



**12TH SEMI ANNUAL
ENVIRONMENTAL
MANAGEMENT REPORT**
01.01-30.06.2014

Environment Department OLYMPIA ODOS S.A.



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A INTRODUCTION

Based on the Concession Agreement (articles 11.2.2& 16.2), as amended and applies with L. 4219/2013 (Gov. Gaz. 269/A/11-12-2013), OLYMPIA ODOS S.A. is obliged, throughout the entire Concession Period to deliver to the Concessionaire, a semester environmental report, within a period of a month since the final documentation. This is the twelfth semi - annual Environmental Management Report and covers the period 01.01.2014 to 30.06.2014.

In the internet site <http://www.olympiaodos.gr> which was created and run by the Concessionaire, in accordance with the Concession Agreement, shall become public the above six-month and annual report.

During the motorway's construction and operation, both the constructor as well as the operator comply with all pertinent provisions, as they are recorded in the Greek Legislation, ensuring the same for their contractors and subcontractors.

B PROJECT'S PROGRESS

B.1 CONSTRUCTION OF THE MOTORWAY

The work's progress of the Design-Construction Project contractual scope is notified to the Concessionaire, the Independent Engineer and the EYDE/MK/EPP through a Monthly Progress Reports, which are elaborated by APION KLEOS Construction Joint Venture as required by the contractual document. In Table 2 below is briefly presented the Project's works progress in the 1st half of 2014.

Note: all appendices of the present report have been submitted to the Special Environment Service of the Ministry of Environment, Energy and Climate Change, responsible for the environmental supervision of the OLYMPIA ODOS project and are available upon request.

Please note that on 17-12-2013 the Suspension of Works ended (in force since the start of the 2nd half of 2011), all requirements of Concession Agreement Amendment Agreement articles 12 and 13 were fulfilled and therefore this date is the Amendment Effective Date in the sense defined in the Concession Agreement Amendment Agreement.

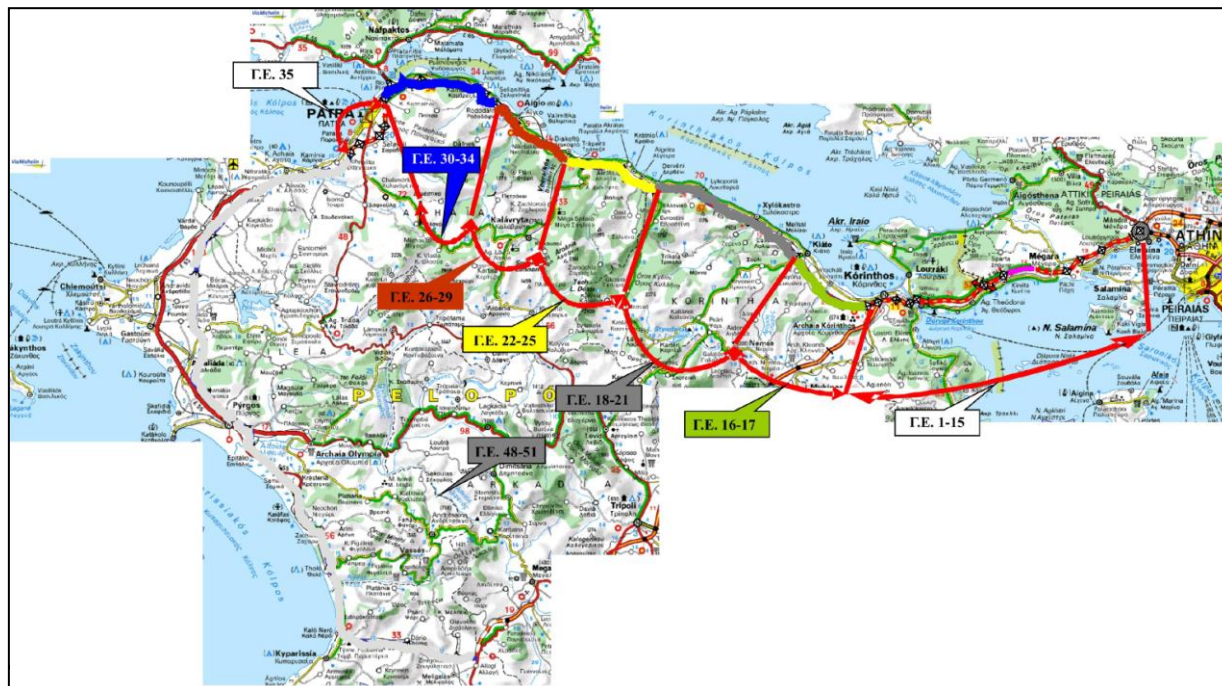


TABLE 2 – PROJECT’S WORKS PROGRESS IN THE 1st HALF OF 2014

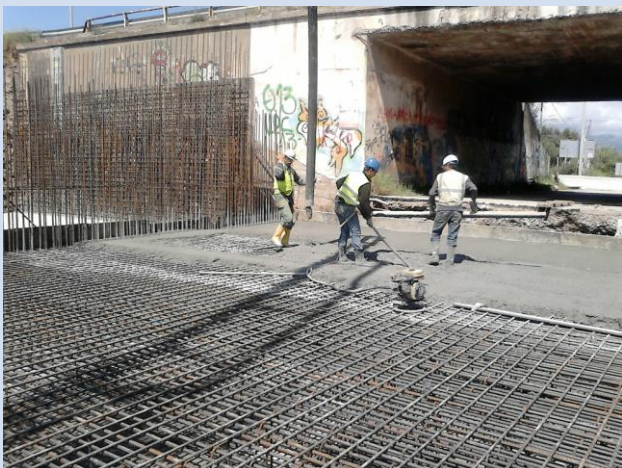
G.U.	SECTION	ACTIVITY	PROGRESS
1-3 & 35	EL-KO & PBP	Slope stability OR3 at k.p. 27+500, OR15 at k.p. 31+800, etc	In progress.
		Safety Barriers installation: T31+800 – T32+800, E32+800 – E32+000	In progress
		MOMC building: Surveying works, excavation works, brick laying & concrete works.	In progress
4-15	EL-KO	Traffic arrangements.	Continuous process.
		Construction works at Isthmos Toll Station / Widening area / Islands 18 & 19.	Completed
		Construction works at Ag. Theodoroi, Pachi & N. Peramos Lateral Toll Stations.	Completed
		Finishing works at WC buildings of N.Peramos, Kakia Skala, Ag.Theodoroi & Kalamaki parking areas.	Completed
16-17	KO-PA	Traffic Management.	Continuous process.

	Flood protection works: Construction of box culverts (L129, etc). Construction of drainage (1+050 – 1+900, 5+280 – 5+780, etc).	In progress
	Construction of retaining structures / retaining walls (R119, R138, R064, R045, G260, G261, G110 etc).	In progress
	Construction of Bridges, Overpasses, Underpasses (A101, A114, A123, K220, etc).	In progress
	Toll Stations: Construction of the building – FTS Zevgolatio (TAB, Tunnel, Canopy), 18+800.	In progress
	Pavement works: construction of PST-CDF layers (5+100 – 7+200, 10+500 – 13+500, 13+500 – 16+000, etc).	In progress
	Asphalt works: 2+100 – 7+200.	In progress
	E/M works: 1+050 – 1+860, 13+300 – 14+500, 16+500 – 17+680.	In progress
	Traffic Management.	Continuous process.
	Construction of retaining structures / retaining walls (R210, R219, R221, R222, G281, G232, etc).	In progress
	Flood protection works: Construction of box culverts (L201, L244, L247, etc).	In progress
	Construction of Bridges, Overpasses, Underpasses (K201, K202, K237, B204, B209, B210, B239, etc).	In progress
18-21	KO-PA	
	Melissi Lane Cover C001: piles & wall construction.	In progress
	Derveni East Lane Cover C004: piles construction.	In progress
	Derveni Tunnel 7 & 8: portals construction & drainage.	In progress
	Derveni West Lane Cover C014: top slab construction.	In progress

22-25	KO-PA	Traffic Management.	Continuous process.
		Construction of earthworks / embankments in G.U. 22-25.	In progress
		Construction of retaining structures / retaining walls (G323, G309, G321, G590, R535, R538, R548, etc).	In progress
		Construction of Bridges, Overpasses, Underpasses (K244, K247, K243, K264, K345, K507, etc)	In progress
		Tunnel Mavra Litharia: Final lining left & right branch.	In progress
		Tunnel Akratas: Phase A' completed.	In progress
		E/M works in GU 22-25.	In progress
26-29	KO-PA	Traffic Management.	Continuous process.
		T015 South & North bore – waters pumping where needed.	Continuous process.
		Daily monitoring of convergences displacement conducted by electronic topographical equipment in comparison with the referenced values and the warning and alarm levels at Platanos Tunnel 15 (South & North bore).	Continuous process.
		Geomechanical and structural monitoring of Platanos village.	Continuous process.
		Flood protection works: Construction of box culverts (L401, L402, L411, L412, L415, L416, etc).	In progress
		Construction of retaining structures / retaining walls (G402, G404, G405, R428, R429, R430, etc). Gabion walls, friction slabs.	In progress
		Tunnels: T015 Left, Excavation phase A, Excavation phase B, Lining east portal, Lining west portal.	In progress
		Tunnels: T015 Right, Excavation phase A, Excavation phase B, Lining east portal, Lining west portal.	In progress

		Construction of Lane Covers (Platanos, Temeni, Eliki, etc).	In progress
		Construction of Bridges, Overpasses, Underpasses (B269, B272, A274, K270, K271, K299, K276, K277, K290, K291, etc).	In progress
		Pavement works: construction of PST-CDF layers (82+500-84+100, 71+600-75+000, 89+700-90+100, etc).	In progress
		E/M works: 70+930-71+200, 71+600-75+000, 78+650-79+300, etc).	In progress
		Traffic Management.	Continuous process.
		Daily monitoring of convergences displacement conducted by electronic topographical equipment in comparison with the referenced values and the warning and alarm levels at Tunnel 26.	Continuous process.
30-34	KO-PA	Earthworks: Construction of embankments (90+100 - 91+300, 91+300 - 93+300, 94+100 - 95+500, etc).	In progress
		Construction of retaining structures / retaining walls (R505, R508, G516, G526, etc). Slope stabilization.	In progress
		Construction of Bridges, Overpasses, Underpasses (B303, B304, K307, K309, K314, K348, etc).	In progress
		Panagopoula Tunnel T26: West South, West North, East South, East North. Panagopoula Tunnels T25, T26.	In progress

*Isthmos Toll Station**Kalamaki parking area direction to Elefsina – Finishing works**Slope stability OR 3, 5, 15**Loose rock removal**South Bore - B' & C' Excavation Phase**Implementation of final lining - (Footing)
Cross Passage 2*

*South Bore - A' Excavation Phase**North Bore - A' Excavation Phase**T26_NW retaining walls**T25_west portal cover & cut open excavation**K318 A**K317 A*



G309 Walls concrete



G309 Walls concrete



Mavra Litharia Final Lining-Waterproofing works



Mavra Litharia Final Lining-Concrete works



Retaining Wall G246: construction of foundations & wall's stems



Retaining Wall G246: construction of foundations & wall's stems

*Retaining Structure G247**Retaining Structure G232: construction of piles**Cut & Cover T007 West: segment 2**Construction of Abutment A0, A137**Construction of top slab, A137**Waterproofing works, A103*



Asphalt works, A103



Construction of TAB, k.p. 18+800

B.2 OPERATION OF THE MOTORWAY

In the framework of the Concession Agreement for the Project of the Motorway Elefsina-Korinthos-Patra-Pyrgos-Tsakona (Act 3621/2007), the company “Olympia Odos Operation S.A.” has undertaken since 6 August 2008 on behalf of the Concessionaire (Olympia Odos S.A.) in Phase A the Operation of the road section from Elefsina (Thiva I/C) until the end of Patras Bypass (Mintilogli), as it was received in its existing condition of total length 202 km.

This road section includes also the section of the (former) National Road from Korinthos to Patras, conventionally called in the Project “Korinthos-Patra NNR” of total length about 120 km.

More specifically, the Project during Operation Phase A includes:

- 28 interchanges (7 of which semi-interchanges),
- 2 groups of tunnels (Kakia Skala and Patras Wide Bypass),
- 4 mainline toll plazas (Elefsina, Isthmos, Zevgolio and Rio),
- 2 ramp toll stations (one in Nea Peramos I/C and one in Agioi Theodoroi I/C),
- Toll service/administration buildings,
- Tunnel service, control and power supply buildings,
- 6 Motorist Service Stations (MSS): Megara MSS (in both directions), Korinthos MSS (direction to Athens), Kiato MSS (in both directions), Akrata MSS (in both directions), Aigio MSS (in both directions), Rio MSS (direction to Athens) and
- 45 parking and rest areas.

C PROGRESS OF THE ENVIRONMENTAL AGENDA

C.1 GENERAL

The course - progress of the Project's construction activities is submitted by APION KLEOS Construction Joint Venture to the Concessionaire via the design - construction monthly progress reports.

Appendix A of Annex 2 of the Concession Agreement states the Common Ministerial Decisions (CMD) and the Law comprising the Project's environmental licensing and forming the main framework for the monitoring of the progress of the Project's environmental issues.

More specifically:

1. Law 2338/1995, Thiva I/C - Elefsina Toll Station
2. CMD 126393/16.02.2007, Elefsina - Korinthos (excluding Kakia Skala section)
3. CMD 108569/18.10.2006, Kakia Skala
4. CMD 92073/16.05.1994, Isthmos - Ancient Korinthos I/C
5. CMD 104892/16.06.2006, Ancient Korinthos I/C - Patra By-Pass K1 I/C

Both in the construction as well as in operation phase, the procedures and directives for the works' environmental management are implemented by the Constructor, aiming at the in compliance with the terms and constraints of the above decisions.

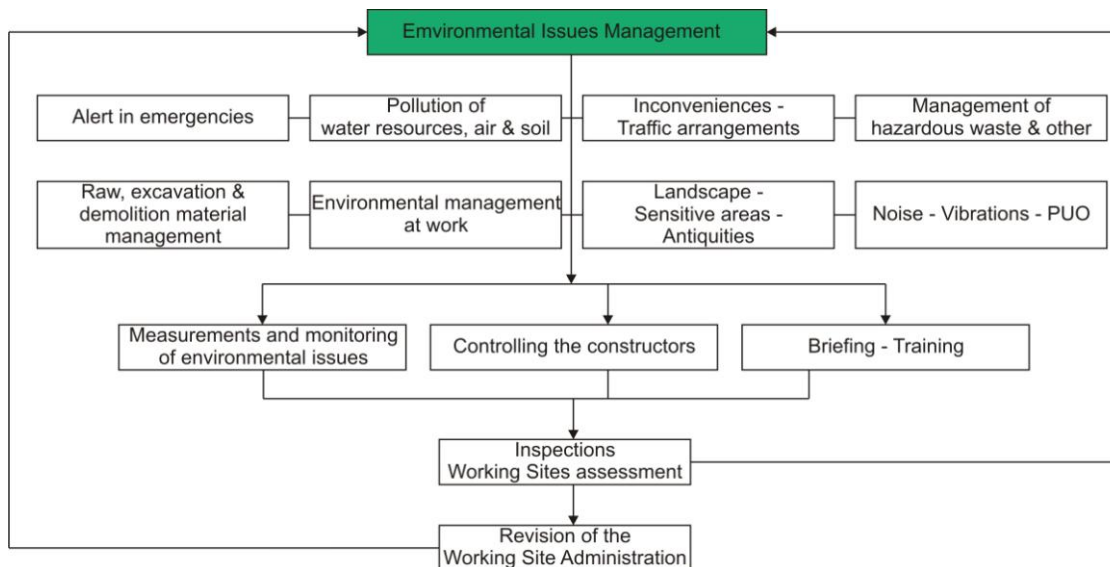
Within the framework of the contractual obligations the Constructor has developed an Environmental Management Plan (EMP) for the Project in accordance with ISO 14001:2004.

The EMP includes the organizational structure, planning actions, duties allocation, technical methods, procedures as well as processes for the development, implementation, achievement, revision and support of the Constructor's environmental policy as well as the compliance with the Project's environmental terms.

The EMP constitutes the basic and general framework for the management of environmental issues, whereas the procedures and directives refer to the rational means and handling/ management of each environmental issue, taking into account the pertinent legislation and the decisions applicable to each case.

This EMP is available to all institutional parties related to the project.

We should also mention that Good Practise Guides have been prepared and dispatched to the local working sites for the Project's construction period.



The Operator in order to comply with the Project's environmental terms and the implementation of an Environmental Policy has developed and implements a **Environmental Management Plan** for:

- controlling, monitoring and dealing with the environment impact of the project
- optimum management of liquid and solid waste of the Project
- promotion of optimum practices to reduce energy and resources consumption

C.2 PERMITS- DESIGNS RELATED TO CONSTRUCTION

In the framework of respecting the Concession Agreement environmental requirements, the approved environmental terms and the required environmental permits:

- Requests are submitted, when required, in order forest and archaeological permits and opinions to be issued.
- Environmental Impact Study (EIS) was developed and submitted to EYPE/MEECC (acc. to L.4014/2011) in order to obtain Environmental Approval for the requested Borrow-pits - Quarries & Deposit-pits for the completion of the KO-PA section's construction. The approval process was completed with the issuance of a new ETAD (ADA : BIY10-A56) titled : *"Korinthos-Patra road axis, upgrading the existing road into a motorway"*, regarding the additional quarries and borrow-pits sites in Korinthia and Achaia Pref. for the motorway's construction requirements.

We must highlight that:

1. for the above lands and where required, the elaboration of the Technical Exploitation Designs is under way,
2. Based on DCC article 21.3, the Concessionaire asked EYDE/MK/EPP to deliver to the Constructor the Vacant Possession and relevant Rights of Way of the above approved additional lands.

c. Cooperation is in progress with the Public Utility Organisations in order to relocate various networks located within the Project.

d. Hydro geological Design (AQUATERRA - Ch. Kapopoulos - E. Psarropoulou & Co) has been submitted to the competent Public Service. The above pertains to the excavation of seven (7) new water collection works, so as to cover the irrigation, fire fighting and other needs that shall arise in the Project's short-term parking areas along KO-PA section.

s/n	Name	K.P.
1	EL-KO 1	5+650
2	KO-PA 1	16+850
3	KO-PA 2	28+750
4	KO-PA 3	39+150
5	KO-PA 4	62+700
6	KO-PA 5	87+300
7	KO-PA 6	111+100

- For drillings No KO-PA 2 & KO-PA 3 execution permit has been granted by Western Greece Water Dir./Peloponnese, Western Greece & Ionio Decentralised Administration.
- For drillings No KO-PA 1 & KO-PA 6 a positive recommendation has been issued by the Dep. Of Environment & Energy of the relevant Municipalities and the grant of the execution permit is expected. The process is under way.
- Based on the above, the Constructor is already getting technical-financial quotes for assessment by various suitable crews so as to conduct drilling and test pumping at KO-PA 2 & KO-PA 3.

e. EYPE/MEECC approved the following Technical Environmental Designs (TED):

- For the installation and operation of 2 working sites around K.P. 77+300 (Svolos) and K.P. 84+100 (Papaleonidopoulos) [No 172189/20-6-2014],
- For the installation and operation of 3 working sites around K.P. 49+500 (Lygia, Evrostini-Xylokaastro Mun.), around K.P. 99+900 (Lampiri, Aigialia Mun.) and around K.P. 108+600 (Rodini, Aigialia Mun.).

f. TT& E S.A. has been assigned with the preparation of a Special Acoustic Design for the Calculation and Implementation of noise barriers for KO-PA section. The first segment from K.P. 0+000 to K.P. 20+000 is expected for submission in the beginning of September. The process is under way.

g. After EYDE/MK/EPP's letter No EPP/P1/F4/7013/11-5-2010 which proposed not to construct the foreseen sound barriers from K.P. 217+083 to K.P. 217+188 of PbP, the Constructor prepared a report titled: "Assessment of necessity to immediately

install the foreseen noise barrier from K.P. 217+083 to K.P. 217+188 (branch to Patra) along PbP”. The report’s completion is expected around the end of July at which point it will be duly submitted.

C.3 ENVIRONMENTAL MANAGEMENT, WASTE MANAGEMENT, HAZARDOUS AND NON HAZARDOUS MATERIALS



During the motorway’s construction and operation, both the constructor and the cooperating contractors and sub-contractors shall comply with all pertinent provisions, as they are recorded in the Greek Legislation.

Within this framework the “Environmental Legislation Monitoring Procedure” has been drafted, incorporating all existing pertinent legislation and updated in case the latter is amended or updated. The specific procedure

shall be copied to all parties who are obliged to then copy it to all cooperating sub-contractors.

Waste of any nature is managed based on the pertinent legislation and the constraints/ requirements imposed by the approved environmental terms, both for the Project’s existing and new sections.

The respective “Waste Management Procedure” has been prepared for the management of waste, documenting the existing legislative framework and the means/ directives for their management.

The respective “Water Resources Management Procedure” has been prepared for the management of water resources, presenting in detail all the constructor’s actions contributing to the minimization of the adverse impact the construction has on the adjacent water resources.

The respective “Hazardous Materials Selection and Procurement Procedure” has been prepared describing all the constructor’s actions contributing to the prevention of the uncontrollable use of hazardous materials during the Project’s construction period.



Nea Peramos OMC



Nea Peramos OMC



Kiato TB



Akrata TB

The quantitative results and environmental performance for both construction and operation, regarding materials recycling, mineral oil, batteries, vehicle tyres, hazardous materials management, pollution incidents, area restoration, excavation and demolition products for the 1st half of 2014 are briefly presented in appendice 4.

C.4 ENVIRONMENTAL PARAMETERS MONITORING PROGRAMME (NOISE MONITORING, TRAFFIC LOAD VIBRATIONS, AIR QUALITY, WATER)

The Constructor, based on the relevant study, designs, elaborates and implements a programme for the Project's environmental monitoring and audit, in order to ensure compliance with the Project's environmental requirements.

By this programme, environmental factors as noise, water and air pollution, waste, social disturbance, natural wealth, sensitive areas etc. are monitored

- *Existing Sections (EL-KO & PBP)*

Sound barriers: Following the "Special Acoustic sound barriers design" approved by EYPE/MEECC via document No 122052/8.3.2010 which also determined the barrier type

to be used, the barriers' installation along the Project's existing sections started and is for the most part completed. Their installation is foreseen to be completed within the EPD set by the Concession Agreement.



Noise Barriers locations at PbP

More specifically, taking into account the aesthetic/architectural requirements and the restrictions imposed by the constructions' static adequacy and road safety elements, the barrier surfaces created with transparent sheets used as much as possible are obviously not making the residents of the areas behind them feel "caged".

The barriers' formulation was based on the following architectural design principals:

- Selection of the proper dimensions for the vertical walls and combination with the transparent panels they support so as to achieve the best possible proportion of transparent and non-transparent parts of the overall barrier superstructure.
- Use of horizontal scotias on the narrow walls (they facilitate the wall's visual integration into the natural environment by breaking up its surface while also being compatible with the vehicles' horizontal direction).
- Alternation of walls and transparent panels so as to avoid - to the extent possible - a monotonous repetition of one single pattern.
- The reinforced concrete non-transparent panels have been placed with proper width variation so as to give a sense of varying degrees of density. This is done in an attempt to distract the viewer from any single part of the construction and make him/her see the whole picture.

Protective measures have also been taken to prevent birds from crashing on the barrier's transparent parts. To that end, suitable bird images have been stuck on the panels following the successful methods used in other similar cases.



Stickers are the most widespread method in Europe since it requires no a priori selection of potential sections to paint. Rather, one can a posteriori apply the stickers on the locations where birds are establish to fly and hence there is a risk of them crashing on the panel.

Approval is pending of the already submitted - to EYPE/MEECC - “Supplementary Special Acoustic Noise Protection Design and Special Noise Barriers Design” for “Elefsina-Korinthos” section, pertaining to the protection of “Isthmos Bridge” settlement in Loutraki - Perachora Mun., Korinthia Pref. Thus, the noise barriers proposed by the design cannot be placed in this area, yet.

Monitoring of air pollution & basic meteorological data:



Complying with the C.A.'s environmental requirements, the relevant technical specifications were determined referring to the procurement, installation and commissioning of two (2) permanent Air Pollution & Meteorological Data stations to monitor the impact of the motorway on the wider region.

Subsequently, the CJV conducted the relevant tender to find the suitable supplier for the procurement, installation and commissioning of these stations.

Based on the tender's results, a contract was signed (12/2013) with Purcon M.E.Π.E. - I.B. Καμπάς Ε.Π.Ε. joint venture. The stations' installation and commissioning process is



expected to be completed within the EPD set by the Concession Agreement.

- *New Sections (KO-PA)*

Along the Motorway’s new sections and within the framework of preparing the “Special Final noise protection Design & Special noise barriers Design” acoustic measurements were conducted to register the current traffic noise conditions (*TTE Environment S.A.*) for “Anc. Korinthos I/C - K1 Patra By-Pass I/C”, Mintilogli I/C - Kato Achaia” sections and Rio-Antirrio bridge road accesses. The design, which will also determine the barrier type to be used, is foreseen to be completed within the 2nd Semester of 2014.

- **Vibrations:** During the Project’s execution, due care is given to minimise vibrations caused by the construction activities to buildings and sensitive locations within the Project’s zone of influence. To that end, the installation is foreseen - at critical points - of measurement and recording systems (*EKSORYKSI S.A. or privately-owned working site equipment*) of all significant variables of the phenomenon (soil movement, speed and acceleration). The local working sites will keep complete records of the recorded data.

- **Water resources management:** Water resources management is conducted pursuant to the relevant legislation and the limitations/requirements arising out of the approved environmental terms both for the existing and the new project sections.

Towards better managing both surface and underground water resources, a respective “Water Management Procedure” has been prepared, citing the current legislative frame and the means/guidelines for water management. The procedure is being observed.



Based on the above and to protect surface and underground water resources during construction period, the local working sites prepare - where necessary - a water quality monitoring and assessment programme, while also keeping full records of the reports/data.

The areas and points where measurements are conducted are indicated by the Environmental Terms and the sensitivity of each eco-system.

The CJV by the enforcement of article 5 law 3010/2002 and in accordance with the provisions of article 11.2.1 of the Project's Concession Agreement proceeded in the elaboration of stream delineation designs (*D. Sotiropoulos & Co*) for the stream's section extended along the Projects construction zone or abutted to it and along Korinthos - Patras section for five hundred meters downstream. The designs are being submitted to the Technical Services of the local Prefectural Administrations for approval and any other administrative act necessary in order to be rendered fully effective.

Taking into account that:

1. 32-34 months have passed idle after the 60-day deadline from the submission of the above designs to the competent State services,
2. The requested delimitations designs are - under C.A. art. 14 - "Permits" and therefore C.A. art. 14.3 on the deemed issuance applies

the Constructor asked EYDE/MK/EPP to certify the deemed issuance of the above designs' Permit and publish it in the Government Gazette.

The above designs include the partial delineation designs for material extraction from Krathis & Finoikas rivers.

As a result, during the 2nd Semester of 2013 (see previous report) the Gov. Gazette Sheets were issued ratifying the delineation determination of the first ten (10) streams along KO-PA section. Specifically, for Zapanti, Peristeronas, Elisonas, Seliandros, Tholero, Katharoneri, Fonisa, Kato Pitsa, Skoupeiko, and Rozena.

In the 1st Semester of 2014 the following Gazette Sheet was issued ratifying the delineation determination along KO-PA section:

1. Tholopotamos stream (K.P. 59+713.58RB and 60+016.26LB) Gov. Gazette 290/Δ/1-7-2014.

The delineation designs for the rest KO-PA section's streams are under way including those pertaining to the stream parts where material is to be extracted from.

C.5 ENVIRONMENTAL IMPACT RESPONSE MEASURES DURING CONSTRUCTION

a. Geomorphology - Soil

In order to protect the soil from fuel leaks etc special areas with sealed floor and graded collection culvert ending in a sedimentation basin are provided for rinsing the machinery.



In the maintenance areas for the machinery or in other suitable and safe area, used oils from black oils change are temporarily stored. The management of the used black oils shall be in accordance with the provisions of PD 82/2-3-2004. The PD gives priority to collection and disposal black oils for regeneration treatment.

All necessary measures are taken in order to avoid erosion or filtration at the slopes during the tunnel construction and the water and clay supply to the final acceptor. The sediment before being disposed is being treated in apposite sedimentation tanks.

b. Geology

Special attention shall be paid during construction of sections passing by geologically sensitive zones, as in those areas stability problems might emerge at the formations. In those sections shall intervene as little as possible.

c. Ecosystems - Vegetation

In the areas where the structures are constructed, and mostly in the areas where bridges are constructed, shall be taken all the necessary precautions in order to avoid any impact on the riverside ecosystems. All possible efforts shall be made in order to use the fewer possible quantity of concrete. Where possible the use of gabions is preferred and the proper application/use of additives (e.g. betonite), which are used in order to add improved features to the boring effluents during the borings.

In some case the cleared vegetable materials are cut and temporary stored in mounds in



order to create organic fertilizer for future use in planting technical activities. After clearance, excavation, collection and temporary disposal of the superficial fertile soil layer follows.

d. Aerial pollution: During the Project's execution aerial pollutants are released and especially dust from the working sites. Depending on the distances from the nearest buildings (e.g. residencies) they could have adverse implications. This dust release is dealt with (by the local Working Sites) with great success by use of the following measures.

Control of the dust release is affected through simple management methods and the impact level greatly depends on the control measures applied at the source as follows:

- Sprinkling and often - effective clearing of routes within the site and the excavation areas,
- Interventions at the work surface - front where necessary, focusing on the excavations,
- Rain-water run-off to prevent particles from re-entering the atmosphere,
- Maximum speed limits along all non-asphalt-paved surfaces,
- Along the routes of the road building vehicle, the usual control methods are applies in the case of non-asphalt-paved routes ie, asphalt paving where feasible, stabelised pavement infrastructure, water soaking and traffic regulations (*aiming to reduce dust in the dry season and traffic-indiced erosion in the wet season*),
- Sprinkling during transfer and deposit of sand, aggregates or/and excavation materials significantly reduces released dust,
- According to greek law, all trucks transferring loose materials (e.g. excavation products) are covered. The vehicles entering or leaving the working site are clean.
- It is forbidden for the trucks to pass through settlements during quiet hours,
- Liquid rather than dry concrete is used in the mixing and preparation,
- All machinery and equipment used in works are in good condition and fulfill the manufacturer's specifications, thus minimising dust release.



Combined, the above measures comprise the so-called Best Management Practises. Given that:

- it is a linear project with many construction activities being conducted in parallel and now fast-track under the extremely tight completion time-schedule,

- the water resources available along the Project during summer season are limited,
any impact after the above measures are deemed slightly negative with a very short-term effect and can be dealt with.



The benefits from the project's timely completion will reach the residents of the areas temporarily "affected" as well as all other used (visitors, tourists etc) and will positively influence all financial parameters and activities in the areas (road safety, accessibility, faster transportation of people and goods, reduced transportation costs etc).

In any event and to further reduce dust, the Constructor is looking to implement - apart from the above - alternative solutions to the problem (*e.g. use of man- and environmentally-friendly biodegradable materials to maintain fixed humidity levels by turning watern repellent particles to hydrophilic ones and increasing agglomeration thus reducing dust and constantly absorbing new dust set on the street due to trucks constantly passing through*).

C.6 VEGETATION - PLANTING - ROAD CLEARING

The vegetation and planting pertain to the environmental integration and protection of the areas adjacent to the project.

- Existing Sections

In order to facilitate the fulfillment of the above obligations, a Final Planting Design (S. Voutsinos & Co) for the surrounding areas, the respective I/Cs, slopes and median strips

was developed for Elefsina - Korinthos section. This design was approved by the project's Independent Engineer.

The planting process is foreseen to be completed according to the approved works time-schedule. The planting of Patra By-Pass is in very good shape due to the "recent" construction and maintenance for the last period of time.

- New Sections

In order to facilitate the fulfillment of the above mentioned obligations the Construction Joint Venture conducted a relevant tender in order to find the suitable designer (agriculturalist, landscape architect) for the elaboration of Planting-Technical Design for Korinthos - Patra section.

Based on the tender's results the designer (*Klea Volovini*) was determined, the relevant agreement was concluded and the data collection commenced towards the elaboration of the Planting-Technical Design for the surrounding area, the respective I/Cs, embankment/cut slopes as well as the sections of the existing national road which shall not be included in the motorway. The design development process has began.

Cleaning

During the 1st semester of 2014, the OLYMPIA ODOS OPERATION S.A. personnel in collaboration with external subcontractors carried out and still does regular cleaning works along the entire project (202 km), in the 28 interchanges, the toll stations (lanes, booths, pavement, surrounding area, buildings), in the tunnels and in the 45 parking areas (washing, sweeping, waste removal from bins and surrounding areas).

It is noted that the cleaning pertains to the entire cross section until the expropriation limits.

The Operator's personnel and the competent subcontractors carried out regular trimming, weeding and cleaning works for the most part of the project, and specifically of 97 km of central reserve, 402 km of shoulders and of the 28 interchanges and their branches, as well as of the 45 parking areas.

C.7 MANAGEMENT OF EXTRAORDINARY INCIDENTS, ENVIRONMENTAL ACCIDENT, GREEN AREAS FIRE

Based on the "Emergency Procedure", there is a provision for the management and handling of "green areas fire" incidents, as well as for environmental accidents, such as substance leakage on the carriageway etc.

When working sites operate, all fire prevention measures are taken in order to prevent fire from working machinery, working teams, transportation of explosives and to minimize the danger of convection to the adjacent areas. The way according which the fire belt is organised, was controlled and approved by the competent Fire Service before the beginning of the works, so that fire management measures be taken in order to protect forest vegetation on road 's either side.

Especially regarding the Korinthos-Patra NNR, last year OLYMPIA ODOS proceeded - while in the middle of Suspension of works period and without being contractually obliged- to an extraordinary fire protection program after getting a study by a specialised forester, to actions such as: trimming bushes, tree branches, clearing tree trunks and forest floor, which could be characterized as heavy maintenance works and whose results cover this year as well.



These actions, in combination of course with the aforementioned works of preventive vegetation cleaning and waste removal carried out by the Operator, and the Construction works that have once again commenced after the Restructuring of the Agreement, contribute even more to the minisation of the vegetation and the risk of fire.

In order to assess the condition of the vegetation and the validity of the antforest fire measures undertaken, OLYMPIA ODOS S.A. this year contracted again a study to an expert forester. From this study is clear that the interventions made last year as well as the regular green maintenance routine carried out by OLYMPIA ODOS OPERATION S.A., in combination with the extended works in progress along the road, have minimized the forest fire risk along the forested areas from which the project passes through.

Within the framework of developing the fire hoses designs along the EKPPT motorway, maps were prepared depicting the forest land for “Elefsina - Korinthos”, “Ancient Korinthos I/C - Patra By-Pass K1 I/C” and “Patra By-Pass K1 I/C - Midilogli Semi-I/C” sections.

- In the framework of road safety, Olympia Odos Operation S.A. has Patrollers and Intervention Teams patrolling the Project with specially marked vehicles dealing with incidents (immobilized vehicles, accidents, traffic problems etc.) by implementing temporary signage to safely arrange traffic and assist the emergency services (Police, Fire Brigade and Paramedics). In this framework, during the first semester of 2014:

- 1,856,029 (about 10,250 per day) kilometers of Patrols and Interventions were covered to supervise the road network
- 10,277 incidents were handled with the Company's assistance, such as: 5,397 immobilized vehicles (mechanical failure, flat tire, lack of fuel, abandonment), 3,786 obstacles on the pavement, 519 road accidents (14 with injured and 505 with material damage), 374 user problems (pedestrians, vehicles moving in the opposite direction, non authorized users, dangerous traffic violations), 49 traffic congestions and 152 other emergency incidents (fire, adverse weather conditions, etc.) out of which:
 - 5,882 were handled immediately by the Company, since they were detected (located) by its own vehicles, or by its subcontractors' vehicles
 - 4,395 incidents were handled within 12' in average by the Company, since they were otherwise detected (phone, cameras etc.), while regarding the response of the subcontractors respectively: 17' for light vehicles and 33'' for heavy vehicles



The company's competent personnel (Intervention Teams) implement on a daily basis temporary signage for incidents and for the safe execution of works carried out on the road either by the Operation Company or the Construction Joint Venture. Regarding Korinthos-Patra NNR special attention is paid due to it features (no central reserve) and the sections with steep turns and limited visibility.

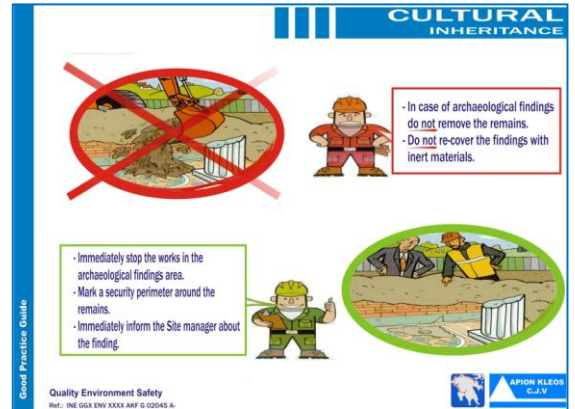
The Constructor shall work and cooperate closely with the Environmental Service and other departments of OLYMPIA ODOS S.A. in the application of the procedures - directives for the management of such issues.

C.8 ANTIQUITIES

Towards protecting cultural heritage and antiquities along the motorway, a principle which constitutes a prerequisite for the construction of the road, the Constructor is in direct contact and collaboration with the competent archaeological services. According to the Concession Agreement and the Design - Construction Contract, the Construction

Construction Joint Venture is responsible for the execution of archaeological investigations pursuing a recommendation by the pertinent archaeological service.

Works in the positions indicated in the Concession Agreement (article 13.1) and where there is a great potential of Antiquities being revealed have commenced.



Aerial photograph of Ancient Sikyona

Antiquities detailed data/activities are reported in the herein Appendix 3.

C.9 TRAINING - AWARENESS RAISING

**ACCIDENTAL
SOIL AND SUBSOIL POLLUTION**


1) What is accidental soil and subsoil pollution?
Pollution of soil or water occurring as a result from a sudden event beyond human control.
Example : bursting of a pipe on a plant, spill of diesel-fuel during fill-up of a truck, drum toppling over ...

2) How to prevent accidental pollution?
Make sure that storage areas are compliant (impermeable soil, retention container).
Get a licensed waste collector to evacuate any excess oil regularly.
Do not throw empty containers into grounds or rivers.
Have absorbent products available near risk-prone areas.

3) In case of accidental spill

a) **In a river**
Use spill management kits which include :

- Various sizes of chemical pillows (to absorb any chemicals spill and hydraulic oil).
- Chemical boom (to create a containment area on the water):




- 1) Wear gloves
- 2) Isolate chains (with chemical boom if necessary)
- 3) Use chemical pillows
- 4) Clean up
- 5) Place waste into disposal bags
- 6) Throw gloves and bags into hazardous waste container.

b) **On impermeable ground (workshop floor, concrete slab...)**
Use spill kits or absorbent powder or granules which are to be spread directly across the spill area(s).
The usage procedure is the same as described above.

c) **On permeable ground**
Shovel off the polluted soil and evacuate into hazardous waste container.

4) Open an environmental incident report
Fill in an improvement action sheet (refer to "Incident Report Form", AKFG03001)

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Environmental Awareness Training aims to reinforce knowledge and raise awareness about the environment, to develop the necessary skills, to form the right behaviour, to activate and make informed decisions and responsible actions.

The Construction Joint Venture is organizing training and briefing seminars whereas all internal inspections are accompanied by the training and briefing of all competent persons at working sites regarding issues and developments pertaining to the environment.




Each working site's environmental engineers are regularly organising meetings with all parties involved in the Project's construction, providing them with the suitable training and briefing.

The Construction Joint Venture's Environmental Department in cooperation with the project engineers conduct regular inspections, give the necessary instructions or directions pursuant to the Project's EMP regarding any arising environmental issue. To fulfill that goal, special reports are elaborated documenting the test results, proposing measures to deal with any environmental issues identified and accompanied by a complete photographic survey.

Environmental training during the Project's construction is divided in 2 categories. The first one pertains to the specialized environmental training of the staff related to the Project's environmental management (environment engineers, foremen in sensitive areas) and the second one to the general environmental training of the whole staff. The following table describes the whole number of hours (persons x time) for environmental training during 01/01/2014 - 30/06/2014.

**GUIDELINES
TO
CONSTRUCTORS & SUB-CONTRACTORS**

- 1** The Sub-contractor shall maintain the machinery presented for work in site areas in accordance to the manufacturer's instructions. In order to avoid excessive fuel consumption and potential fuel and lubricant leaks and to preserve exhaust gas emission at the lowest possible levels.
- 2** The Sub-contractor shall maintain devices and appliances for noise reduction during machinery operation in perfect condition and also draw the operator's attention towards the necessary use of sound warning devices (sirens, horns).
- 3** During the excavation, loading, unloading and road pavement works, every possible effort shall be made by the respective machinery operators and truck drivers towards diminishing dust generation.
- 4** The Sub-contractor's trucks used for the excavation and demolition products transport must be equipped with suitable body covers, which shall be used for limiting dust pollution during their movement.
- 5** The routes to be used for the Sub-contractor's trucks and machinery transport for the Project needs - primarily outside site areas - shall be selected using as a criterion the minimization of traffic obstruction and disturbance to the residents of the neighbouring areas.
- 6** Excavation and demolition products' dumping shall be conducted (following arrangements with the Company) in licensed appropriate areas and the Sub-contractor shall take all due care towards the sufficient documentation of the observance of the proper process.
- 7** Finally, the Sub-contractor shall take special care to ensure that the material, equipment and methodologies used during his works will have the least possible effect on the environment.

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TABLE	
TRAINING TYPE	TRAINING TIME (HOURS)
SPECIALISED TRAINING	80
GENERAL TRAINING	40