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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

for

the construction of ul. Nowotarska in Krakow – task No. 2 km 0+162.65 – 2+090.89, section from Ks. Tischnera Street to Witosa Street

(stage: arrangements concerning construction project)

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Executive Summary

The City of Krakow intends to construct a road link (Nowotarska Street) located in the Podgorze District of the City of Krakow between Ks. Tischnera Street to Witosa Street. An independent consultant – "Ekologia i Zdrowie" was commissioned by the City of Krakow to conduct an updated Environmental Impact Assessment (EIA) at the stage of obtaining the construction permit. The original EIA was carried out at the stage of obtaining the Conditions for Construction and Land Management (WZiZT). That document determined the scope for the updated EIA. The Executive Summary outlines the results of both studies. The EIA has been carried out in accordance with the Polish regulations which have been harmonised with the European Union EIA Directive. The EIA considers a single alignment as presented in the City Development Plan and approved by the authorities in 1994.

Project Description

The proposed investment will be a 1,93 km dual carriageway linking a newly developed section of Nowotarska Street with Tischnera Street including the construction of interchanges with the following streets: Witosa and joint Fredry, Strumienna and Pierzchowka. In addition, the development includes the construction of four access roads (for details see the attached maps). The northern part of the proposed road will go through predominantly industrial areas while the southern part will continue through dispersed suburban housing areas. Presently the insufficient road capacities cause frequent traffic jams.

Description of Environment

The planned road link is situated in the southern part of the City of Krakow in a well developed suburban area in the lower part of the Wilga River (Vistula tributary) catchment area. Groundwater resources do not have any significant value and are only present locally in the quaternary sand aquifers. No surface or groundwater protection zones are known along the proposed alignment. There are no areas of high ecological value. There are lower value trees and bushes along the alignment. The preliminary estimates show that 279 trees will need to be removed as a result of the proposed construction.

Environmental impacts and mitigation measures

<u>Protection of atmospheric air:</u>

Air emissions generated during the construction phase will be temporary and, given proper work standards, will be kept to a minimum. Vehicle traffic is a source of air pollutants which are emitted from the engines exhausts. Emissions and impact of relevant pollutants were calculated, taking into consideration type of vehicles, fuels and engines as well as road characteristics. Air emissions prognosis during the normal operation of the proposed road link showed that carbon monoxide emissions (CO) will be within permissible limits. Nitrogen oxides (NOx) are likely to exceed permissible levels within the immediate vicinity of the road corridor (up to 30 m from the road axis). In the future, in addition to the traffic related impact, background concentrations from other sources will need to be taken into consideration for evaluation of the future ambient quality standards.

In order to mitigate the negative impacts from vehicle traffic, in addition to vehicle regulatory measures, the road link will include the following measures: (i) replanting of greenery removed during the construction phase; (ii) planting new greenery to reduce the NOx concentration, planted in the form of rows, belts, and elongated strips. At the initial section of the road – near the entryways into the flyover – the greenery will be introduced in the form of clusters.

Protection from noise and vibrations:

The noise generated by vehicle traffic will affect the settlements located alongside the proposed road link. For evaluation of noise impact and determination of suitable noise abatement measures, calculations of noise levels were carried out. The calculated noise levels were evaluated with respect to noise standards regulations of Poland and countries of the European Union. The applied noise standards for existing residential areas were 60 dB(A) at daytime and 50 dB(A) nighttime. The results of the calculations, without any noise prevention measures reveal impacts with outdoor levels within the range of 67 – 73 dB(A) within the immediate vicinity of the proposed alignment. In particular, noise levels in the housing areas located within the middle section of the road will be exceeded within the 20 to 55 m from the axis of the road and 65 to 110 m in the areas close to intersections. This revealed the need for implementation of noise abatement measures. These will include noise prevention screens of total length of 1304 m. Despite the use of the screens for the buildings located in 4 plots (166/2, 228/2, 257/8, and 405/2) the maximum night noise levels will be exceeded. Due to this, application of soundproof windows, as additional protection, was recommended. One building located four metres from the road, due to its poor technical condition and potential elevated vibration level has been recommended for demolition.

During the construction phase noise intensive works should be executed only during daytime. Works that require the use of vibrations generating equipment and devices are to be conducted to prevent potential damage to buildings.

Water and sewage management:

During the construction phase, care will need to be taken to avoid any pollution by oils and lubricants of ground and surface waters. During the operation phase surface run-off contaminated with tyre abrasion, solid particles and salt or other de-icing agents will be directed into the drainage system and subsequently treated in the Plaszow Waste Water Treatment Plant. The plant, which is currently being upgraded, will have sufficient capacities to treat waste water in accordance with Polish and EU effluent standards. Therefore, it is not anticipated that the operation of the proposed road link will have any significant impact on ground or surface waters.

Impacts on Soils and Erosion:

In general, soils are mainly affected through cut and fill operations. The construction is not anticipated to have any significant impact on soils if proper protection measures are applied. Special care must be taken to avoid soil and groundwater contamination by spill or hazardous substances. Special care should be taken for construction of drainage at those cut sections where permanent water seepage appears after construction. It is proposed to re-use the topsoils as far as possible based on the best available technology.

Cultural and Historic Heritage:

No significant cultural heritage sites or features are so far known to be present in the area of the alignment. Several buildings of limited historical value have been identified. Four of them, the oldest of 1919, have been recommended for demolition. The project will include construction of a symbolic monument to epidemic victims of 1849, 1855 and 1873, the mass grave of which was located in the past in the vicinity of the proposed alignment.

Monitoring

It is recommended that the tender dossier included the environmental obligations the contractor should fulfil. The contractor should be obliged to follow a proper environmental practice during all construction work activities and to keep damage to vegetation, soil, ground water, surface water, landscape and disturbance to a minimum. No special monitoring requirements have been identified for the operational phase of the investment.

Public interactions

All potentially affected parties have been consulted at the stage of obtaining the Conditions for Construction and Land Management and had opportunity to raise their concerns. No significant issues have been raised and the remaining issues are being addressed based on the Polish civil law.

Conclusions

Based on the results of the investigations, the construction and operation of the proposed Nowotarska Street can be considered as environmentally acceptable. The proposed mitigation measures, when implemented, will ensure that the investment will comply with the relevant Polish and European Union environmental standards.