cross the most valuable areas in terms of the flora (part IV of the Report). In the case of implementation of the investment in accordance of these variants the significant adverse impact on plant species and natural habitats, listed in Annexes I and II to the Habitats Directive, cannot be excluded. Variants II, IIA, III and IIIA obtained low number of scores, due to the fact that adverse impacts on the flora of the investment implemented in accordance with these variants is incomparably smaller than for variants I and IA. Values of the flora along variants II (IIA) and III (IIIA) are similar and significantly smaller than along the variant I, however for the variant II the flora along its course appeared to be slightly more valuable than for the variant III (IV part of the Report). Furthermore, variants III and IIIA do not cross the Natura 2000 area. Therefore variants III and IIIA obtained in the category "loss of natural value of the land due to impacts on plant species as well as natural habitats" obtained lower number of scores than variants II and IIA.

15.5 Impact of the Project on the landscape (criterion no. 9 in the table S.1)

This section presents detailed explanations concerning the scoring assigned to particular variants of the course of the Augustów Bypass in the table 9.1 taking into account the criterion 9 – impact on the landscape.

15.6 Impact of variants of the Project on people (criteria no. 4 – 8 and 10 – 12 in the table S.1)

The analysed variants of the Augustów Bypass have been subjected to evaluation assuming also criteria related to the impact of the investment on people, that is:

- air pollution;
- surface and underground waters, drinking water intake stations;
- acoustic climate and vibrations;
- agricultural usefulness of soils and soil pollution;
- impact on the landscape;
- protection of monuments and archaeological resources;
- waste generation;
- railway in the Rospuda Valley;
- material goods.

It has been stressed that taking into account the abovementioned criteria related to impacts of the project on people, the preferred variant in terms of:

- air pollution – is the variant IIIA;
- acoustic climate – is the variant IIA;
- conflict associated with drinking water intake stations – no preferences;
- impacts of major accident/ road crash (impacts both on people and natural values of the land) – are variants III and IIIA.

Due to the high, documented landscape values of the area in question, the detailed evaluation of impacts on the landscape has been performed. Taking into account the impact on the landscape in terms of social issues is the most preferable variant is the variant IIIA.

There are also no preferences in terms of impacts of air pollution on the soil quality, because in the analysed case there are no factors that could contribute to exceeding standard values. There are also no preferences in terms of trans-boundary impacts due to the lack of such impacts of the road sections in question.

The assessment of environmental impact includes also criteria of impact on natural resources in addition to the assessment of impact on the subject of protection of the Natura 2000 area. Variants have been differentiated in terms of loss of natural value of land, including fragmentation of habitats and distortion of migration corridors of animals. Taking into account the abovementioned criteria the preferred variant in terms of social issues are the variants III and IIIA.

Differentiation of the environmental impact assumed the waste generation. Taking into account the abovementioned criterion, the preferred variant is the variant II.

In terms of the agricultural and natural values (agricultural usefulness of soils) and the protection of monuments and archaeological resources – there are no preferences.

Variants preferred in terms of protection of material goods are variants III, IIIA and II. However, for the protection of the moor in the Rospuda Valley the preferred variants are variants III and IIIA.

15.7 Assessment of variants of the Project performed in accordance with the Round Table criteria

The most favourable variant for the environment has also been selected based on the multi-criteria analysis of the variants of the Augustów Bypass within the course of the national road no. 8 developed under guidance of associated professor engineer Andrzej Kraszewski, by the company Suchorzewski Konsulting pursuant to the contract with the General Inspectorate for National Roads and Motorways (contract of 5-01-2009) and relates to course variants of the Augustów Bypass on the section from Augustów junction to the Airport junction.

The authors of the multi-criteria analysis, as well as the authors of the Report and Annex no. 8, as the most favourable variants indicated the variant IIIA. It is an additional argument for choosing the variant IIIA for implementation.

15.8 Additional functional and strategic criteria

It has to be noted that the selection of the optimal variant of the Augustów Bypass cannot be considered in isolation from other planned road investments in this region, and particularly from the course of the NE Via Baltica, taking also into account results of environmental impact prognosis prepared within the Development Strategy for the I Pan-European Transport Corridor Via Baltica[1,2].
The variant of the bypass in the area of Raczki (variant IIIA) corresponds to the greatest extent with the course of the Via Baltica laid out through Ełk and Łomża, that is the variant 42 of the Via Baltica route – indicated as the best solution pursuant to the strategic assessment prepared by the team led by the Scott Wilson company/ Such course of the route shall have the least adverse impact on the nature of north-east Poland, because it omits the most important areas of the region and does not affect their integrity. The variant 42 of the Via Baltica route has been indicated as optimal, assuming not only natural and environmental, but also transport criteria. While directing the entire heavy traffic through Białystok also due to transport and economic criteria is the leas justified variant (Development Strategy for I Pan-European Transport Corridor. Part I).

If the variant IIIA is selected for the Augustów Bypass together with the strategic selection of the variant 42 for the entire route Via Baltica, the separation of both variants of the road (Via Baltica and Via Carpatia[3]) will take place in the "Szkocja" junction in the vicinity of Raczki. It means that the variant IIIA has a definite advantage over other variants of the Augustów Bypass in terms of strategic and functional issues.

15.9 Conclusions

Both tangible as well as intangible rationality criteria for investment decision have to be carefully analysed by decision-makers. The most important feature of the entire decision-making procedure aiming at selection of a particular variant of the Augustów Bypass is the selection of concept improving the transport system in the area of Augustów, providing high safety standards for road traffic and communication services, as well as respecting the social environment and meeting requirements of environmental protection . The authors of the Annex indicate that is has to be noted how important in the procedure of planning particular transport investments are the limiting economic, technical, social or legal factors. Furthermore, the time of implementation is also of some importance.

The selection of the optimal solution for the Augustów Bypass is not obvious. Each of analysed variants included in the Report on the environmental impact and the multi-criteria analysis causes other natural, spatial and social conflicts. In such extensive set of solutions, there is none accepted by all communities or social groups.

Refraining from constructing the Augustów Bypass and leaving the communication system in the current state would be detrimental for the atmospheric air quality, due to the possibility of exhausting the road capacity and as a consequence multiplying emissions of the exhaust gases generated by moving vehicles, as well as for the quality of acoustic climate.

Pursuant to the analysis and assessments prepared to draw up the Report on the environmental impact of the Augustów Bypass and taking into account provisions of the Habitats Directive 92/43/EEC, the variant IIIA has been indicated as the variant most favourable for the environment, assuming that the I Pan-European Transport Corridor (Via Baltica) shall ultimately run through Budzisko – Suwałki – Ełk – Łomża – Warszawa.

[1] Jędrzejewski W., Jędrzejewska B., Zawadzka B., Niedziałkowski M., Borowik T., Czarnowska S., Zub M., 2006. Strategia rozwoju I Pan-Europejskiego Korytarza Transportowego. Część I: korytarz drgoowy ETAP II. Załącznik 2 I 3 Ocena stopnia konfliktowości wariantowych odcinków planowanego przebiegu drogi („Via Baltica") z obszarami chronionymi, korytarzami ekologicznymi oraz siedliskami wybranych gatunków ssaków i płazów. The study has been developed by the Wilson Scott company for the GDDKiA.
[2] Strategia rozwoju I Pan-Europejskiego Korytarza Transportowego. Część I: korytarz drgoowy ETAP III. The document has been developed by the Wilson Scott company for the General Directorate for National Roads and Motorways, September 2007.
[3] Via Carpatia – the express road passing along the eastern border of the European Union towards (Finlandia) – Litwa – Budzisko – Białystok – Lublin – Rzeszów – Koszyce (Rumunia), which basic part on the territory of Poland shall be the designed express road S19.

The selection of the variant III of the Augustów Bypass provides the most favourable perspective for preservation of natural resources of the north-east Poland, and particularly the protection of ecological integrity of all valuable natural objects, including the NATURA 2000 areas, located in that region, which arises not only from the ROŚ report (together with this Annex), but also from the prognosis of the environmental impact prepared within the Development Strategy for the I Pan-European Transport Corridor "Via Baltica"[4].

In summary: both the environmental assessment contained in the Report, as well as other assessments, including particularly the abovementioned strategic prognosis and the abovementioned multi-criteria analysis performed in accordance with a system of criteria determined by the Round Table, indicates the multi-criteria optimality of the variant IIIA. Therefore, **the variant IIIA shall be considered to be "preferred", "selected for implementation" or "proposed by an applicant"** – in the sense applicable to proceedings concerning issuing the environmental decision and arising from the article 66, paragraph 1, point 7 of the Act of 3rd of October 2008 on Availability of Information Concerning the Environment and Environmental Protection, General Public Participation in Environmental Protection and Environmental Assessment (Dz. U. no. 199, item 1227, as amended).

16. Proposed environmental conditions for the Project implementation

Fom this report the following conclusions concerning the environmental protection arise and have an impact on the further design of the investment, its implementation and operational conditions in the preferred project variants III and IIIA:

1) The construction design shall be developed assuming the following measures for the environment protection with technical parameters specified in this report:

a) acoustic screens as well as soil anti-noise embankments and barriers protecting residential areas against the traffic noise (which location and main parameters have been specified in tables VI-1 – VI-6);

b) Grassy pits, retention tanks and separators cleaning the rainwater flow from the road prior to discharge into external tanks;

c) Passages for small, medium and large animals allowing collision-free passage of wild animals across the road (which locations and main parameters have been specified in tables VI-7 – VI-12);

d) Protective afforestation around passages for medium and large animals;

e) Fences for animals on both sides of the road along the entire express road, directing animals to transverse passages across the road;

f) Insulating greenery lanes improving aesthetic and landscape values of the road neighbourhood and protecting it against air, soil, crops and plants pollution.

2) For planting the road with trees and shrubs domestic species shall be used, naturally occurring in particular ecosystems in the north-east Poland;

3) It is prohibited to introduce dense shrubs in the road lane, particularly created from plants fruiting in a form of berries (food for many birds). Species that shall not be planted due to the bird protection are as follows: Swedish whitebeam, wild black elder, hawthorns, fruit trees, cherry plum, malus pumila, wild pear, silver berry, berberis, snowberry, taxus, wild rose, and furthermore creeping conifers – where mallards frequently nest.

4) In places, where the road will cross forest complexes, there shall not be created roadside greenery lanes and within adjacent forests there shall be no additional plantings and afforestation of trees and shrubs (detailed guidelines are contained in the part IV, section 3.3).

[4] Strategia rozwoju I Pan-Europejskiego Korytarza Transportowego. Część I: korytarz drgoowy ETAP III. The document has been developed by the Wilson Scott company for the General Directorate for National Roads and Motorways, September 2007

5) At the implementation stage it is required to provide the environmental supervision aiming at monitoring, whether during the construction recommendations arising from issued administrative decisions concerning protection of flora and fauna are met as well as the surveillance over the works conducted that shall limit environmental losses;

6) Prior to commencing ground works it is required to conduct preventive archaeological excavations and then all ground works shall be conducted under the archaeological surveillance;

7) Material and equipment facilities shall be located outside protected areas in an open area, far from residential buildings and the road and bridge works shall not be conducted in night times between 10 p.m. and 6 a.m.

8) The construction site as well as facilities (storage locations for equipment and materials, etc.) shall be protected against ground water contamination applying systems collecting contaminations from rain water with current ditches discharging rain water and temporary retention tanks retaining contaminated rain flows;

9) The soil material used for finishing works (consolidation of embankments, etc.) shall be of local origins so that it does not contain seeds of foreign species in that region;

10) During the construction the trees and shrubs left shall be protected against mechanical damages with boards attached to trunks or wooden fences;

11) During the construction it is required to remove turfs and fertile soils from the area covered by construction works and then use them to reconstruct the soil layer around that road and strengthening embankments and ditches;

12) During the construction it is required to perform in stages adapted to progress of ground works the re-cultivation of the area around existing and newly-constructed trees involving filling up clear-cuts, turfing and hummusing using the turf and fertile soil collected previously;

13) The newly-planted trees and shrubs shall be covered by at least three year care warranty involving appropriate mulching roots, watering, fertilising, weed removal and mowing grass;

14) In order to determine the actual impact of the road on the environment it is required, after 2 years from commissioning, to conduct control monitoring measurements of the road impact on the environment pursuant to the article 178 of the Act – Environmental Protection Law associated to the noise and basic air and water contaminations and then repeat these measurements every five years within the next 15 years. It is recommended to conduct at the same time measurements performed pursuant to the article 175 and 178 of the abovementioned act. In relation to the road impact on the nature it is required to perform every five years monitoring measurements of the environmental condition associated with and pursuant to principles established in this report in the section VI, point 8.2 – 8.4.

15) Due to the possibility of non-compliance with environmental quality standards, for example due to the faster than anticipated increase of the traffic, there will be a need to perform the after-construction analysis and therefore the article 56, paragraph 4, point 2 of the Act – Environmental Protection Law applies. The basis for the after-construction analysis shall be results of control measurements of the environment state of a scope consistent with monitoring measurements and the updated prognosis of impacts of the road on the environment and its main aim shall be determining the possible need to extend and supplement implemented environmental protection measures. The scope of the analysis shall include all impacts analysed in this report. The after-construction analysis shall be performed one year from commissioning the object and shall be completed within 18 months from commissioning;

16) Due to the lack of technical obstacles in meeting the current environmental quality standards outside the designed road lane of the Augustów Bypass at the construction stage or after completing the implementation of the project (particularly in relation to acoustic protection of residential buildings) there will be no need to establish the limited use area and therefore the article 135 of the Act – Environmental Protection Law does not apply to this project.

IB. DRAWINGS

Drawing S1.1 General reference map; scale 1:50 000, Variants I, II and III

Drawing S1.2 General reference map; scale 1:50 000, Variants IA, IIA and IIIA

Drawing S1.3 General environmental conditions, scale 1:25 000, Variants I – IIIA