For the projected railway section between Kumanovo and the Bulgarian border the traffic demand was forecasted concerning different scenarios of the economic and demographic future development, different stages of the corridor VIII completion and finally different time horizons of implementing and operation.

In order to elaborate this forecast it was necessary to consider the traffic demand of whole Macedonia, because it has to be expected that the sources of induced traffics and traffic shifting (e. g. between private motorized transport and public transport) are placed far away from the projected section. An impressive example for this phenomenon is the rail bound freight transport from Sofia through Serbia via Nis to Macedonia.

Therefore a traffic demand model based on the traffic design software VISUM was developed which comprises all the 8 regions of Macedonia and its neighboring countries Albania, Serbia, Bulgaria and Greece. The traffic demand matrices based on this model refer to 84 inner traffic zones (municipalities of Macedonia) and 13 outer traffic zones (adjacent states). Excepting air transport, which is no object for the Macedonian traffic performance, all the other modes of passenger and freight transport are of interest and had to be investigated in reference to the future traffic demand.

The current traffic demand was derived from several data sources, mainly the State Statistical Office, the Agency of State Roads, the Agency of Border Customs and the national railway company. Furthermore the traffic report of EUROTRANSPROJECT Ltd. concerning the south west located railway section between the Albanian border and Kicevo delivers important and useful data and approaches for necessary estimations.

The matrices of the current traffic demand (2010) were elaborated in connection with the calibration of the existing Macedonian transport networks for all the modes of passenger and freight transport. The traffic demand forecast is based on these matrices and assumptions concerning the GDP development, the development of exports and imports, the population development and the development of the car ownership. On the other side, induced traffic and shifted traffic as a result of an improved railway offer are taken into account. In detail the different design cases were examined for different modes, different scenarios and different horizons as follows:

Modes of passenger transport:

- Bus
- Train
- Private road vehicle (mainly car)

Modes of freight transport:

- Train
- Private road vehicle (mainly truck)

Project development stages of completion:

Do nothing case: current situation; the railway line remains closed and then would be dismounted;

Stage 1 case: Rehabilitation of Kumanovo-Beljakovce section and assumption of improvement of railway service all over the country (operating period 2015-2017)

Stage 2 case: Construction of Beljakovce-Deve Bair section and linking the Bulgarian network (operating period 2018-2020)

Stage 3 case: Construction of the western section of Rail Corridor VIII linking Albania, reconstruction of Bulgarian sections, completion of missing sections in Albania (operations starting in 2021)

Scenarios of future development:

- Pessimistic scenario (in parts decreasing development of different future influence parameters)
- Most likely scenario (normal foreseeable development of different future influence parameters)
- Optimistic scenario (in parts above average increasing development of different future influence parameters)

Planning horizons for transport modeling:

- 2015 (start of operation design case Stage 1)
- 2018 (start of operation design case Stage 2)
- 2020 (completion of design case Stage 3)
- 2040 (complete operation along Corridor VIII (railway)

Based on transport modeling following future traffic can be forecasted:

Passenger transport

- If no measures will be realized in order to improve and to extend the Macedonian railway offer (do nothing case) the rail bound traffic demand within the catchments area of Kumanovo will not change noticeably until 2040.
- The rehabilitation of the Kumanovo-Beljakovce railway section will mainly generate a countable increase of the rail bound passenger traffic demand between the city of Kumanovo (stations and halts in the municipality of Kumanovo) in direction to the main railway line (mostly to Skopje). Behind Kumanovo city (between Kumanovo city, halt of Pero Cico and Beljakovce) the regional catchment area of the new line is sparsely settled and does not have a relevant demographic or economic attractiveness.
- With the construction of the Beljakovce-Deve Bair section and the linking of the Bulgarian railway network the train passenger load within the projected section between Rankovce and Kriva Palanka reaches a remarkable volume with up to 5,500 passengers per day in the optimistic scenario in 2040. Under the hypothetic assumption that the projected railway section is already completed and ready for operation in 2018 the train passenger load could be much lower with about 1,300 railway passengers per day. This consideration underlines the strong economic and demographic development assumed in the optimistic scenario. In the most likely scenario the traffic demand within the whole section is by far (-45%) lower.
- An important result concerning the relation between the south west located section of corridor VIII and the north east located section is the awareness that rail bound long distance passenger transport demand does not have to be expected. Regarding the projected section between Kumanovo and the Bulgarian border and its traffic loads there is nearly no difference between the results of the Stage 2 and the results of the Stage 3.
- The passenger traffic forecast resulted in the most likely scenario (Stage 3) that in 2040 a volume between 990,000 passengers/a (between the traffic zones of Kumanovo and Rankovce) and 420,000 passengers/a (section Kriva Palanka-BG border) could be expected.

Freight transport

- In all the considered scenarios of the economic and demographic development there has a relative strong increase of international and domestic freight transport until 2040 to be noticed. In the optimistic scenario of the do nothing case the increase within the existing railway section between the connection loop to Corridor X and Kumanovo is more than 400% (from 150 tonnes/d in 2010 to 780 tonnes/d in 2040).
- As there is no additional source of freight traffic in the surroundings of Beljakovce the consideration of the Stage 1 case is not of interest. Assuming that the Stage 1 case is equal to the "do nothing" case regarding the rail bound freight traffic, the examination of the Stage 1 case is dispensable. Therewith the "do nothing" case is the reference case for freight and complies with the Stage 1 case.
- Compared to the do nothing case the Stage 2 case with the complete projected railway section between Kumanovo and the Bulgarian border the volume of freight shifting from truck to rail is relative small in the pessimistic scenario and the railway freight load of the new section between Kumanovo and the Bulgarian border is also in 2040 moderate with a maximum of about 3,700 tonnes/d. In the optimistic scenario the whole train freight volume of the matrix 2040 is about three times higher than the volume of the matrix 2020, and the train freight load within the projected section reaches a remarkable volume with up to 7,500 tonnes per day.
- According to the proportion export/import the directions are loaded very unequal. In the most likely scenario of 2040 the westbound direction Bulgaria – Kumanovo has a portion between 97 % and 83% (depending on the total traffic load by section).
- In deviation from the passenger transport performance there is a slide influence of the new south west located section on the projected section between Kumanovo and the Bulgarian border. The Stage 3 case shows in the optimistic scenario of 2040 a daily rail bound freight load of 7,160 tonnes/d within the section between Rankovce and Kriva Palanka. In the Stage 2 case (only the north east located section is completed) this load is only 6,860 tonnes/d.
- The freight transport forecast predicts a traffic volume along the project section in the most likely scenario between 1.5 million tonnes/a (section Kumanovo/connection point to Corridor X-Kumanovo Novo) and 1.2 million tonnes/a (section Kriva Palanka-BG border) in 2040.

Република Македонија
ВЛАДА НА РЕПУБЛИКА МАКЕДОНИЈА
Бр. 51-3556/1
19.07.2011 година
С к о п ј е

ДО МИНИСТЕРСТВОТО ЗА ТРАНСПОРТ И ВРСКИ

СКОПЈЕ

И З В А Д О К
од Нацрт-записникот од Двесте четириесет и осмата седница на Владата на Република Македонија, одржана на 19.07.2011 година

„ТОЧКА: 20 Информација за досегашната релализација на Проектот Изработка на физибилити судија и оценка на влијанието врз животната средина и социо - економскиот живот за делницата Куманово – Деве Баир, граница со Република Бугарија, железнички дел од Коридорот VIII

Владата ја разгледа Информацијата за досегашната релализација на Проектот Изработка на физибилити судија и оценка на влијанието врз животната средина и социо - економскиот живот за делницата Куманово – Деве Баир, граница со Република Бугарија, железнички дел од Коридорот VIII и ја усвои со следните заклучоци:

1. Се задолжува Министерството за транспорт и врски во соработка со Консултантската куќа да продолжи со понатамошна изработка на физибилити студијата и оценка на влијанието врз животната средина и социо-економскиот живот со задржување на "Референтната траса" како претпочитаната траса за секциите Куманово – Бељаковце - Крива Паланка - Деве Баир, граница со Република Бугарија.

2. Се задолжува Министерството за транспорт и врски до 30.11.2011 година да информира за финалните резултати од физибилити судија и оценка на влијанието врз животната средина и социо - економскиот живот за делницата Куманово - Деве Баир, граница со Република Бугарија, железнички дел од Коридорот VIII."

ГЕНЕРАЛЕН СЕКРЕТАР
Кирил Божиновски

Подготвил: Никола Пасков
Одобрил: Митра Спасовска

Republic of Macedonia

Government of Macedonia

No. 51-3556/1

19.07.2011

Skopje

To Ministry of Transport and Communication

Skopje

Part of draft-minutes from two hundred forty eight session of the Government of Republic of Macedonia, dated 19.07.2011:

Point: 20 Information for up to now realization of the Project: Feasibility Study and ESIA for section Kumanovo – Deve bair, border with Bulgaria, railway Corridor VIII.

Government checked the Information for heretofore realization of the project Feasibility Study

and ESIA for section Kumanovo – Deve bair, border with Bulgaria, railway Corridor VIII and adopt

the following decisions:

1. Ministry of Transport and communication is obligated in cooperation with the Consultant to continue with further preparation of the Feasibility Study and ESIA keeping the "reference" alignment as preferred alignment for sections Kumanovo-Beljakovce-Kriva Palanka-Deve Bair, border with Bulgaria.
2. Ministry of Transport and communication up to 30.11.2011 to inform Government for final results from the Feasibility Study and ESIA for section Kumanovo - Deve Bair, border with Bulgaria, railway Corridor VIII".

General Secretary

Kiril Bozinovski

This supplementary Site Inspection Record for existing structures presents the Consultant's findings in respect of all the bridges and tunnels on the project railway line from Kumanovo to Bulgarian border. This report is additional to the requirements of the Terms of Reference and Task 4 Development of Preferred Alternative for the Feasibility Study. This report summarises the research into the condition of the bridges and tunnels and is used for consequential costs for their construction or finalisation.

The report is structured in the three sections following the conveniently divided Eastern part of the Rail Corridor VIII, unique for whole study:

- Section 1: Kumanovo to Beljakovce;
- Section 2: Beljakovce to K.P. 66 (west of Kriva Palanka);
- Section 3: K.P. 66 to Bulgarian Border.

Since section 1 has been operating in the past and existing structures are generally in the good conditions, and since PERI's technical team has recently conducted the detailed assessment of condition of section 1, the Consultant accepted its report and conclusions as a reliable resource for its further elaboration. Therefore the Section 1 is presented in the following chapter.

As concerns Section 2 and 3 Consultant made its own inspection. Bridge and tunnel inspections were carried out in the period from March to April 2011. Inspection was done on a macroscopic basis, concerning all bridges and tunnels along the railway line specified in the Terms of Reference.

Detailed photo documentation and site notes with a description of the structural condition were prepared for each bridge and tunnel separately, in regard to each single element of construction, including preliminary works needed for upgrading.

Each element of the bridge and tunnel was checked visually and remarks were recorded in the site notes (which consist of detailed descriptions of the damage to the structures identified during the inspection). The photos of bridge and tunnel construction were taken (abutment, surface view, underside view, etc.) as well as elements which were damaged.

The data for each bridge and tunnel are presented on a single sheet. Each sheet was prepared as background data for the economic and financial feasibility assessments for the Feasibility Study for Corridor VIII - Eastern section.

Each sheet cannot as such be used to represent the correct and detailed technical condition of the bridge/tunnel as this has not been the purpose of making the sheet. Consultant takes no responsibility for uses of the sheet other than for the above mentioned feasibility assessment.

SECTION 1: KUMANOVO – BELJAKOVCE, from km 0+000 to km 30+836

According to performed interventions this section is separate in three parts:

1. from Km 0+000 to KM 2+667

On this part of the railroad there were not done any interventions and it has existing track with wooden sleepers. In order to have the same technical parameters along the entire corridor it is necessary to prepare technical documentation for rehabilitation of substructure and superstructure of the railroad. This technical documentation has to contain solution for a new deviation in station Kumanovo and changes in some elements.

2. from KM 2+667 to KM 23+600

On this part of the railroad reconstruction was performed on the substructure, new concrete sleepers are installed and set old used rails. Also on this part of the railroad is missing rail fittings and 600m rails.

2.1 Existing bridges, underpasses and overpasses;

Bridge on km 2+780, steel construction with open track. Need to be checked his load capacity and should be reconstructed.

Bridge on km 3+133, reinforced concrete bridge 2x15m. Need to be checked his load capacity and should be reconstructed.

Box culvert on km 3+432, reinforced concrete box culvert, L=5m, Need to be reconstructed.

Overpass on km 6+927, reinforced concrete overpass (motorway), it has the required height for electrification.

Overpass on km 6+978, reinforced concrete overpass (motorway), it has the required height for electrification.

Underpass on km 7+206, reinforced concrete vaulted (arch) underpass, L=14m. Need to be checked his load capacity and should be reconstructed.

Bridge on km 7+316, reinforced concrete vaulted (arch) bridge L=16m. Need to be checked his load capacity and should be reconstructed.

Underpass on km 8+001, reinforced concrete vaulted (arch) underpass, L=14m. Need to be checked his load capacity and should be reconstructed.

Underpass on km 9+026, reinforced concrete vaulted (arch) underpass, L=12m. Need to be checked his load capacity and should be reconstructed.

Overpass on km 10+860, reinforced concrete overpass (ring road for Kumanovo), it has the required height for electrification.

2.2 Road level crossings for which should be build Overpasses (with technical documentation)

On this part of the railroad it has 18 road level crossings and for each of them should be prepare technical documentation, design for Overpass or Underpass.

- km 2+876, Lopate. The tar road leads to s.Lopate and cross with 3 (three) tracks. Between tracks it has access road. Road cross is secured with half bumpers. Need to be construct overpass.
- km 3+507, Rezanovce. The tar road leads to s.Rezanovce. Need to be construct overpass.
- km 4+080. This cross to be cancelled. Need to construct access road to the road cross on km 3+507.
- km 6+500, where Brickyard is. This cross to be cancelled and provide new solution for accessing in the Brickyard. On this place is planned new station "Novo Kumanovo".
- km 7+500, illegal crossing. To be cancelled and provide new solution.
- km 9+042, Pero Cico. On this location it has existing road level crossing and should be cancelled. Need to be design tehnical solution with road deviation and conctruct new overpass close to existing underpass.
- km 10+773, Proevce. This road level cross is on local road who leads to s.Proevce and it need to be cancelled. This road level cross should be redirected to the existing roads.
- km 12+170, Dobresane. Existing road level crossing on local road who leads to s.Dobresane. Need to be cancelled. To build deviation on road (to Kumanovo) and cross with overpass in cut roughly on km11+970.
- km 13+607. Need to be cancelled. The road traffic should be redirected on crossing on km:14+960.
- km 14+357. Need to be cancelled. The road traffic should be redirected on crossing km:14+960.
- km 14+960. To prepare technical documentation for underpass who will undertake road traffic from cancelled crossings on km 13+607 and km 14+357.
- km 16+357. To prepare technical documentation for underpass roughly on km16+200 or with overpass roughly on km 16+400.
- km 17+796, Supli Kamen. To prepare technical documentation for cancelling the crossing and redirecting with overpass roughly on km 18+450. With this solution crossing on km 18+360 is cancelling.
- km 19+089. To prepare technical documentation for crossing with underpass.
- km 20+048. To prepare technical documentation for crossing with underpass.

Note: It has the opportunity crossings on km 19+089 and km 20+048 to be cancelled and the road traffic to be redirected on crossing with overpass on km 19+950.

- km 22+285. To check the opportunity for cancelling this crossing and build deviation on road (to Beljakovce) with underpass on km 22+630.
- km 25+573. To check the opportunity for cancelling this crossing and build deviation on road (to Kumanovo) with underpass on km 25+197.
- km 27+863. To check the opportunity for cancelling this crossing and build deviation on road (to Beljakovce) with existing underpass on km 28+065.

2.3 Slopes from cuts where it is necessary to rehabilitate

On some part where railroad comes in cuts it is necessary to rehabilitate the slopes (stabilization from landfalls). Rehabilitation to be done: from km 7+600 to km 8+900 and on km 12+600 nearby Proevce.

2.4 The necessity of setting up a protective fence along the railroad and setting up noise protective fence

Because of the closeness where railroad pass by it is necessary to set up a technical protective fence for securing the railroad and set up a noise protective fence for securing the citizens who live nearby railroad. Noise protective fence need to be set up on km 3+507 (Rezanovce), km 6+600 (Brickyard) and km 9+026 (Pero Cico).

2.5 Railway station

Need to prepare tehnical documentation for three railway station:

- km 6+779 - Novo Kumanovo,
- km 16+856 - Supli Kamen
- km 30+502 - Beljakovce.

2.6 Whistle stops

Need to prepare technical documentation for 6 (six) whistle stops:

- km 2+876 - Lopate,
- km 9+056 - Pero Cico (existing whistle stop),
- km 12+186 - Proevce,
- km 13+971 - Dobresane,
- km 24+800 - Klecevce,
- km 27+863 - Dovezence.

❖ Only boarding or taking down of passengers will be done on the whistle stops.

3. from km 23+600 do km 30+836

Because of some technical problems during the construction of the railroad from km 22+900 to km 25+600 in 2002 it is made new technical documentation with the new bridge through the river Pcinja on km 24+768.
On the part from km 25+600 to km 30+836 substructure is construct, objects are finish, but most of the cuts and embankments are not finish.

SECTION: BELJAKOVCE – km 66+050.00, from km 30+836 to km 66+050

BRIDGE INSPECTION RECORD								
Bridge		Bridge No.	length	width	chainage	Bridge type		Date of Inspection
Section	BETON 29+000 - 37+624	**1**	8X20 (160m)	6.5m	km 33+855	RC Viaduct		24.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	1	(2 oval abutments with parallel wings) no visual defects	
2	Piers	1	(7 piers) no visual defects	
3	Deck	2	appearance of small surface damage from external influences	to make protection on pavement
4	Culvert		not constructed (only holes are done)	to make safe drainage to the terain
5	Bearing areas	2	water from pavement (bearing areas not secure and there is no dilatations)	to make dilatation to prevent water infiltration
6	Main Girders/Beams	1	L=20m, 32, (constructed and installed) no visual defects	
7	Cross Girders	2	4x8=32, 16 end, 16 middle (they are not in straight)	no measures
7	Expansion joints		not constructed	to be construct for preventing the water infiltration
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 100% 2. SUPERSTRUCTURE 90%	
10	Designing		Main Project	

This sheet was prepared as background data for the economic feasibility assessments for the railway Corridor VIII - Eastern section Feasibility Study. It can not as such be used to represent the correct and detailed technical condition of the bridge as this has not been the purpose of making the sheet. The Consultant takes no responsibility for uses of the sheet other than for the above mentioned feasibility assessment.


24.03.2011


24.03.2011


24.03.2011


24.03.2011

BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	BETON 29+000 - 37+624	**2**	8X25 (200m)	6.5m	km 35+996.00	RC Viaduct	24.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	1	(constructed 1st oval abutment, 8th not constructed) no visual defects	
2	Piers	2	(3 piers completely constructed, on 5th pier miss kampada, 6th and 7th not constructed) corrode reinfor.	to clean reinforcement if the intersection is not damage
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main Girders/Beams		not constructed	
7	Cross Girders		not constructed	
7	Expansion joints		not constructed	
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 65% 2. SUPERSTRUCTURE 0%	
10	Designing		Main Project	


24.03.2011


24.03.2011


24.03.2011

BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	BETON 29+000 - 37+624	**3**	7X25 (175m)	6.5m	km 36+630.00	RC Viaduct	24.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	2	1. constructed 8th oval abutment, 1st not constructed) 2. surface damage from ice	to protect the concrete surfaces
2	Piers	2	1. pier number 4, 5, 6 and 7 are completely constructed 2. 2th only one kampada finish, rainforced anchores are corrode and 50% cut 3. corrode reinforcement on parapets	to protect the reinforcement
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main Girders/Beams		not constructed	
7	Cross Girders		not constructed	
7	Expansion joints		not constructed	
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 65% 2. SUPERSTRUCTURE 0%	
10	Designing		Main Project	


29.03.2011


29.03.2011


29.03.2011


29.03.2011

BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	BETON 29+000 - 37+624	**4**	5X20 (100m)	6.5m	km 37+095.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	2	1. constructed 2 oval abutment with parallel wings 2. damaged parapets from wings on 1st oval abutment 3. corrode reinforcement on bearing areas	to protect the reinforcement
2	Piers	2	1. corrode reinforcement from beam parapets 2. 4 piers completely constructed	to protect the reinforcement
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main Girders/Beams	4	1. 20 (5x4) beams are constructed 2. 16 beams are fallen and cracks are occurred 3. 4 beams are upright but in bad condition 4. reinforcement, plocki od kotvi za prednapreganje and box for bearings are corrode 5. They are not prestressed	to do rehabilitation, prestress and instalation
7	Cross Girders		not constructed	
7	Expansion joints		not constructed	
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 100% 2. SUPERSTRUCTURE 60%	
10	Designing		Main Project	

Additional Measures:

To take immediate measures to protect the main beams

BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MAVROVO 37+624 - 44+390	**4a**	1X25	6.5m	km 42+194.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments			
2	Piers			
3	Deck			
4	Culvert	CONSTRUCTION NOT STARTED		
5	Bearing areas			
6	Main Girders/Beams			
7	Cross Girders			
7	Expansion joints			
8	Drainage system			
9	Level of Completion (%)			
10	Designing		preliminary design	

BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MAVROVO 37+624 - 44+390	**4b**	1X25	6.5m	km 42+707.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments			
2	Piers			
3	Deck			
4	Culvert	CONSTRUCTION NOT STARTED		
5	Bearing areas			
6	Main Girders/Beams			
7	Cross Girders			
7	Expansion joints			
8	Drainage system			
9	Level of Completion (%)			
10	Designing		preliminary design	

BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	BETON 29+000 - 37+624	**5**	2x20,5x25 (165m)	6.5m	km 37+604.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	2	2 oval abutment with parallel wings are constructed (no visual defects)	
2	Piers	1	6 piers constructed (no visual defects)	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		bearings are not set	
6	Main Girders/Beams	4	1. 19 of 28 beams are constructed 2. 9 beams are fallen and cracks are occurred 3. 4 beams are upright but in bad condition 4. reinforcement and box for bearings are corrode 5. They are not prestressed	to do rehabilitation, prestress and instalation
7	Cross Girders		not constructed	
7	Expansion joints		not constructed	
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 100% 2. SUPERSTRUCTURE 50%	
10	Designing		Main Project	


29.03.2011

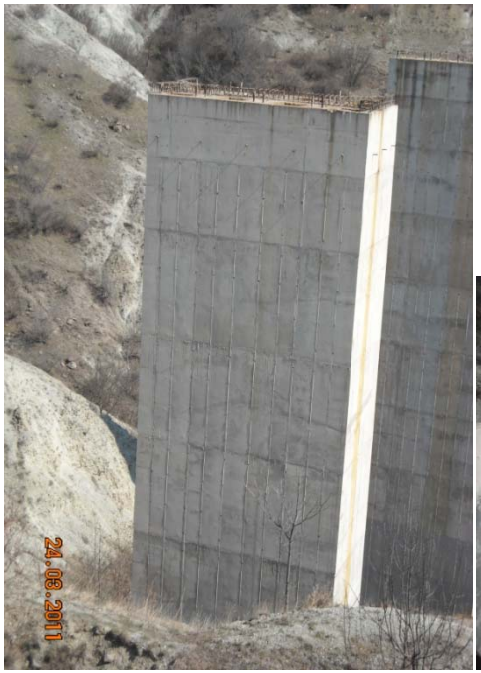

29.03.2011


29.03.2011

BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MAVROVO 37+624 - 44+390	**6**	7X25 (175m)	6.5m	km 39+560.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	2	1. 2 oval abutment with parallel wings are constructed (no visual defects)	
2	Piers	1	1. 6 piers completely constructed 2. parapet reinforcement from bearing beams is corrode	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main Girders/Beams		not constructed	
7	Cross Girders		not constructed	
7	Expansion joints		not constructed	
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 100% 2. SUPERSTRUCTURE 0%	
10	Designing		Main Project	


24.03.2011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BRIDGE INSPECTION RECORD (NO ACCESS TO THE OBJECT)							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MAVROVO 37+624 - 44+390	**7**	2X25 (50m)	6.5m	km 40+014.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	1	2 oval abutment with parallel wings are constructed (no visual defects)	
2	Piers	1	1 pier completely constructed (no visual defects)	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main Girders/Beams		not constructed	
7	Cross Girders		not constructed	
7	Expansion joints		not constructed	
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 100% 2. SUPERSTRUCTURE 0%	
10	Designing		Main Project	

RIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MAVROVO 37+624 - 44+390	**8**	3X25 (75m)	6.5m	km 40+680.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments			
2	Piers			
3	Deck			
4	Culvert	CONSTRUCTION NOT STARTED		
5	Bearing areas			
6	Main Girders/Beams			
7	Cross Girders			
7	Expansion joints			
8	Drainage system			
9	Level of Completion (%)			
10	Designing			

This sheet was prepared as background data for the economic feasibility assessments for the railway Corridor VIII - Eastern section Feasibility Study. It can not as such be used to represent the correct and detailed technical condition of the bridge as this has not been the purpose of making the sheet. EPTISA Servicios de Ingenieria S.A. takes no responsibility for uses of the sheet other than for the above mentioned feasibility assessment.

BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MA□RO□O 37+624 - 44+390	**9**	2X25 □50m□	6.5m	km 42+022.00	RC □iaduct	29.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments		not constructed	
2	Piers	5	only foundation of pier is construct	need to re-construct
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main □irders/Beams		not constructed	
7	Cross □irders		not constructed	
7	E□pansion joints		not constructed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 5□ 2. S□PERSTR□CT□RE 0□	
10	Designing		Main Project	need to re-design

BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MA□RO□O 37+624 - 44+390	**10**	1X25 □25m□	6.5m	km 43+482.00	RC □iaduct	29.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	2 oval abutment with parallel wings are constructed □no visual defects□	to protect corrode reinforcement
2	Piers		not constructed	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main □irders/Beams		not constructed	
7	Cross □irders		not constructed	
7	E□pansion joints		not constructed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 5□ 2. S□PERSTR□CT□RE 0□	
10	Designing		Main Project	


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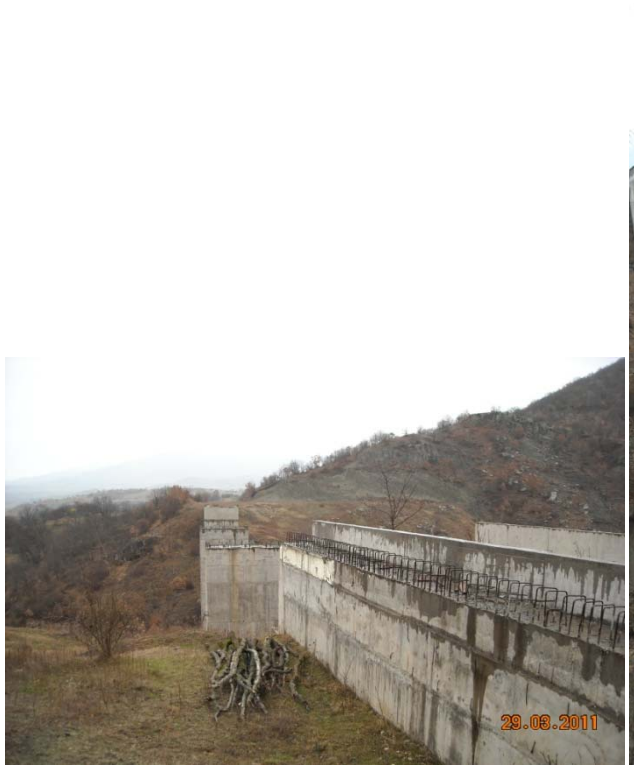
BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MA□RO□O 37+624 - 44+390	**11**	3X35 □105m□	6.5m	km 43+679.00	RC □iaduct	29.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	2 oval abutment with parallel wings are constructed □no visual defects□	to protect corrode reinforcement
2	Piers	1	2 pier competly construct □no visual defects□	
3	Pavement		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main □irders/Beams		not constructed	
7	Cross □irders		not constructed	
7	E□pansion joints		not constructed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 0□	
10	Designing		Main Project	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BRIDGE INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	GRANIT 44+390 - 55+500	**12**	13X36 (468m)	6.5m	km 46+068.00	RC Viaduct	29.03.2011

No	ELEMENT	CONDITION CLASS	DEFECTS DESCRIPTION	MEASURES
1	Abutments	2	1. 2 oval abutment with parallel wings are constructed 2. corrode and cut reinforcement from parapets	to protect reinforcement agains corrosion
2	Piers	1	12 piers constructed (no visual defects)	
3	Deck		not constructed	to construct immediately
4	Culvert		not constructed	
5	Bearing areas	1	installed 56 bearings	
6	Main Girders/Beams	1	1. 44 beams are constructed 2. 28 beams are prestressed and installed (they need to be loaded immediately or Pavement should be construct) 3. 16 beams should be prestress, install and load 4. They have an increased deflection	to protect the dowel from corrosion
7	Cross Girders	1	1. 7x2=14 end cross girders are construct 2. 2 middle cross girders are construct on Field 7	to construct the middle cross girders
7	Expansion joints		not constructed	
8	Drainage system		not constructed	
9	Level of Completion (%)		1. SUBSTRUCTURE 100% 2. SUPERSTRUCTURE 65%	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	□RANIT 44+390 - 55+500	**13**	5X20 □100m□	6.5m	km 48+280.00	RC □iaduct	29.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects	
2	Piers	1	4 piers constructed □no visual defects□	
3	Deck	1	constructed □no visual defects□	
4	Culvert	1	pipes are placed in bridge deck and dewatering is solved	
5	Bearing areas	1	all bearings are installed □no visual defects□	
6	Main □irders/Beams	1	20 beams are constructed □no visual defects□	
7	Cross □irders	1	10 end cross girders and 10 middle cross girders are construct □no visual defects□	
7	E□pansion joints		not installed □see photo No. □	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	□RANIT 44+390 - 55+500	**14**	5X20 □100m□	6.5m	km 48+803.00	RC □iaduct	29.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	parapets reinforcement corrode and cut in several places	to protect reinforcement
2	Piers	1	4 piers constructed □no visual defects□	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main □irders/Beams	3	20 beams are constructed □8 of 20 beams are fallen□	to repair end install
7	Cross □irders		not constructed	
7	E□pansion joints		not constructed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 50□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	□RANIT 44+390 - 55+500	**14a**	11X30 □330m□	6.5m	km 49+541.00	RC □iaduct	29.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	3	1. 2 oval abutment with parallel wings are constructed □the parallel wing from 2th abutment continues with ret. wall□ 2. corrode and cut reinforcement from parapets □there are breaks in concreting and corrode reinforcement□	to protect reinforcement
2	Piers	1	10 piers constructed □no visual defects□	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main □irders/Beams		not constructed	
7	Cross □irders		not constructed	
7	E□pansion joints		not constructed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 0□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	□RANIT 44+390 - 55+500	**15**	6X30 □180m□	6.5m	km 51+090.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	1. 2 oval abutment with parallel wings are constructed □to finish wedge fill on 2th abutment□ 2. corrode reinforcement from parapets□	to protect reinforcement
2	Piers	1	5 piers constructed □no visual defects□	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not constructed	
6	Main □irders/Beams		not constructed	
7	Cross □irders		not constructed	
7	E□pansion joints		not constructed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 0□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	□RANIT 44+390 - 55+500	**16**	3X20 □60m□	6.5m	km 52+422.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	1	2 piers constructed □no visual defects□	
3	Deck	2	it has surface damage from ice	
4	Culvert	1	pipes are placed in bridge deck and dewatering is solved	
5	Bearing areas	1	all bearings are installed □no visual defects□	
6	Main □irders/Beams	1	3□4□12 beams □prestressed□are constructed and install □no visual defects□	
7	Cross □irders	1	6 end cross girders and 6 middle cross girders are construct □no visual defects□	
7	E□pansion joints		not installed	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	□RANIT 44+390 - 55+500	**17 (missing)**	□10m□	6.5m	km 54+401.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments			
2	Piers			
3	Deck			
4	Culvert			
5	Bearing areas			
6	Main □irders/Beams		CONSTR□CTION NOT STARTED	
7	Cross □irders			
7	E□pansion joints			
8	Drainage system			
9	□evel of Completion □□ □			
10	Designing			

BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	□RANIT 44+390 - 55+500	**17**	2□10,1□20 □40m□	6.5m	km 53+688.00	RC Bridge	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	1	2 piers constructed □no visual defects□	
3	Deck		no access to see	
4	Culvert	1	pipes are placed in bridge deck and dewatering is solved	
5	Bearing areas	1	□no visual defects□	
6	Main □irders/Beams	1	8 beams and 4 prestressed beams are constructed and install □no visual defects□	
7	Cross □irders	1	6 end cross girders and 4 middle cross girders are construct □no visual defects□	
7	E□pansion joints		not installed	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	

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BRID□E INSPECTION RECORD								
Bridge		Bridge No.	length	width	chainage	Bridge type		Date of Inspection
Section	□RANIT 44+390 - 55+500	**18**	□10m□	6.5m	km 54+791.00	RC □iaduct		01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments			
2	Piers			
3	Deck			
4	Culvert			
5	Bearing areas			
6	Main □irders/Beams		CONSTR□CTION NOT STARTED	
7	Cross □irders			
7	E□pansion joints			
8	Drainage system			
9	□evel of Completion □□ □			
10	Designing			

BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**19**	6X25 □125m□	6.5m	km 61+804.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □the 2th abutment has cracked wing□	to repair the cracked wing
2	Piers	1	5 piers constructed □no visual defects□	
3	Deck	1	constructed □no visual defects□	
4	Culvert		pipes are placed in bridge deck and dewatering is solved	
5	Bearing areas	1	□no visual defects□	
6	Main □irders/Beams	1	24 beams are construct and installed □no visual defects□	
7	Cross □irders	1	6□2□12 end cross girders and 12 middle cross girders are construct □no visual defects□	
7	E□pansion joints		not installed	dilatation joints to be set immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	


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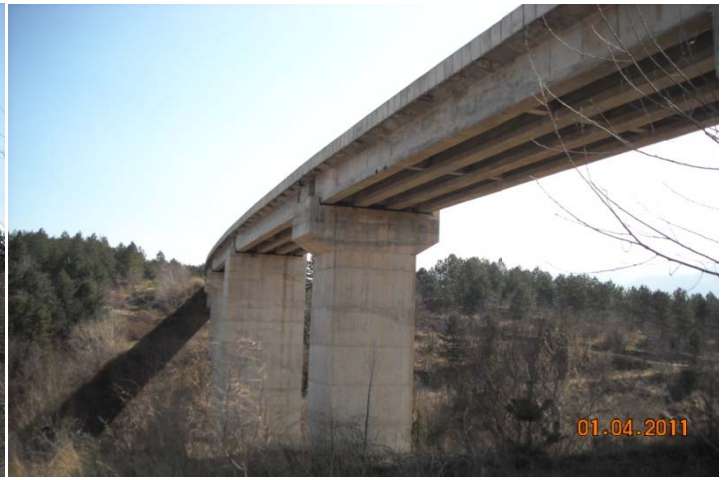
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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**20**	4X25 □100m□	6.5m	km 62+505.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	1	3 piers constructed □no visual defects□	
3	Deck	1	constructed □no visual defects□	
4	Culvert		pipes are placed in bridge deck and dewatering is solved	
5	Bearing areas	1	□no visual defects□	
6	Main □irders/Beams	1	16 beams are construct and installed □no visual defects□	
7	Cross □irders	1	4□2□8 end cross girders and 8 middle cross girders are construct □no visual defects□	
7	E□pansion joints		not installed	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**21**	3X25 □75m□	6.5m	km 62+505.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	2	segragation of lying beam parapets	cracks to be repair
3	Deck	1	constructed □no visual defects□	
4	Culvert		pipes are placed in bridge deck and dewatering is solved	
5	Bearing areas	1	□no visual defects□	
6	Main □irders/Beams	1	12 beams are construct and installed □no visual defects□	
7	Cross □irders	1	6 end cross girders and 6 middle cross girders are construct □no visual defects□	
7	E□pansion joints		not installed	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	


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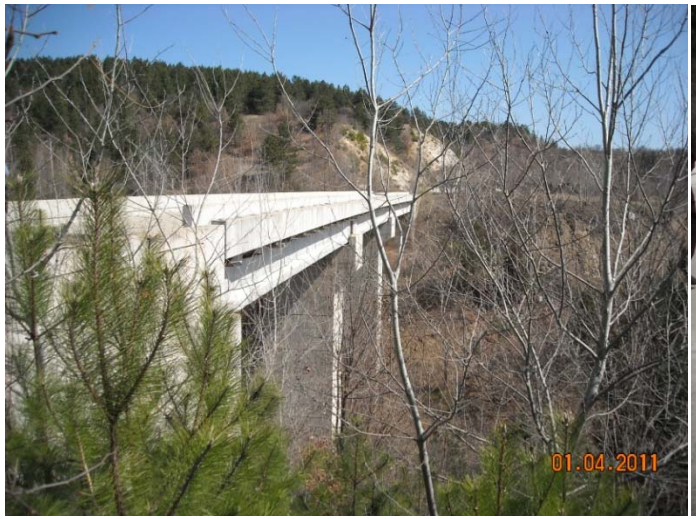
BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**22**	3X25 □75m□	6.5m	km 63+119.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	2 oval abutment with parallel wings are constructed □no visual defects□	to remove the trees from wedges
2	Piers	1	2 piers are constructed □no visual defects□	
3	Deck	1	constructed □no visual defects□	
4	Culvert		pipes are placed in bridge deck and dewatering is solved	
5	Bearing areas	1	□no visual defects□	
6	Main □irders/Beams	1	12 beams are construct and installed □no visual defects□	
7	Cross □irders	1	6 end cross girders and 6 middle cross girders are construct □no visual defects□	
7	E□pansion joints		not installed	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**23**	1□35	6.5m	km 63+392.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers		not constructed	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		they are installed, but it□s missing the upper part of free bearings	
6	Main □irders/Beams		2 prestressed beams are installed and they have big deflection	to be loaded
7	Cross □irders		2 end cross girders are construct	
7	E□pansion joints		not installed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 35□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD								
Bridge		Bridge No.	length	width	chainage	Bridge type		Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**24**	5□25 □125□	6.5m	km 63+710.00	RC Bridge		01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	1	4 piers are construct □no visual defects□	
3	Deck		not constructed	
4	Culvert		not constructed	
5	Bearing areas		not installed	
6	Main □irders/Beams		1. 20 beams are constructed, they are not prestressed and they are not installed 2. 1 beams is fallen and it has cracks	to inspect and repair immediately
7	Cross □irders		not constructed	
7	E□pansion joints		not installed	
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 65□	
10	Designing		Main Project	


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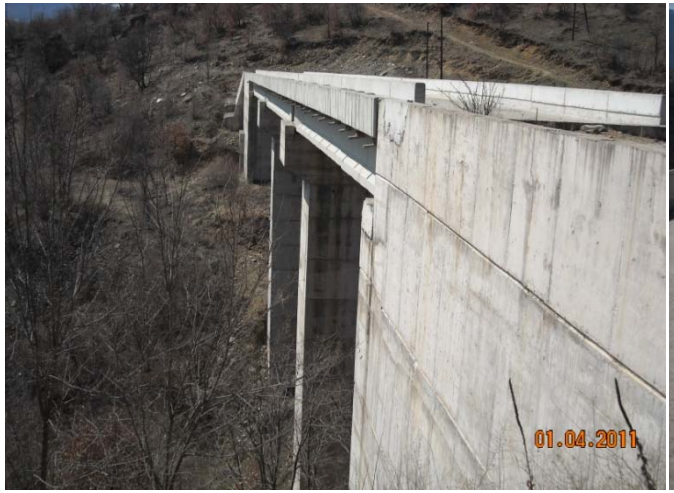
BRID□E INSPECTION RECORD								
Bridge		Bridge No.	length	width	chainage	Bridge type		Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**25**	3□25 □75m□	6.5m	km 64+607.00	RC □iaduct		01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	1	2 piers are construct □no visual defects□	
3	Deck	1	no visual defects	
4	Culvert	1	pipes for dewatering are installed in the deck	
5	Bearing areas	1	no visual defects	
6	Main □irders/Beams	1	12 beams are constructed and installed □no visual defects□	
7	Cross □irders	1	6 end cross girders and 6 middle cross girders are constructed	
7	E□pansion joints		not installed	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**26**	3□25 □75m□	6.5m	km 65+198.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	1	2 piers are construct □no visual defects□	
3	Deck	1	no visual defects	
4	Culvert	1	pipes for dewatering are installed in the deck	
5	Bearing areas	1	no visual defects	
6	Main □irders/Beams	1	12 beams are constructed and installed □no visual defects□	
7	Cross □irders	1	6 end cross girders and 6 middle cross girders are constructed	
7	E□pansion joints		not installed	to install immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**27**	6□25 □150m□	6.5m	km 65+537.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	1	2 oval abutment with parallel wings are constructed □no visual defects□	
2	Piers	1	5 piers are construct □no visual defects□	
3	Deck	1	no visual defects	
4	Culvert	1	pipes for dewatering are installed in the deck	
5	Bearing areas	2	in the □one of bearings it has fallen stones	to clean
6	Main □irders/Beams	1	24 beams are constructed and installed □no visual defects□	
7	Cross □irders	1	12 end cross girders and 12 middle cross girders are constructed	
7	E□pansion joints	2	in first dilatation it has fallen stones	to clean and install the dilatations
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**28**	4□25 □100m□	6.5m	km 65+954.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	2 oval abutment with parallel wings are constructed □1st - segregated from the wing parapet□	
2	Piers	1	4 piers are construct □no visual defects□	
3	Deck	1	no visual defects	
4	Culvert	1	pipes for dewatering are installed in the deck	
5	Bearing areas		no visual defects	
6	Main □irders/Beams		14 beams are constructed and installed □no visual defects□	
7	Cross □irders		8 end cross girders and 8 middle cross girders are constructed	
7	E□pansion joints		not constructed	to be set immediately
8	Drainage system		not constructed	
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 100□ 2. S□PERSTR□CT□RE 90□	
10	Designing		Main Project	

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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**underpass**	□□8m	6.5m	km 57+822.00	RC □iaduct	01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments	2	□no visual defects□	
2	Piers	1		
3	Deck	1	□no visual defects□	
4	Culvert			
5	Bearing areas	1		
6	Main □irders/Beams	1		
7	Cross □irders	1		
7	E□pansion joints			
8	Drainage system			
9	□evel of Completion □□ □		1. S□BSTR□CT□RE 95□ 2. S□PERSTR□CT□RE 95□	
10	Designing		Main Project	


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BRID□E INSPECTION RECORD							
Bridge		Bridge No.	length	width	chainage	Bridge type	Date of Inspection
Section	MA□RO□O 37+624 - 44+390	**steel bridge**	10X36 □360m□	6.5m	km 41+350.00	RC. Bridge	29.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments			
2	Piers			
3	Deck			
4	Culvert	CONSTR□CTION NOT STARTED		
5	Bearing areas			
6	Main □irders/Beams			
7	Cross □irders			
7	E□pansion joints			
8	Drainage system			
9	□evel of Completion □□ □			
10	Designing		Main Project	

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BRID□E INSPECTION RECORD								
Bridge		Bridge No.	length	width	chainage	Bridge type		Date of Inspection
Section	PE□A□ONI□A 56+438 - 66+050	**tunnel pipe**	□□30m	6.0m	km 61+300.00			01.04.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Abutments		□no visual defects□	
2	Piers			
3	Deck		□no visual defects□	
4	Culvert			
5	Bearing areas			
6	Main □irders/Beams			
7	Cross □irders			
7	E□pansion joints			
8	Drainage system			
9	□evel of Completion □□ □			
10	Designing		Main Project	

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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Mavrovo, km 37+624 □44+390	**1**	503m	4.70m	km37+927	Type II - 180m Type III - 276m Type I□ - 52m	29.03.2011 □Tuesday□

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	2	No visual defects Tunnel is drilled □drived□ Primary tunnel lining is done with syringe □inject□	
2	Portal □faults in concrete□	1	Entrance and e□it approach cutting are protected with anchors and concrete inject	
3	□ ater leakage	3	Dewatering is not solved □there is water at the end of the tunnel□	Dewatering of the tunnel to be done
4	Erosion		There are no signs for erosion	
5	Slope Protection	1	Slopes are protected	
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is a project	
			1□Entrance/e□it approach cutting are done with concrete injection and anchors	
			2□Done primary tunnel lining	
			3□Bearing plate □tie-plate□ is 50□ done	

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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Mavrovo 37+624 □44+390	**2**	169m	4.7m	km40+758	Type III - 83m Type I□ - 46m Type □ - 37m	24.03.2011

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	2	Due to undulating surface on site, works on bearing plate are stopped Tunnel is fully drilled □drived□with primary tunnel lining done	Reinforced bearing plate to be done
2	Portal □faults in concrete□	2	Construction works at the e□it portal approaching cuttingt on the left side are stopped	To make sanction with concrete inject and hanger with anchors
3	□ ater leakage		Is not done	
4	Erosion		There is no visual erosion	
5	Slope Protection		Part from right side at the e□it approach cutting is unstable	Sanction to be done
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is a project	
			1□Entrace/e□it approach cutting is made with concrete inject and anchors	
			2□Tunnel is drived □drilled□with done primary tunnel lining	
			3□Bearing plate □tie-plate□ is 100□ done	


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Mavrovo 37+624 □44+390	**3**	364m	4.7m	km41+607	Type I - 40m Type II - 151m Type III - 7m Type I□ - 150m Type □ - 16m	29.03.2011 □Tuesday□

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	1	No visual defects Tunnel is drived □drilled□, with primary and secondary tunnel lining 100□	
2	Portal □faults in concrete□	1	Entrance/e□it portal is concreted	
3	□ ater leakage	1	Dewaterng is done 70□	To be completed
4	Erosion		No erosion	
5	Slope Protection		Slopes are stable	
6	Drainage system	1	Drainage system is done	
7	□evel of Completion □□ □		Completion percantage of the tunnel is 95□	
8	Designing		There is a project	
9				


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Mavrovo 37+624 □44+390	**4**	341	4,7	km42+250	Type II - 60m Type III - 265.5m Type I□ - 14m	29.03.2011 □Tuesday□

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	1	No visual defects Tunnel is completely drilled □drived□and primary tunnel lining is done 100□ □eote□tile and isolation □membrane□is installed 60□ Secondary tunnel lining is 50□ done170m	
2	Portal □faults in concrete□	1	Entrance/e□it portals approach cutting has no faults □defects□	
3	□ ater leakage		Is not done	
4	Erosion		No	
5	Slope Protection	1	Slopes are stable	
6	Drainage system	1	Drainage is done 50□ □at the part of secondary tunnel lining□	
7	□evel of Completion □□ □			
8	Designing		There is a project	
			1□entrance/e□it approach cutting is done with concrete inject and anchors	
			2□Tunnel is drilled □drived□and there is primary and secondary tunnel lining, 50□ completed	
			3□Bearing plate □tie-plate□ is 100□ done	


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Mavrovo 37+624 □44+390	**5**	256m	4.7m	km42+779	Type III - 55.5 Type I□ - 175m Type □ - 20.5m	29.03.2011 Tuesday

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	1	No visual defects	
2	Portal □faults in concrete□	1	Entrance/e□it approach cutting is done with concrete inject with anchors	
3	□ ater leakage		There is water in the tunnel	Tunnel to be dewatered
4	Erosion		No	
5	Slope Protection		Slopes are stable	
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is a project	
9			1□entrance/e□it approach cutting is done with concrete inject and anchors	
10			2□Tunnel is drived and primary tunnel lining is done	
11			3□Bearing plate is not done.	


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	□ranit km44+390 □55+500	**5a**	150,5	4,7	km45+418		29.03.2011 □Tuesday□

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in		□ orks for drilling the tunnel have not been started	
2	Portal □faults in concrete□			
3	□ ater leakage			
4	Erosion			
5	Slope Protection			
6	Drainage system			
7	□evel of Completion □□ □			
8	Designing			
9				
10				

T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	□ranit km44+390 □55+500	**6**	188m	4,7	km49+802		01.04.2011 □Friday□

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	2	No visual defects □tunnel is drived and there is primary tunnel lining 70-75m□	
2	Portal □faults in concrete□	3	E□it portal has cracks	Sanction to be done
3	□ ater leakage		Is not done	
4	Erosion		There is small erosion in nipper on primary tunnel lining	Sanction to be done
5	Slope Protection	3	Right side from e□it approach cutting has unstable slope	Concrete wall to be constructed
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is a project	
			1□e□it approach cutting with concrete inject and anchors	
			2□tunnel is drilled 40□ and has primary tunnel lining	
			3□Bearing plate has not been started	


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	□ranit km44+390 □55+500	**6a**	592m	4,7	km50+171		01.04.2011 □Friday□

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	2	Primary tunnel lining is loosen, tunnel has been drilled 40□45m and primary tunnel lining is done	Sanction to be done
2	Portal □faults in concrete□	2	Entrance portal approach cutting is done and concrete inject with anchors	
3	□ ater leakage		There is water at the entrance of the tunnel	Dewatering to be solved
4	Erosion		In nipper from primary tunnel lining	
5	Slope Protection		No visual defects	Sanction to be done
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is a project	
9			1□Entrance approach cutting is done, concrete inject and anchors	
10			2□Tunnel is drived 8□ and primary tunnel lining is done	
11			3□Bearing plate has not been started	


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	□ranit km44+390 □55+500	**7**	123m	4.70m	km52+948		01.04.2011 □Friday□

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in		Is not done	
2	Portal □faults in concrete□		E□cavation for e□it approach cutting from 15m has been done in the length from 15m	To be protected
3	□ ater leakage		no works	
4	Erosion			
5	Slope Protection			
6	Drainage system			
7	□evel of Completion □□ □			
8	Designing			
9				
10				

T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Pelagonija km56+438□66+050	**8**	□□□	4.7m	km62+677		01.04.2011 Friday

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	2	Tunnel is widely drilled □drived□and primary tunnel lining has been done	
2	Portal □faults in concrete□	3	Entrance approach cutting is not completed and e□it approach cutting from left side has bad concrete inject	Complete concrete inject to be done
3	□ ater leakage		There is no water in the tunnel	
4	Erosion		There is collapsing on one part in down area	Sanction on concrete to be done
5	Slope Protection		Slopes are stable	
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is project	
			1□Entrance/e□it approach cutting is partly done	
			2□Tunnel is drived and primary tunnel lining is done	
			3□Bearing plate is 50□ done	


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Pelagonija km56+438□66+050	**9**	73m	4.7m	km63+552		01.04.2011 Friday

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	1	No visual defects Tunnel is drilled □drived□ Primary tunnel lining is done	
2	Portal □faults in concrete□	2	Entrance and e□it approach cutting has cracks at concrete injection	Sanction to be done
3	□ ater leakage		Is not done	
4	Erosion		No visual erosion	
5	Slope Protection		Slopes are stable	
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is a project	
			1□Entrance/e□it approach cutting is done with concrete injection and anchors	
			2□Tunnel drived □drilled□ with done primary tunnel lining	
			3□Bearing plate □tie-plate□ is 50□ done	


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T□NNE□ INSPECTION RECORD								
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type		Date of inspection
Section	Pelagonija km56+438□66+050	**10**	248m	4.7m	km63+807			01.04.2011 Friday

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in	2	Tunnel from e□it side is drived with 90□95m Tunnel from entrance side is not started.From e□it side portal is injected and tunnel is drived 90-95m and primary tunnel lining has been done	
2	Portal □faults in concrete□	2	E□it approach cutting is done with concrete inject and anchors □inject has cracks□	Sanction of inject to be done
3	□ ater leakage		Is not done	
4	Erosion		No visual erosion	
5	Slope Protection		Slopes are stable	
6	Drainage system		Is not done	
7	□evel of Completion □□ □			
8	Designing		There is project	
			1□E□it approach cutting has concrete inject with anchors	
			2□From e□it side tunnel is drived 90□95m and primary tunnel lining is done 35□	
			3□Bearing plate □tie-plate□ is not done	


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Pelagonija km56+438□66+050	**11**	172m	4.7m	km64+154		01.04.2011 Friday

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in		No works	
2	Portal □faults in concrete□		Approach cutting is e□cavated and protected with concrete inject and anchors	
3	□ ater leakage		No works for drilling □driving□the tunnel	
4	Erosion			
5	Slope Protection			
6	Drainage system			
7	□evel of Completion □□ □			
8	Designing		There is a project	
9				
10				


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T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Pelagonija km56+438□66+050	**12**	146m	4.7m	km64+364		01.04.2011 Friday

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in		No works	
2	Portal □faults in concrete□			
3	□ ater leakage			
4	Erosion			
5	Slope Protection			
6	Drainage system			
7	□evel of Completion □□ □			
8	Designing			
9				
10				

T□NNE□ INSPECTION RECORD							
Tunnel		Tunnel No.	□ength	□ idth	Chainage	Rock type	Date of inspection
Section	Border tunnel	**border tunnel**	1150m	Macedonia-Bulgaria	km88+323.30		01.04.2011 Friday

No	E□EMENT	CONDITION C□ASS	DEFECTS DESCRIPTION	MEAS□RES
1	Cave - in		Concrete injection done at the entrance approach cutting	
2	Portal □faults in concrete□		Tunnel needs to be drived with new profile	
3	□ ater leakage			
4	Erosion			
5	Slope Protection			
6	Drainage system			
7	□evel of Completion □□ □			
8	Designing		No project	
9				
10				

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Dear □irs□

According to your notification for intention of execution of the □roject□"Construction and □econstruction of a □ailway □Corridor □III □ □astern section□and the request for determination of the scope for evaluation of the project□s impact on the environment□we enclose the Decision which determines the need of evaluation of the □roject□"Construction and □econstruction of a □ailway □ Corridor □III □ □astern section□□as well as the scope of the study for evaluation of the project□s impact on the environment.

□espectfully □ours□

□repared by□ □iljana □piroska □□ignature□
Controled by□□oran □oshev □ □c □□ignature□
□ashko □ordanov □ □c □□ignature□
Ilber □ irta □□ignature□

DI□□CTO□AT□ □O□ □N□I□ON□ □NT
DI□□CTO□
□ilip Ivanov
□□ound seal□□□ignature□

□Coat of Arms□
□epublic of □ acedonia
□ inistry of □nvironment and □hysical □lanning

No. □□□□□□□□
□epublic of □ acedonia
□ inistry of □nvironment and □hysical □lanning
□ul.□oce Delchev bb
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□epublic of □ acedonia
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□ax□□□□□□□□□ □□□
e□mail□infoeko□ moepp.gov.mk
web site□www.moepp.gov.mk

On the basis of Article □□ □aragraph □ of the □aw on □nvironment □"Official □ulletin of □□ " No. □□□ and □□□□□□□□the □ inister for □nvironment and □hysical □lanning has made the following

D □C I □I O N

□. This Decision determines the need of evaluation of the impact of the □roject□ "Construction and □econstruction of a □ailway □ Corridor □III □ □astern section□□submitted by the □ublic □nterprise □ acedonian □ailways □ Infrastructure□ □ AC□DONIAN □AI□□ A□□ with its headquarter at □ele□nicka □□b in □kopje□as well as the scope of the study for evaluation of the project□s impact on the environment.

□. The scope of the study for evaluation of the project□s impact on the environment is determined in the Checklist for determination of the scope of the study for evaluation of the project□s impact on the environment□the questions regarding the project□s characteristics□ which is a compound part of this Decision.

□. □esides the Checklist for determination of the scope of the study for evaluation of the project□s impact on the environment□the questions regarding the project□s characteristics□ the scope of the study for evaluation of the project□s impact on the environment should also include the questions related to the visual aspects□biological diversity□cumulative effects and socio□economic aspects.

□. This decision goes into force on the day of its making□and shall be announced in at least one daily newspaper available on the entire territory of □epublic of □ acedonia□at the Internet site□as well as on the bulletin board in the □ inistry of □nvironment and □hysical □lanning.

□ a t i o n a l e

On □ □arch □□□□ the □ublic □nterprise □acedonian □ailways □ Infrastructure "□ AC□DONIAN □AI□□ A□□□with its headquarter at □ele□nicka □□□ in □kopje□has submitted to the □ inistry of □nvironment and □hysical □lanning a Notification on its intention for execution of the □roject□ "Construction and □econstruction of a □ailway □Corridor □III □ □astern section□

and a request for determination of the scope for evaluation of the project's impact on the environment No. [illegible].

The goal of the project "Construction and reconstruction of a railway Corridor VIII eastern section" is the construction of the eastern section of the railway Corridor VIII from Tumanovo to Veljakovce to Kriva Palanka to the [illegible] border. The total length of the project is [illegible] km from the Intersection with Tumanovo to Serbian border line toward the Bulgarian border. The project is divided in two parts "renewal of the railway section Tumanovo Veljakovce" and "construction of the railway section Veljakovce Deve Bair".

According to the Law on Environment (Official Bulletin of [illegible] No. [illegible] [illegible] and [illegible] and the Decree on determination of projects and criteria for determination of the need of carrying out the procedure for evaluation of the impacts on the environment "Official Bulletin of [illegible]" No. [illegible] the proposed project is attached in Annex [illegible] Projects for which the evaluation of the effects on the environment is mandatory Item [illegible] Construction of a railway traffic on large distances and airports with the length of the basic runway of [illegible] m and more and it also needs the carrying out of the procedure for evaluation of the impact on the environment.

For that purpose the Checklist for determination of the scope of the study for evaluation of the project's impact on the environment was filled out questions regarding the project's characteristics and the scope of the study on evaluation of the project's impact on the environment was determined. Besides the questions included in the Checklist for determination of the scope of the study for evaluation of the project's impact on the environment the investor should elaborate in detail the following issues:

Visual aspects

These aspects represent one of the key issues related to the environment during the operational phase in such kind of infrastructural projects. Therefore they represent an important segment of the Study of the evaluation of the impact on the environment which should include the effects on the region that are related to its physical characteristics and visual effects that are related to the acceptability of the new landscape of the region by the local population and other receptors.

Biological diversity

The Study of the evaluation of the impact on the environment should include an analysis of the biological diversity of the region possible presence of protected and affected types of dwellings presence of protected areas areas envisaged to be put under protection presence of ecological networks as well as the potential impacts of the project's execution.

Cumulative impacts

In case there are projects installations with a potential for similar impacts on the environment in the surrounding of the proposed project the Study of the evaluation of the impact on the environment should include an analysis of the cumulative impacts.

Socio- economic aspects

The evaluation of the socio economic aspects will provide a review of the potential direct and indirect effects of the project on the local economy and the social conditions in the region where the project is carried out.

On the basis of the said it was made such a Decision.

Legal instruction Against this decision the investor the affected legal and physical entities as well as the citizens associations established for protection and improvement of the environment

can lodge a complaint to Commission of the □overnment of □epublic of □acedonia in charge of the resolution of administrative matters in the second instance in the field of environment□within eight days from the day of the decision□s announcement.

□repared by□ □iljana □piroska □□ignature□
Controled by□□oran □oshev □ □c □□ignature□
□ashko □ordanov □ □c □□ignature□
Ilber □ irta □□ignature□

Approved by□□ilip Ivanov □□ignature□

□ INI□T□□
Dr.Nexhati □akupi
□□ound seal□□□ignature□

Legend Impacts / Conflicts

I B 01: Temporary impacts on biodiversity (habitats, vegetation and protected species) during construction

I B 02: Permanent construction and facility caused impacts on biodiversity (habitats, vegetation and protected species)

I S 03: Temporary impacts on soils during construction

I S 04: Permanent construction and facility caused impacts on soils (concretion and sealing)

I W 05: Temporary potential impacts on water (rivers and groundwater) during construction

I W 06: Permanent construction and facility caused impacts on surface waters and groundwater (outflow intensification and sealing)

I C 07: Temporary potential impacts on air and climate during construction phase

I L 08: Permanent construction and facility caused impacts on landscape/scenery (visual disturbance)

I H 09: Temporary and Permanent construction and facility caused impacts on human/settlement (demolishing of houses)

I H 10: Operational caused impacts on human/settlement (noise and vibration)

hsh = high sensitive habitats

msh = medium sensitive habitats

DRAFT

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The information given for existing utility services shown on this drawing is only indicative of the services position both in line and depth. It is the responsibility of the Contractor to contact each and every Utility provider and establish the exact position of their utilities on the site with them prior to any works commencing on the section in question. All services located shall be recorded by the Contractor and their position and depth shown on the "as built" drawings. No payment shall be made for "service crossings" not identified or properly recorded.

Забелешка;

Дадената информација за постојните инсталации на цртежот е индикативна за позицијата на инсталацијата како по длабина така и локациски. Обврска на Изведувачот е да ја контактира секој компанија која има свои инсталации и да ја утврди заедно со нив точната позиција на инсталациите на терен пред почеток на работите за секоја делница. Сите пронајдени инсталации треба да бидат забележани од страна на Изведувачот и нивната позиција и длабина да биде прикажана на цртежот за изведена состојба. Нема да се направи плаќање за „премин на инсталациај" која нема да биде прописно забележана.

European Bank for Reconstruction and Development This project is funded by the European Bank for Reconstruction and Development Овој проект е финансиран од Европската Банка за Обнова и Развој	**Macedonian Railways: Feasibility Study for Corridor VIII - Eastern section**	Project No. / Број на проектот
eptisa DB Mobility Networks Logistics	Ministry of Transport and Communications Министерство за транспорт и врски	Preparatory Phase /
Drawing name / Име на Цртеж ESIA Impact Asscessmentmap 0+000.00 - 31+500.00	Македонски Железници Инфраструктура Macedonian Railways, Skopje Македонски железници, Скопје	Scale / Размер 1 : 25000
		Date / Датум 22.09.2011
	Drawing no. /Бр. на Цртеж XXXXXX	Revision / Ревизија

DRAFT

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European Bank for Reconstruction and Development

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Овој проект е финансиран од Европската Банка за Обнова и Развој

eptisa

DB Mobility Networks Logistics

Drawing name / Име на Цртеж

ESIA

Impact Asscessmentmap

0+000.00 - 31+500.00

Macedonian Railways: Feasibility Study for Corridor VIII - Eastern section

Ministry of Transport and Communications

Министерство за транспорт и врски

Macedonian Railways, Skopje

Македонски железници, Скопје

Drawing no. /Бр. на Цртеж XXXXXX

Project No. / Број на проектот	
Preparatory Phase /	
Scale / Размер	1 : 25000
Date / Датум	22.09.2011
Revision / Ревизија	

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eptisa

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Drawing name / Име на Цртеж

ESIA
Impact Asscessmentmap
0+000.00 - 31+500.00

Macedonian Railways: Feasibility Study for Corridor VIII - Eastern section

Ministry of Transport and Communications
Министерство за транспорт и врски

Macedonian Railways, Skopje
Македонски железници, Скопје

Drawing no. /Бр. на Цртеж XXXXXX

Project No. / Број на проектот

Preparatory Phase /

Scale / Размер
1 : 25000

Date / Датум
22.09.2011

Revision / Ревизија

Plant species																										
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**									
Species Name	**Pubescent Oak and Oriental Hornbeam**	**Pubescent Oak and Oriental Hornbeam (degraded)**	**Italian and Turkey Oak**	**Flowering Ash and Sessile Oak**	**Beech Forest**	**Willow Woodlands**	**Tamarisk Shrublands**	**Gravel and Sandy Riverbanks**	**Hill Pastures**	**Hill Pastures with Sparse Vegetation**	**Meadows**	**Hill Pastures on Rocky Sites**	**Cliffs and Rocks**	**Rivers & Streams**	**Intermittent Streams**	**Swampy Reed Biotope**	**Stands of Black Locust's**	**Black Pine Plantations**	**Tree Lines and other Anthropogenic Stands**	**Ruderal Vegetation**	**Orhards & Vineyards**	**Fields and Acres**	**Rural Settlements - Villages**	**Urban Settlements**	**Urbanized Areas: Roads and Railway Line**
Acer campestre				X																					
Acer monspessulanum	X	X																							
Achillea compacta																				X			X		
Achillea millefolium											X														
Actaea spicata				X	X																				
Adiantum capillus-veneris				X	X	X					X					X									
Adonis flamea											X									X	X	X	X		
Aegilops triaristata									X	X															
Agrimonia eupatoria											X									X			X		X
Agrostemma githago															X					X	X	X			
Agrostis alba							X				X														
Ailanthus altissima																			X						
Alisma plantago-aquatica																X									
Alnus glutinosa														X	X										
Alopecurus pratensis											X														
Alopecurus utriculatus											X														

Plant species																									
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Alyssum alyssoides												X	X												
Alyssum minutum																				X		X			
Amorpha fruticosa						X																			
Anagalis arvensis											X									X					
Andropogon ischaemum									X																
Andropogon ishaemum									X																
Andropogon ishaemum									X	X															
Angelica palustris											X									X					
Anthemis arvensis																				X					
Anthemis ruthenica									X	X															
Anthoxanthum odoratum											X														
Anthriscus sylvestris											X									X					
Aphanes arvensis									X	X															
Arabis muralis												X	X												
Arctium lappa																				X					
Aremonia agrimonoides			X								X									X			X		X
Asarum europeaum				X	X																				
Asplenium adiantum-nigrum				X	X	X																			
Asplenium ruta-muraria													X	X											
Asplenium viride												X	X												
Astragalus onobrychis									X	X															
Atrichum undulatum (Moss)									X	X															
Betula pendula					X																				
Brachipodium distachyon									X																
Brachitecium velutinum (Moss)					X																				
Bromus racemosus											X														
Bromus spp.																				X					
Bromus squarrosus									X																
Bromus squarrosus									X	X															
Bryionia alba														X	X	X									
Bunias erucago									X	X	X														
Caltha palustris											X				X	X									

Plant species																									
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Campanula persicifolia				X																					
Capsella bursa-pastoris	X	X	X								X				X		X	X	X	X	X	X	X		
Carex distans											X														
Carex divisa											X														
Carex halleriana	X	X																							
Carex hirta											X														
Carex hirta											X														
Carex vulpina						X					X														
Carex vulpina											X														
Carlina corymbosa																				X		X	X		
Carlina graeca									X																
Carpinus betulus				X																					
Carpinus orientalis	X	X	X	X						X															
Centaurea mycranthos									X	X															
Centaurea tymphaea									X																
Cerastium pumilum									X	X															
Ceterach officinarum													X	X											
Chelidonium majus	X	X	X	X		X					X									X					
Chondrilla juncea									X	X															
Chrysopogon grillus									X																
Chrysopogon grillus									X																
Cichorium intybus																				X					
Cichorium intybus																				X			X		
Cirsium canum											X														
Cirsium canum											X														
***Cirsium* spp.**									X											X					
Clematis vitacella	X	X				X	X																		
Clematis vitalba						X	X	X			X			X	X	X	X	X	X						
Colutea arborescens	X	X								X															
Consolida regalis	X	X				X					X						X		X	X		X	X		
Convolvulus canthabricus									X																
Cornus mas	X	X				X											X	X							

Plant species																									
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Cornus sanguinea						X								X	X										
Coronilla emeroides	X	X								X															
Corylus avellana				X	X																				
Crataegus monogyna			X	X						X									X						
Crepis setosa																				X	X		X		
Crocus veluchensis			X	X																					
Cyclamen neapolitanum	X	X		X	X																				
Cynodon dactilon																				X					
Cynodon dactilon																				X	X	X			
Cynosurus cristatus											X														
Cytisus nigricans					X					X															
Danaa cornubiensis			X	X	X																				
Datura stramonium																				X					
Daucus carota											X									X					
Delphinium peregrinum	X	X				X					X						X			X			X		
Dianthus armeria																				X	X	X	X		
Dicranum scoparium (Moss)					X																				
Dryopteris felix-mas				X	X	X																			
Echinops ritro									X																
Echinops ritro									X	X															
Echinops sphaerocephalus									X																
Ephedra fragilis												X	X												
Equisetum arvense							X																		
Erodium cicutarium																				X	X		X		
Eryngium campestre									X																
Eryngium campestre									X	X															
Erysimum diffusum									X																
Euphorbia cyparissias																									
Euphorbia helioscopia	X	X	X								X						X	X	X	X	X	X	X		
Euphorbia myrsinites	X	X													X					X					
Evonimus verrucosa				X																					
Evonymus europaeus				X	X					X															

Plant species																									
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Evonymus latifolius				X	X	X																			
Fagus silvatica					X																				
Festuca heterophylla				X	X																				
Festuca pseudovina									X	X															
Filago germanica									X																
Filago minima									X	X															
Fragaria vesca	X	X									X														
Fraxinus ornus	X	X	X	X						X															
Fumaria officinalis	X	X	X				X				X						X	X	X	X	X	X	X		X
Galium divaricatum									X																
Galium tenuissinum									X	X															
Gratiola officinalis											X														
Grimmia pulvinata **(Moss)**												X	X												
Haynaldia vilosa									X																
Hedera helix														X	X										
Helleborus odorus					X						X														
Herniaria incana																				X		X			
Hordeum caput-medusae									X	X															
Hordeum vulgare																				X					
Humulus lupulus														X	X	X									
Hyosciamus niger																				X					
Hypericum perforatum	X	X	X	X		X	X				X						X	X	X	X					
Hypericum rumelicum									X	X															
Hypnum cupressiforme **(Moss)**				X	X					X		X													
Hypochoeris cretensis									X																
Inula britanica											X														
Inula salicina			X	X																					
Juglans regia																	X		X				X		
Juncus articulatus							X																		
Juniperus communis					X					X															
Juniperus oxycedrus	X	X								X															
Lathyrus inermis			X	X																					

Plant species																										
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Lathyrus niger				X																					
Lathyrus venetus			X	X	X						X									X					
Lepidium campestre											X								X	X			X		
Lepidium ruderale											X								X	X	X	X	X		
***Leucodon sciuroides* (Moss)**				X																					
Ligustrum vulgare				X																					
Linum angustifolium											X														
***Lolium* spp.**																				X					
Luzula silvatica					X																				
Lychnis coronaria											X				X					X		X	X		
Lychnis flos-cuculi											X														
Lycopus europaeus																X									
Lythrum vurgatum											X														
Mallus silvestris				X																					
Malva sylvestris																					X		X	X	
Marrubium peregrinum									X																
Medicago minima											X									X					
Medicago orbicularis																				X	X		X		
Medicago rigidula									X																
Melica uniflora				X																					
Melilotus alba											X									X					
Melilotus officinalis											X									X					
Mentha longifolia							X																		
Morus alba																			X				X		
Morus nigra																			X				X		
Myosotis scorpioides														X	X	X									
Myriophyllum spicatum														X	X										
Nigella damascena	X	X				X	X				X														
***Onopordon* sp.**																				X					
Orchis laxiflora											X														
Orchis morio											X														
Orlaya grandiflora											X														

Plant species																									
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Ornithogalum comosum									X	X															
Ostrya carpinifolia					X																				
Paliurus spina-christi		X								X															
Papaver rhoeas	X	X				X	X				X									X	X	X	X		X
Petrorhagia prolifera									X																
Petrorhagia saxifraga									X	X															
Phragmites australis																X									
Plantago lanceolata																				X	X	X			
Plumbago europaea									X																
Poa nemoralis				X	X																				
Poa palustris						X																			
Poa trivialis						X																			
Polygonum hidropiper						X								X	X	X									
Polygonum lapatifolium						X																			
Polypodium vulgare				X	X	X							X	X											
Polystichum aculeatum					X								X	X											
Polytrichum commune (Moss)						X																			
Populus alba						X																			
Populus 'italica'																			X						
Populus nigra						X																			
Populus tremula						X																			
Populus X canadensis																			X						
Potentila laciniosa									X																
Potentila reptans	X	X									X									X	X	X	X		X X
Potentilla hirta									X	X															
Prunus avium			X	X															X				X	X	
Prunus spinosa	X	X													X		X			X			X		
Prunus cerasifera																	X		X				X		
Prunus spinosa		X								X									X						
Psilurus aristatus									X																
Pteridium aquilinum				X	X						X					X									

Plant species																										
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Pulmonaria officinalis				X																					
Pyrus amygdaliformis		X								X									X						
Pyrus pyraster										X															
***Quercus* cerris**			X	X						X															
Quercus frainetto			X							X															
Quercus petraea				X	X																				
Quercus pubescens	X	X	X							X															
Quercus virgiliana			X	X																					
Ranunculus acris											X														
Ranunculus arvensis						X	X				X									X					
Ranunculus ficaria														X	X	X							X		
Ranunculus repens						X	X				X									X			X		
Ranunculus trichophyllus														X	X										
Ranunculus velutinus											X														
Reseda lutea											X								X	X					
Rhamnus frangula						X																			
Rhamnus rhodopaea	X	X																							
Robinia pseudoacacia																			X						
Rosa arvensis	X	X					X			X															
Rosa canina																			X						
Rosa galica			X	X																					
***Rosa* spp.**										X															
Rottboellia digitata											X														
Rubus idaeus	X	X								X															
***Rubus* spp.**																			X						
Rumex acetosa											X								X	X					
Rumex cristatus																X									
Rumex sanguineum						X																			
Salix alba						X																			
Salix amplexicaulis							X																		
Salix fragilis						X																			
Salix triandra						X																			

Plant species																									
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Sambucus nigra						X																			
Sanguisorba minor											X									X	X	X	X		X
Sanicula europea				X																					
Scandix pecten-veneris											X									X					
Schistidium apocarpum **(Moss)**												X	X												
Scilla bifolia				X																					
Scirpus lacustris						X																			
Scleranthus annuus																				X	X				
Scleranthus perennis									X																
Sedum acre																									
Sherardia arvensis																				X	X	X			
Silene conica	X	X									X								X	X					
Silene italica	X	X									X									X		X	X	X	
Sisymbrium officinale																									
Sorbus torminalis					X																				
Stelaria aquatica																X									
Stellaria holostea					X																				
Stellaria media				X		X	X		X	X	X						X	X	X	X	X	X	X		
Stipa aristella									X																
Tamarix **spp.**							X																		
Thalictrum lucidum											X														
Thesium arvense											X									X					
Thymus hirsutus									X																
Thymus tosevii									X																
Tortula muralis **(Moss)**												X	X												
Trifolium angustifolium									X																
Trifolium balanae											X														
Trifolium cherlery									X																
Trifolium cinctum											X														
Trifolium echinatum									X	X															
Trifolium filiforme											X														
Trifolium nigrescens											X														

Plant species																										
Habitats	**OAK FOREST BELT**				**BEECH BELT**	**RIPARIAN WOODLANDS**			**OPEN TERRAIN**				**ROCKY AREAS**	**WETLANDS / WATER HABITATS**			**ANTHROPOGENIC HABITATS**								
Trifolium patens											X														
Trifolium physodes									X																
Trifolium pignantii			X	X																					
Trifolium pratense											X														
Trifolium repens											X														
Trifolium resupinatum											X														
Trifolium retusum																			X	X	X				
Trifolium striatum									X																
Trifolium subterraneum																			X	X		X			
Trifoliumleucanthum									X																
Tryfolium smirnaeum									X																
Ulmus minor	X	X	X							X										X					
Urtica dioica											X								X	X	X	X			
Urtica urens											X								X	X	X	X			
Ventenata dubia									X	X															
Veronica anagalis-aquatica						X									X										
Veronica arvensis																			X		X				
Veronica beccabunga															X										
Viburnum opulus						X																			
Vicia cracca	X										X								X						
Vicia villosa	X	X									X								X						
Viola odorata	X	X	X	X	X				X	X	X														
Vulpia ciliata									X	X															
Vulpia myurus									X																
Xantium spinosum																			X						
Xeranthemum annuum									X																
Xerathemum annuum									X	X															

Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS		OPEN TERRAIN				ROCKY AREAS	WETLANDS / WATER HABITATS			ANTHROPOGENIC HABITATS						
Species Name	Pubescent Oak and Oriental Hornbeam	Pubescent Oak and Oriental Hornbeam (degraded)	Italian and Turkey Oak	Flowering Ash and Sessile Oak	Beech Forest	Willow Woodlands	Tamarisk Shrublands	Hill Pastures	Hill Pastures with sparse vegetation	Meadows	Hill pastures on rocky sites	Cliffs and Rocks	Rivers & Streams	Intermittent Streams	Swampy Reed Biotope	Stands of Black locust's	Small Broadleaf Tree Plantation	Black Pine plantations	Tree lines and other anthropogenic stands	Ruderal Vegetation	Rural settlements - villages	Urban Settlements
Anaptychia ciliaris (L.) Körb. ex A. Massal.	X	X	X	X													X		X	X		
Aspicilia cinerea (L.) Koerb.											X	X										
Candelaria concolor (Dickson) B.Stein					X																	
Cetraria islandica (L.) Ach.		X		X	X			X	X	X												
Cladonia foliacea (Huds.) Willd.	X	X	X	X	X			X	X													
Cladonia convoluta (Lam.) P. Cout.			X	X	X																	
Cladonia gracilis (L.) Willd.			X	X												X	X		X			
Cladonia pyxidata (L.) Hoffm.	X	X	X	X	X																	
Cladonia rangiferina (L.) Weber ex F.H. Wigg.	X	X	X	X	X													X		X		
Cladonia subulata (L.) Weber								X	X	X												
Cliostomum corrugatum (Ach.: Fr.) Fr.				X	X											X	X	X				
Collema nigrescens (Hudson) DC.	X	X	X	X												X	X					
Degelia plumbea (Lightf.) P.Jørg. &	X	X	X	X																		

Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS		OPEN TERRAIN				ROCKY AREAS	WETLANDS / WATER HABITATS			ANTHROPOGENIC HABITATS						
P.James																						
Dermatocarpon miniatum (L.) Mann											X	X										
Diploschistes muscorum (Scop.) R. Sant.			X	X																		
Evernia prunastri (L.) Ach.	X	X	X	X	X	X										X	X		X	X	X	
Hypogymnia physodes (L.) Nyl.																		X				
Hypogymnia tubulosa (Schaerer) Havaas											X	X										
Lecanora albellula (Nyl.) Th. Fr.																		X				
Lecanora carpinea (L.) Vain.	X	X	X	X															X	X		
Lecanora rupicola (L.) Zahlbr.Rocks												X										
Lecanora varia (Hoffm.) Ach.																		X				
Lecidea fuscoatra (L.) Ach.												X										
Lecidea plana (Lam. in Koerb.) Nyl.											X	X										
Lepraria incana (L.) Ach.			X	X																		
Leptogium lichenoides (L.) Zahlbr.			X	X																		
Leptogium saturninum (Dickson) Nyl.					X																	
Lichenostigma cosmopolites Hafel.& Cal.											X	X										
Lobaria pulmonaria (L.) Hoffm.			X	X	X																	
Lobaria scrobiculata (Scop.) DC.					X							X										
Nephroma parile (Ach.) Ach.	X	X	X	X																		
Nephroma resupinatum (L.) Ach.	X	X	X	X	X											X	X					
Pachypiale fagicola (Hepp) Zwackh	X	X	X	X	X	X	X									X	X	X	X			
Parmelia caperata (L.) Hale																		X				
Parmeliella pezizoides (Web.) Trevis.			X	X																		
Parmelina quercina (Willd.) Hale	X	X	X	X																		
Peltigera aphthosa (L.) Willd.					X																	
Peltigera canina (L.) Willd.	X	X	X	X	X	X	X									X	X	X				
Peltigera elisabethae Gyelnik	X	X	X	X																		
Peltigera horizontalis (Hudson) Baumg.			X	X	X											X	X					

Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS		OPEN TERRAIN				ROCKY AREAS	WETLANDS / WATER HABITATS			ANTHROPOGENIC HABITATS						
Pertusaria lactea (L.) Arnold	X	X	X	X																		
Phaeophyscia endophoenicea (Harm.) Moberg					X																	
Physcia dubia (Hoffm.) Lettau											X	X										
Physconia muscigena (Ach.) Poelt.												X										
Platismatia glauca (L.) W.L. Culb. & C. Culb.			X	X	X																	
Pleurosticta acetabulum (Necker) Elix & Lumbsch.				X	X																	
Polysporina simplex (Dav.) Vezda												X										
Pseudevernia furfuracea (L.) Zopf	X	X	X	X	X	X	X									X	X	X	X	X		
Psora decipiens (Hedwig) Hoffm.				X																		
Ramalina fraxinea (L.) Ach	X		X	X												X	X					
Ramalina polymorpha (Lilj.) Ach.											X	X										
Rhizocarpon geographicum (L.) DC.											X	X										
Rinodina lecanorina (Massal.) Massal.												X										
Rinodina pyrina (Ach.) Arnold	X	X							X										X	X		
Solorina saccata (L.) Ach.	X	X	X	X																		
Umbilicaria cylindrica (L.) Delise ex Dudy											X	X										
Usnea florida (L.) Web. in Wigg.			X	X	X	X										X	X					
Usnea hirta (L.) Web. in Wig			X	X	X	X										X	X	X				
Xanthoparmelia stenophylla (Ach.) Ahti & Hawk.											X	X										
Xanthoria fulva (Hoffm.) Poelt & Petut.	X	X	X	X																		
Xanthoria parietina (L.) Beltr.	X	X	X	X	X	X	X		X							X	X	X	X	X	X	X

	Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS/WATER HABITATS			ANTROPGENIC HABITATS								
	Species Name	Pubescent Oak and Oriental Hornbeam	Pubescent Oak and Oriental Hornbeam (degraded)	Italian and Turkey Oak	Flowering Ash and Sessile Oak	Submontane Beech Forests	Willow Woodlands	Tamaris Shrublands	Sandy and gravel riverbanks	Hill Pastures	Hill Pastures with sparse vegetation	meadows	Hill pastures on rocky sites	Cliffs and Rocks	Rivers & Streams	Ravines	Swampy reed biotope	Stands of Black locust's	Black Pine plantations	Tree lines and other anthropogenic stands	Abandoned fields	Orhards & Vineyards	Fields and acres	Rural settlements - villages	Urban settlements	Urbanized areas: roads and railway line
1	(Phalacrocorax carbo)														m											
2	(Ixobrichus minutus)														b		b									
3	(Egretta garzetta)								f						m		m									
4	Casmerodius albus								f						m		m									
5	Ardea cinerea								f						f		f									
6	(Ardea purpurea)								f						m		m									
7	Ciconia ciconia								f						f		f						f	b		
8	Ciconia nigra								f					b	f		f									
9	Anas plathyrhynchos														m		m									
10	(Anas querquedula)														m											
11	Pernis apivorus	b		b	b	b						m														
12	(Neophron percnopterus)									f	f		f	b												
13	Gyps fulvus									f	f		f	m												
14	Circaetus gallicus		b							f	f		f													
15	(Circus cyaneus)									m	m												m			
16	Circus pygargus									b	f												f			
17	Accipiter gentilis	r		r	r														r			f				

	Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS/WATER HABITATS			ANTROPGENIC HABITATS								
18	Accipiter nisus	r		r	r	r					f	r	f						r			f				
19	Buteo buteo	r		r	r	r	r			f	f	r	f						r			f				
20	Buteo rufinus									f	f		f	r												
21	Aquila heliaca									f	r		b										f			
22	Falco tinnunculus						r			f	f		f	r								f	f	b	b	
23	Falco vespertinus									m	m		m													
24	Falco subbuteo	b		b	b		b			f	f		f									f				
25	Falco biarmicus									f	f		f	b												
26	Falco peregrinus									f	f		f	r												
27	Alectoris graeca										r		r	r												
28	Perdix perdix									r	r												r			
29	Coturnix coturnix									b	b												b			
30	(Rallus aquaticus)						b																			
31	Burhinus oedicnemus									b													b			
32	Charadrius dubius								b																	
33	(Vanellus vanellus)																						w			
34	(Philomachus pugnax)								m																	
35	(Gallinago gallinago)																w									
36	Tringa ochropus								m																	
37	Actitis hypoleucos								b																	
38	Columba livia									f	f	r										f		b	b	
39	Columba oenas	r		r	r	r						r														
40	Columba palumbus	r		r	r	r	r			f	f	r														
41	Streptopelia decaocto																							b	b	
42	Streptopelia turtur	b	b	b	b		b	b				r										b		b		
43	Cuculus canorus	b	b	b	b	b	b	b				b								b		b		b		
44	Tyto alba																							b		
45	Otus scops	b		b	b	b	b					b		b						b				b		
46	Bubo bubo													r												
47	Athene noctua													r										b	b	
48	Strix aluco	r		r	r	r						r														

	Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS/WATER HABITATS			ANTROPGENIC HABITATS								
49	Asio otus	r	r	r	r		r																	b		
50	Caprimulgus europaeus	b	b	b	b	b						b														
51	Apus apus													b											b	
52	Alcedo atthis														b											
53	Merops apiaster									f	f		f										b			
54	Coracias garrulus						b			f	f		f													
55	Upupa epops	b	b	b	b		b			f	f		f										b		b	
56	Jynx torquilla	b	b	b	b							b														
57	Picus canus	r		r	r							b														
58	Picus viridis	r	r	r	r		r					b														
59	Dryocopus martius	r		r	r	r						r														
60	Dendrocopos major	r	r	r	r	r	r					r														
61	Dendrocopos syriacus	r	r	r	r		r					r											b		b	
62	Dendrocopos medius	r		r	r	r	r					r														
63	Dendrocopos minor	r	r	r	r	r	r					r														
64	Melanocorypha calandra									b														b		
65	Calandrella brachydactyla									b		b												b		
66	Galerida cristata									r	r	r											r	r	r	r
67	Lullula arborea		r								r	r											r			
68	Alauda arvensis									b		b												b		
69	Ptyonoprogne rupestris													b												
70	Hirundo rustica																								b	b
71	Hirundo daurica													b											b	b
72	Delichon urbica																								b	b
73	Anthus campestris									b	b													b		
74	Anthus trivialis	b		b	b	b						b														
75	(Anthus pratensis)									m	m															
76	Anthus spinoletta								w																	

	Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS/WATER HABITATS			ANTROPGENIC HABITATS								
77	Motacilla flava									b													b			
78	Motacilla cinerea								b			b														
79	Motacilla alba								b															b		
80	Cinclus cinclus														w											
81	Troglodytes troglodytes	r	r	r	r	r	r	r				r							r					b		
82	Prunella modularis	w	w	w	w	b	w					b										w				
83	Erithacus rubecula	r	r	r	r	r	r	r				r							r			b		b		
84	Luscinia megarhynchos	b	b	b	b		b	b														b		b		
85	Phoenicurus ochruros											b		b										b		
86	Phoenicurus phoenicurus	b		b	b	b						b														
87	Saxicola rubetra									m	m	m														
88	Saxicola torquata									b		m														
89	Oenanthe oenanthe									b	b		b									b	b	b		
90	Oenanthe hispanica												b									b				
91	Monticola saxatilis													b												
92	Monticola solitarius													b												
93	Turdus merula	r	r	r	r	r	r	b				r										b		b		
94	Turdus pilaris	w	w	w	w		w				w											w				
95	Turdus philomelos	r		r	r	r						r														
96	Turdus iliacus	w	w	w	w		w				w											w				
97	Turdus viscivorus	r	r	r	r	r	r				f	r										b				
98	Cettia cetti						r	b																		
99	Acrocephalus schoenobaenus						b																			
100	Acrocephalus palustris						b																			
101	Acrocephalus arundinaceus																b									
102	Hippolais pallida		b				b	b														b				
103	Hippolais										b		b													

	Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS/WATER HABITATS			ANTROPGENIC HABITATS								
	olivetorum																									
104	Hippolais icterina		m				m	m														m				
105	Sylvia cantillans		b																							
106	Sylvia hortensis		b																							
107	Sylvia nisoria		b																							
108	Sylvia curruca	b	b	b	b	b						b										b				
109	Sylvia communis	b	b	b	b	b	b	b				b										b		b		
110	Sylvia atricapilla	b	b	b	b	b	b	b				b								b		b		b		
111	Phylloscopus bonelli	b		b	b																					
112	Phylloscopus sibilatrix	m	m	m	m	m	m					m								m						
113	Phylloscopus collybita	b	b	b	b	b	b					b								b						
114	Phylloscopus trochilus	m	m	m	m		m																			
115	Regulus regulus	w		w	w	w						w								b						
116	Regulus ignicapilla	w		w	w	w						w								b						
117	Muscicapa striata	b	m	b	b		m	m														b				
118	Ficedula albicollis	m	m	m	m		m	m														b				
119	Ficedula hypoleuca	m	m	m	m		m	m														b				
120	Aegithalos caudatus	r	r	r	r	r	r	f				r								r		r				
121	Parus palustris	r	r	r	r	r	r	f				r								r		r				
122	Parus lugubris	r	r	r	r		r	f														r				
123	Parus ater					b						b								r						
124	Parus caeruleus	r	r	r	r	r	r	f				r								r		r		b		
125	Parus major	r	r	r	r	r	r	f				r										r		b		
126	Sitta europea	r	r	r	r	r	r					r														
127	Sitta neumayer													b												
128	Certhia familiaris	r		r	r	r						r														
129	Remiz pendulinus						b																			
130	Oriolus oriolus	b	b	b	b		b															r		b		
131	Lanius collurio		b				b	b					b									b	b	b		
132	Lanius minor		b										b									b	b			
133	Lanius excubitor		w								w											w	w			

	Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS/WATER HABITATS			ANTROPGENIC HABITATS								
134	Lanius senator		b										b										b	b	b		
135	Lanius nubicus						b	b																			
136	Garrulus glandarius	r	r	r	r	r						r							r			f				
137	Pica pica																					b		r	r	
138	Corvus monedula																					f	f	r	r	
139	Corvus frugilegus																					f	f		r	
140	Corvus cornix																		f			f	f	r	r	
141	Corvus corax													r										r	r	
142	Sturnus vulgaris		r				b															b	f			
143	Sturnus roseus												b											b		
144	Passer domesticus																					r		r	r	
145	Passer hispaniolensis		b										b									b		b		
146	Passer montanus																					r		r	r	
147	Petronia petronia													b												
148	Fringilla coelebs	r	r	r	r	r	r	f				r										b		r		
149	Fringilla montifringilla		w																			w				
150	Carduelis chloris	r	r	r	r		r	b					b									r		r		
151	Carduelis carduelis	r	r	r	r	r	r	b				r	b									r		r		
152	Carduelis cannabina		r					b					b									r				
153	Pyrrhula pyrrhula					b						b														
154	Coccothraustes coccothraustes	r	r	r	r	r	r					r														
155	Emberiza citrinella	b	w	b	b	b						b										w				
156	Emberiza cirlus		b					b					b									r				
157	Emberiza cia		b										b	b												
158	Emberiza hortulana		b										b	b												
159	Emberiza melanocephala		b										b									b				
160	Miliaria calandra		b					b			b		b	b								b	r			
r=resident species; b=breeding species; w=wintering species; f=foraging species in the habitat																										

Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS / WATER HABITATS			ANTROPGENIC HABITATS								
Species Name	Pubescent Oak and Oriental Hornbeam	Pubescent Oak and Oriental Hornbeam (degraded)	Italian and Turkey Oak	Flowering Ash and Sessile Oak	Beech Forest	Willow Woodlands	Tamarisk Shrublands	Gravel and Sandy Riverbanks	Hill Pastures	Hill Pastures with Sparse Vegetation	Meadows	Hill Pastures on Rocky Sites	Cliffs and Rocks	Rivers & Streams	Intermittent Streams	Swampy Reed Biotope	Stands of Black Locust's	Black Pine Plantations	Tree Lines and other Anthropogenic Stands	Ruderal Vegetation	Orhards & Vineyards	Fields and Acres	Rural Settlements - Villages	Urban Settlements	Urbanized Areas: Roads and Railway Line
Abax carinatus carinatus				1	1											1									
Abax ovalis				1	1																				
Acinopus picipes									1	1		1													
Agonum duftschmidi						1	1	1								1									
Agonum sexpunctatum						1	1	1								1									
Amara aenea	1	1							1	1	1	1					1	1	1	1	1	1	1	1	1
Amara anthobia						1	1	1			1														
Amara convexior			1	1	1						1														
Amara curta					1						1														
Amara lucida								1			1														
Amara montivaga	1	1	1	1	1						1										1	1			
Amara ovata				1	1						1														
Anchomenus dorsalis								1								1		1							
Anisodactylus binotatus						1	1	1			1					1									
Anisodactylus nemorivagus						1	1	1			1					1									
Aptinus merditanus					1																				
Bembidion assimile						1		1								1									
Bembidion azurescens azurescens								1																	

Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS / WATER HABITATS			ANTROPGENIC HABITATS								
Bembidion decorum decorum								1																	
Bembidion geniculatum geniculatum								1																	
Bembidion lampros								1			1					1									
Bembidion punctulatum punctulatum																1									
Bembidion quadrimaculatum quadrimaculatum								1								1									
Bembidion siculum smyrnense								1																	
Bembidion subcostatum vau						1	1	1								1									
Bembidion tibiale								1																	
Bembidion varium								1								1									
Calathus cinctus									1	1		1													
Calathus distinguendus					1						1														
Calathus erratus erratus									1	1	1														
Calathus fuscipes fuscipes	1	1	1	1	1				1	1	1	1			1		1	1	1	1	1	1	1	1	1
Calathus melanocephalus melanocephalus	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1
Carabus convexus dilatatus	1	1	1	1	1						1														
Carabus coriaceus cerisyi	1	1	1	1	1				1	1	1	1				1	1	1	1	1	1	1	1	1	1
Carabus graecus morio	1	1							1	1		1													
Carabus granulatus granulatus						1	1									1									
Carabus hortensis				1	1													1							
Carabus intricatus intricatus	1		1	1	1													1							
Carabus montivagus montivagus	1	1	1	1	1						1														
Chlaenius festivus festivus						1	1	1								1									
Chlaenius nitidulus						1	1	1			1					1									
Chlaenius vestitus						1	1	1								1									
Cicindela campestris campestris									1	1	1	1				1				1	1	1	1	1	1
Cicindela germanica						1			1	1	1	1													
Clivina collaris								1			1					1									
Cymindis axillaris axillaris									1	1	1	1	1												
Dixus obscurus									1	1		1													
Elaphrus aureus						1		1								1									
Harpalus affinis	1	1	1	1	1	1	1	1	1	1	1		1		1	1	1	1	1	1	1	1	1	1	1
Harpalus anxius									1	1	1	1								1	1	1	1	1	1

Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS / WATER HABITATS			ANTROPGENIC HABITATS								
Harpalus atratus	1										1														
Harpalus attenuatus									1	1	1	1									1	1	1	1	1
Harpalus dimidiatus		1							1	1	1	1									1	1	1	1	1
Harpalus flavicornis flavicornis									1	1	1	1													
Harpalus rubripes	1	1	1	1	1	1					1					1									
Harpalus rufipalpis rufipalpis	1	1	1	1	1	1					1					1									
Harpalus rufipes	1	1				1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1
Harpalus saxicola																									
Harpalus serripes serripes									1	1	1	1									1	1	1	1	1
Harpalus tardus									1	1	1	1									1	1	1	1	1
Harpalus triseriatus triseriatus									1	1		1													
Laemostenus punctatus	1	1	1	1	1						1														
Licinus cassideus cassideus					1	1					1														
Licinus silphoides									1	1						1									
Limodromus assimilis					1																				
Lionychus quadrillum								1																	
Microlestes fissuralis							1		1	1		1					1	1	1	1	1	1	1	1	1
Molops robustus robustus					1																				
Molops rufipes denteletus			1	1	1						1							1							
Myas chalybaeus				1	1						1														
Nebria brevicollis						1	1	1								1		1							
Notiophilus substriatus	1	1	1	1	1																				
Omophron limbatum						1		1																	
Oodes helopioides helopioides						1										1									
Ophonus cribricollis									1	1	1	1													
Ophonus rufibarbis	1	1	1						1	1	1	1													
Pachycarus atrocoeruleus atrocoeruleus									1	1		1													
Panagaerus cruxmajor						1																			
Paranchus albipes						1	1	1								1									
Paratachys bistriatus						1	1	1								1									
Parophonus dejeani						1	1	1								1									
Parophonus maculicornis						1	1	1								1									

Habitats	OAK FOREST BELT				BEECH BELT	RIPARIAN WOODLANDS			OPEN TERRAIN				ROCKY AREAS	WETLANDS / WATER HABITATS			ANTROPGENIC HABITATS								
Platynus scrobiculatus serbicus					1													1							
Poecilus cupreus					1	1	1	1	1	1	1					1	1	1	1	1	1	1	1	1	1
Poecilus versicolor					1						1														
Pterostichus brucki					1																				
Pterostichus cursor						1										1									
Pterostichus minor minor						1										1									
Pterostichus niger niger					1	1										1									
Pterostichus nigrita					1	1	1	1								1		1							
Pterostichus oblongopunctatus oblongopunctatus					1													1							
Stenolophus mixtus						1	1	1								1									
Stenolophus teutonus						1	1	1								1									
Tapinopterus balcanicus			1	1	1						1							1							
		16	16	20	33	34	23	36	27	27		23	3	0	3	39	8	17	8	14	15	15	14	14	14

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No.	Symbol	Legend
1	al	Современи алувијални наслаги
2		Распаднат површински материјал
3	d	Делувијални наслаги
4	b	Органогено-барски седименти
5	i	Изворски седименти
6	t_1	Долни речни тераси
7	t_2	Горни речни тераси
8	pr	Пролувијален материјал
9	j	Езерски седименти
10		Хидротермални измени
11		Пиритизација
12		Силификација
13	β	Шошонит базалти
14	τβ'	Кајанити
15	τβ	Трахибазалти
16	θ	Стратифициран туф
17	ωop	Опалски бречи
18	αq	Дацити
19	α	Андезити
20	Θα	Игнимбрити
21	αah	Аугит-хорнбленда-биотит андезити
22	ω	Вулкански бречи
23	Pl,Q	Чакали; бигорливи варовници (a)
24	Pl_3?	Песоци, глини и песочници; бигорливи варовници (a)
25	θα	Андезитски туфови
26	τα	Трахиандезити
27	τ	Трахити
28	$M_{2,3}$	Песочници
32	E_3^3	Флиш: песочници, алевролити и глинци; варовници (a)
33	χPg	Риолити
34	K_2^3	Лапорци; варовници (a)
35	K_2	Песочници
36	δγK	Гранодиорити
37	J_3^3	Варовници
38	J_3^3	Флиш: песочници, конгломерати, алевролити и глинци
39	ηJ	Кератофири
40	J	Дијабаз-рожначка формација
41	ββab	Спилити
42	ββ	Дијабази
43	νββ	Габро-дијабази
44	νδ	Габродиорити
45	ν	Габрови
46	Se	Серпентинити
47	γPz	Шкрилести гранити
48	γPz	Гранити
49	Sca	Метаморфирани песочници
50	F	Серицитски и филитични шкрилци
51	Sco	Хлоритски шкрилци
52	χ	Метаморфирани риолити
53	M	Мермери
54	Q	Кварцити
55	Sb	Албитизирани биотитски шкрилци
56	Sam	Амфибол-пироксенски шкрилци
57	A	Амфиболити
58	Sse	Преодна зона; серицит-хлоритски и други шкрилци
59	Mi	Мигматити

КВАРТЕР (1–14) · НЕОГЕН (15–28) · ПАЛЕОГЕН (32–33) · КРЕДА (34–36) · ЈУРА (37–45) · ПАЛЕОЗОИК (46–56) · БРИЈУМ (57–59)

DRAFT

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Забелешка;

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Macedonian Railways: Feasibility Study for Corridor VIII - Eastern section

Ministry of Transport and Communications
Министерство за транспорт и врски

Macedonian Railways, Skopje
Македонски железници, Скопје

Drawing name / Име на Цртеж

ESIA
Geology Map
0+000.00 - 31+500.00

Drawing no. /Бр. на Цртеж XXXXXX

Project No. / Број на проектот	
Preparatory Phase /	
Scale / Размер	1 : 25000
Date / Датум	22.09.2011
Revision / Ревизија	

1 af Современи алувиални наслаги
2 Распаднат површински материјал
3 d Делувиални наслаги
4 b Органогено-барски седименти
5 i Изворски седименти
6 t_1 Долни речни тераси
7 t_2 Горни речни тераси
8 pr Пролувиален материјал
9 j Езерски седименти
10 Хидротермални измени
11 Пиритизација
12 Силификација
13 β Шошонит базалти
14 τβ' Кајанити

КВАРТЕР

ПАЛЕОГЕН
32 E_3^3 Флиш: песочници, алевролити и глинци: варовници (а)
33 χPg Риолити

КРЕДА
34 K_2^3 Лапорци: варовници (а)
35 K_2 Песочници
36 δγK Гранодиорити

ЈУРА
37 J_3^3 Варовници
38 J_3^3 Флиш: песочници, конгломерати, алевролити и глинци
39 ηJ Кератофири
40 J Дијабаз-рожначка формација
41 ββab Спилити
42 ββ Дијабази
43 νββ Габро-дијабази
44 νδ Габродиорити
45 ν Габрови

НЕОГЕН
15 τβ Трахибазалти
16 θ Стратифициран туф
17 ω'op Опалски бречи
18 αq Дацити
19 α Андезити
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21 αah Аугит-хорнбленда-биотит андезити
22 ω' Вулкански бречи
23 Pl,Q Чакали: бигорливи варовници (а)
24 Pl_3? Песоци, глини и песочници; бигорливи варовници (а)
25 θα Андезитски туфови
26 τα Трахиандезити
27 τ Трахити
28 $M_{2,3}$ Песочници

ПАЛЕОЗОИК
46 Se Серпентинити
47 γPz Шкрилести гранити
48 γPz Гранити
49 Sca Метаморфирани песочници
50 F Серицитски и филитични шкрилци
51 Sco Хлоритски шкрилци
52 χ Метаморфирани риолити
53 M Мермери
54 Q Кварцити
55 Sb Албитизирани биотитски шкрилци
56 Sam Амфибол-пироксенски шкрилци

БРИЈУМ
57 A Амфиболити
58 Sse Преодна зона: серицит-хлоритски и други шкрилци
59 Mi Мигматити

DRAFT

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DRAFT

Бр.	Ознака	Опис	Период
1	al	Современи алувиални наслаги	КВАРТЕР
2		Распаднат површински материјал	КВАРТЕР
3	d	Делувиални наслаги	КВАРТЕР
4	b	Органогено-барски седименти	КВАРТЕР
5	i	Изворски седименти	КВАРТЕР
6	t_1	Долни речни тераси	КВАРТЕР
7	t_2	Горни речни тераси	КВАРТЕР
8	pr	Пролувиален материјал	КВАРТЕР
9	j	Езерски седименти	КВАРТЕР
10		Хидротермални измени	КВАРТЕР
11		Пиритизација	КВАРТЕР
12		Силификација	КВАРТЕР
13	β	Шошонит базалти	КВАРТЕР
14	τβ'	Кајанити	КВАРТЕР
32	E_3^3	Флиш: песочници, алевролити и глинци; варовници (а)	ПАЛЕОГЕН
33	xPg	Риолити	ПАЛЕОГЕН
34	K_2^3	Лапорци; варовници (а)	КРЕДА
35	K_2	Песочници	КРЕДА
36	δYK	Гранодиорити	КРЕДА
37	J_3^3	Варовници	ЈУРА
38	J_3^3	Флиш: песочници, конгломерати, алевролити и глинци	ЈУРА
39	ηJ	Кератофири	ЈУРА
40	J	Дијабаз-рожначка формација	ЈУРА
41	ββab	Спилити	ЈУРА
42	ββ	Дијабази	ЈУРА
43	νββ	Габро-дијабази	ЈУРА
44	νδ	Габродиорити	ЈУРА
45	ν	Габрови	ЈУРА
15	τβ	Трахибазалти	НЕОГЕН
16	θ	Стратифициран туф	НЕОГЕН
17	ωop	Опалски бречи	НЕОГЕН
18	αq	Дацити	НЕОГЕН
19	α	Андезити	НЕОГЕН
20	Θα	Игнимбрити	НЕОГЕН
21	αah	Аугит-хорнбленда-биотит андезити	НЕОГЕН
22	ω	Вулкански бречи	НЕОГЕН
23	Pl,Q	Чакали: бигорливи варовници (а)	НЕОГЕН
24	$Pl_3?$	Песоци, глини и песочници: бигорливи варовници (а)	НЕОГЕН
25	θα	Андезитски туфови	НЕОГЕН
26	τα	Трахиандезити	НЕОГЕН
27	τ	Трахити	НЕОГЕН
28	$^2M_{2,3}$	Песочници	НЕОГЕН
46	Se	Серпентинити	ПАЛЕОЗОИК
47	YPz	Шкрилести гранити	ПАЛЕОЗОИК
48	YPz	Гранити	ПАЛЕОЗОИК
49	Sca	Метаморфирани песочници	ПАЛЕОЗОИК
50	F	Серицитски и филитични шкрилци	ПАЛЕОЗОИК
51	Sco	Хлоритски шкрилци	ПАЛЕОЗОИК
52	x	Метаморфирани риолити	ПАЛЕОЗОИК
53	M	Мермери	ПАЛЕОЗОИК
54	Q	Кварцити	ПАЛЕОЗОИК
55	Sb	Албитизирани биотитски шкрилци	ПАЛЕОЗОИК
56	Sam	Амфибол-пироксенски шкрилци	ПАЛЕОЗОИК
57	A	Амфиболити	БРИЈУМ
58	Sse	Преодна зона; серицит-хлоритски и други шкрилци	БРИЈУМ
59	Mi	Мигматити	БРИЈУМ

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Macedonian Railways: Feasibility Study for Corridor VIII - Eastern section

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Ministry of Transport and Communications
Министерство за транспорт и врски

Македонски Железници Инфраструктура

Macedonian Railways, Skopje
Македонски железници, Скопје

Drawing name / Име на Цртеж

ESIA
Geology Map

0+000.00 - 31+500.00

Drawing no. /Бр. на Цртеж XXXXXX

Project No. / Број на проектот	
Preparatory Phase /	
Scale / Размер	1 : 25000
Date / Датум	22.09.2011
Revision / Ревизија	

DRAFT

Legend Impacts / Conflicts

- I B 01: Temporary impacts on biodiversity (habitats, vegetation and protected species) during construction
- I B 02: Permanent construction and facility caused impacts on biodiversity (habitats, vegetation and protected species)
- I S 03: Temporary impacts on soils during construction
- I S 04: Permanent construction and facility caused impacts on soils (concretion and sealing)
- I W 05: Temporary potential impacts on water (rivers and groundwater) during construction
- I W 06: Permanent construction and facility caused impacts on surface waters and groundwater (outflow intensification and sealing)
- I C 07: Temporary potential impacts on air and climate during construction phase
- I L 08: Permanent construction and facility caused impacts on landscape/scenery (visual disturbance)
- I H 09: Temporary and Permanent construction and facility caused impacts on human/settlement (demolishing of houses)
- I H 10: Operational caused impacts on human/settlement (noise and vibration)

hsh = high sensitive habitats

msh = medium sensitive habitats

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Македонски железници, Скопје

Drawing name / Име на Цртеж

ESIA
Impact Asscessmentmap
0+000.00 - 31+500.00

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Legende

- Bridge
- Tunel
- Rivers
- Railroad
- Metahrithral streams
- Interminent streams

Habitats

1 abandoned arable land
2 agricultural land fields and acres
3 anthropogenic tree belt
4 Artificial pond
5 submontane beech forest
6 Black locust plantation
7 conifer tree plantation
8 degraded thermophilous oak forest
9 Degraded mesophillous oak forest
10 degraded xerothermophillous oak forest
11 epipotamal stream
12 forested ravines and dailes
13 hill pasture
14 hill pasture on stony ground
15 hill pasture with sparse shrubs
16 hiporhithral stream
17 thermophilous oak forest
18 man-made structure
19 meadow
20 Mesophillous oak forest
21 Mixed conifer-black locust plantation with oak
22 orchard
23 park
24 riparian shrub communities - tamarisk shrubland
25 riparian willow-poplar belt
26 riparian willow-poplar woodland
27 gravel and sendy river bank
28 road
29 rocky and stony areas - hasmophytic vegetation
30 ruderal vegetation
31 rural settlement
32 small broadleave tree plantation
33 unmanaged mesic grasslands
34 urban area
35 vineyard
36 wet meadow
37 Xerothermophillous oak forest

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Ministry of Transport and Communications
Министерство за транспорт и врски

Macedonian Railways, Skopje
Македонски железници, Скопје

Drawing name / Име на Цртеж	ESIA Biodiversity : Habitat Map 0+000.00 - 31+500.00
Drawing no. / Бр. на Цртеж	XXXXXX
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