



**ATTIKO METPO A.E.**

**TITLE OF THE TENDER:**

**“DESIGN, PROCUREMENT, INSTALLATION AND COMMISSIONING OF TELECOMMUNICATIONS, LOW VOLTAGE AND CONTROL SYSTEMS IN THE THESSALONIKI METRO EXTENSION TO KALAMARIA”**

**RFP-380/20, Α.Σ. 92759**

**CLARIFICATIONS DOCUMENT**



**“DESIGN, PROCUREMENT, INSTALLATION AND  
COMMISSIONING OF TELECOMMUNICATIONS, LOW  
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**CLARIFICATIONS DOCUMENT**

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**TABLE OF CONTENTS**

**CHAPTER A  
RESPONSES TO QUESTIONS**

**CHAPTER B  
CDs CONTAINING INFORMATION**

## **CLARIFICATIONS DOCUMENT**

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This Clarifications Document is issued in line with the provisions of paragraph 8.2 of the Invitation to Tender; in Chapter A it includes responses to the questions submitted and in Chapter B it includes CDs with information related to the questions raised by the interested economic operators, as well as additional information data.

The content of the Clarifications Document constitutes an integral part of the Invitation to Tender.

### **A. RESPONSES TO QUESTIONS**

#### **Question 1**

In case of award of a sub-contracting work of a part of the contract, article 23.4 of the Conditions of Contract (CC) provides for that: “The Contractor shall not be entitled – in any case whatsoever – to award to sub-contractors/suppliers contracts representing a percentage over 50% of the overall value of the contract”.

If economic operators participate in the Tender in the form of a Joint Venture/temporary association of companies, the aforementioned percentage for the award of a sub-contracting work –as provided for in article 23.4 of the CC- is calculated based on the overall value of the Contract and not based on the value of the scope of works separately for each company participating in the Joint Venture/Association, i.e. to the extent that it is possible for each member to award on a sub-contracting basis a percentage higher than 50% of his participation percentage, provided that all sub-contracting works of all members do not exceed 50% of the overall value of the contract.

Please confirm that our interpretation of article 23.4 of the CC, as regards the method of calculation of the relevant percentage, is correct.

#### **Response 1**

Article 23.4 of the Conditions of Contract makes reference to the “approved” sub-contractors, stipulated in article 336 of Law 4412/16, who can be approved either during the process of the tender or during the execution of the contract and not to all kinds of suppliers that the Contractor will use during the execution of the Contract.

Therefore, as concerns the “approved” sub-contractors, there is the option for each member to assign – on a sub-contracting basis - a percentage over 50% of its participation, on condition that the overall sub-contracting work for all members does not exceed 50% of the overall value of the contract.

#### **Question 2**

Since a 3D coverage for CCTV simulation is required in the detailed design is required, kindly confirm that the 3D architectural drawings shall be made available as input in the Project phase.

#### **Response 2**

The Contract Documents are clear; they include the architectural drawings of the five (5) stations, while there is no provision for the 3D models to be made available as input. In no case are these models required.

## CLARIFICATIONS DOCUMENT

---

### **Question 3**

Kindly confirm that the requested interface between ICCS and SMS, UPS, Signalling/ATP/ATS/ATO/AFC, ECS/BACS and PSD is limited to the monitoring of the sub-system of the General Status alarms.

### **Response 3**

As regards all the aforesaid systems, the requested ICCS interface is not limited only to monitoring the General Status alarm. In some of the aforementioned interfaces, transmission of other data is also performed (e.g. data related to the positions of trains from the ATS to ICCS), while in other interfaces bi-directional data transmission is also performed. The Contract Documents are clear as to this point and remain valid as they stand.

### **Question 4**

Kindly confirm that, unless otherwise specified, the same ICCS interfaces with the subsystems must be taken into account in accordance with the Base Project (as regards the physical level, the communication protocol and the operability).

### **Response 4**

In case the interfaces are different than those of the Base Project, implementation thereof constitutes the responsibility of the Contractor of this contract. The Contract Documents are clear and remain valid as they stand.

### **Question 5**

In order to set the work limits, kindly confirm that:

- The fibre optic cables in the tunnel constituting the trunk network, including terminations and the Optical Distribution Frame (ODF)/Fiber Optic Distribution Panel at each location (e.g. stations/telecommunication rooms, OCC, shafts/transverse passages...) shall be provided by the Main Contractor (e.g. Civil Works, trackside works, E/M works package) and, thus, do not constitute a part of this contract.
- The access related fibre optic cables (as well as the copper cables/other types of cables) for the interconnection of the equipment that constitutes part of the field of supply of this contract with the ODF constitute part of this contract.

### **Response 5**

The Contract Documents are clear as to the segregation of the scope of works of this Contract and the contracts of other Contractors' and remain valid as they stand (see Part D – Chapter 1 of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems). The access related fibre optic cables (as well as the copper cables/other types of cables) for the interconnection of the equipment that constitutes part of the field of supply of this contract, as well as all cabling work related to their smooth operation constitute this contract's scope of works.

### **Question 6**

In order to set the work limits, kindly confirm that:

- The power supply, including the power distribution switchboard at each location (e.g. stations/telecommunication rooms, OCC, shafts/transverse passages...) shall be provided by the Lead Contractor (e.g. Civil Works, trackside works, E/M works package) and, thus, do not constitute a part of this contract.

## **CLARIFICATIONS DOCUMENT**

---

- The supply cables for the interconnection of the equipment that constitutes part of the field of supply of this contract with the electrical distribution switchboard constitute part of this contract.

### **Response 6**

The Contract Documents are clear as to the segregation of the scope of works of this Contract and of other Contractors' and remain valid as they stand (see Part D – Chapter 3 of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems).

### **Question 7**

As regards article 23.4 of the CC, kindly confirm that the requirement concerning the specified maximum percentage of 50% of the overall value of the contract refers only to contracts for a sub-contracting work of a part of the Contract (award of a part of the contract in the form of a sub-contracting work to third parties, as per article 23.1) and is not applicable to contracts for the supply of commercially available equipment and products to be provided for the design, supply, installation and commissioning of the required systems related to telecommunications/weak currents and the PRCS system.

### **Response 7**

Confirmed.

### **Question 8**

As regards article 23.4 of the CC, kindly clarify that the specified maximum percentage of 50% of the overall value of the contract does not apply cumulatively, i.e. it is calculated separately for the contracts awarded to sub-contractors and separately for contracts awarded to suppliers.

### **Response 8**

Valid shall be the content of Response #1.

### **Question 9**

According to article 20.3.1, item (d) of the Invitation, if the Bidder is a Societe Anonyme, submission is made, inter alia, of the “Proceedings of the Board of Directors approving the participation in the Tender which may also include an authorization to a specific person to sign and submit the offer if the legal representative of the economic operator himself does not sign the offer and the remaining required documents of the Tender”. Moreover, as per article 20.3.2, paragraph 1 of the Invitation, the following is required: “The Resolution issued by the BoD of the Company (or the statutory body concerned) approving the appointment of a representative for the signing of all relevant documents or statements related to the Tender, as well as for the submission and signing of the offer and any other required data until the contract signing date”.

The aforementioned article 20.3.2, paragraph 1, clarifies that the resolution is issued by the BoD of the company or the statutory body concerned. Please clarify whether the aforementioned provision concerning the “statutory body concerned” is also applicable for article 20.3.1, item (d), where a “Resolution issued by the BoD of the Company” is required, i.e. whether the Resolution made by the statutory body concerned is considered as a BoD Resolution in this case as well.

## **CLARIFICATIONS DOCUMENT**

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### **Response 9**

Article 20.3.1 item (d) of the Invitation refers to the case in which the Bidder is a Societe Anonyme; in this case, its BoD is the body responsible, in line with its statutory.

Article 20.3.2, paragraph 1, refers in general to the bidders, regardless the legal form of their companies, and this the reason why it is stated: “The Resolution issued by the BoD of the Company (or the statutory body concerned)...”.

Therefore, as far as S.A.s are concerned, as resolution made by the statutory body means the resolution made by the S.A’s Board of Directors.

### **Question 10**

According to article 20.3.2, paragraph 1 of the Invitation, it is required to have a “The Resolution issued by the BoD of the Company (or the statutory body concerned) approving...”.

- a) Please clarify whether in case of a Societe Anonyme, the Managing Director can be considered as the statutory body concerned who, based on the provisions of the company’s Statutes and the relevant BoD Resolution, has been assigned with the legal representation of the company and has been awarded with general powers to act by himself in the name and on behalf of the company, in the framework of the general management of the company, including participation in tenders, submission of offers, authorization of third parties etc.
- b) If you respond positively to the above question (a), please clarify whether the pre-conditions set in the aforementioned articles are covered, should the authorized -based on the above- Managing Director submits a Legal Statement to prove the provisions and requirements of articles 20.3.1, item (d) and 20.3.2 of the Invitation.

### **Response 10**

- a) If it is the Managing Director who, based on the provisions of the company’s Statutes and the relevant BoD Resolution, has been assigned with the legal representation of the company and has been awarded with general powers to act by himself in the name and on behalf of the company, in the framework of the general management of the company, including participation in tenders, submission of offers, authorization of third parties etc., then no special resolution be the BoD is required, for this specific tender.
- b) The submission of a Legal Statement is not accepted. The submission of a relevant Resolution of the BoD is required.

### **Question 11**

RFP-380-20: Specifications K\_LV\_DP015460: The critical and/or sensitive sub-systems in the OCC, the ECR and the peripheral stations shall be connected via redundant pairs to a 3<sup>rd</sup> sub-system in the form of a stand-by inactive redundancy.

Clarifications: Kindly confirm that the word “sub-systems” means the PRCS sub-systems installed in the OCC, the ECR and at stations. Please also specify the meaning of “3<sup>rd</sup> sub-system”.

### **Response 11**

It is confirmed that the term “sub-systems” means the PRCS sub-systems.

## CLARIFICATIONS DOCUMENT

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The term “3<sup>rd</sup> sub-system” means the SCADA - Traction and Surveillance System of the Rectifier Sub-station equipment from the Station Master Room (SMR) installed by the main Contractor of the Extension to Kalamaria.

### **Question 12**

RFP-380-20: Specifications K\_LV\_DP015460: Other less critical sub-systems in the OCC, ECR and the peripheral stations shall be either in pairs, as regards operation, or with one active stand-by 1 in N after agreement with AM.

Clarifications: Kindly specify the meaning of “with one active stand-by 1 in N”.

### **Response 12**

The precise redundancy in other less critical sub-systems depends on the importance of each sub-system and of the relevant equipment and, thus, it shall be determined by the Contractor during the Detailed Final Designs stage and shall be approved by ATTIKO METRO S.A.

### **Question 13**

RFP-380-20: Specifications K\_LV\_DP015460: The Contractor shall pay special attention to the noise levels generated by the printers.

Clarifications: Kindly specify the required noise level for the printers.

### **Response 13**

The required noise level generated by the printers in closed areas should comply with the levels determined by the Greek Legislation and the International Standards.

### **Question 14**

Conditions of Contract (CC): Completion of the design, procurement, installation, testing and commissioning of all telecommunications, low voltage and power remote control systems included in this contract which concerns the Thessaloniki Metro Extension to Kalamaria, including also the completion of all obligations ensuing from the contractual documents for the sound execution of the contract.

Clarifications: The main assumption that must be taken into account in the analysis of the detailed Time Schedule is that all necessary information and all interfaces with third parties would have been identified on the day the contract is to be signed (T0).

Kindly proceed to the correction of the aforementioned assumption in case it is not valid.

### **Response 14**

Upon Contract signing, it is anticipated that the interfaces and necessary information would have been identified. However, in order to provide sufficient time for the collection of the subject data, the time to be taken into account for their delivery is as follows:

1. Interfaces and information shall be provided by ATTIKO METRO S.A. within 30 days maximum from the Contract signing.

In view of the above, article 9.2 of the Conditions of Contract is also modified as follows:

“During the compilation of his Time Schedule, the Contractor shall take into account the following:

1. Interfaces and information shall be provided by ATTIKO METRO S.A. within 30 days maximum from the Contract signing”.

## **CLARIFICATIONS DOCUMENT**

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### **Question 15**

Conditions of Contract (CC): Conditions of Contract (CC): Completion of the design, procurement, installation, testing and commissioning of all telecommunications, low voltage and power remote control systems included in this contract which concerns the Thessaloniki Metro Extension to Kalamaria, including also the completion of all obligations ensuing from the contractual documents for the sound execution of the contract.

Clarifications: Testing and commissioning of the “Extension to Kalamaria Project” shall be carried out by using the Base Project trains.

Kindly proceed to the correction of the aforementioned assumption in case it is not valid.

### **Response 15**

The assumption that “tests and commissioning of the “Extension to Kalamaria Project” shall be carried out using the trains of the Base Project”, is correct as regards the majority of the necessary tests and should be taken into account. However, it is stressed that specific tests and checks must be executed on the New Trains as well once these trains are available.

### **Question 16**

Kindly provide the architectural drawings for false ceilings, so that it is possible to pre-assess the type of loudspeakers to be required for each part of the station. (Information provided in the plan views about the type of false ceiling per area is not adequate, since in some areas reference is made to more than one types of false ceiling without showing the dimensions of each type of false ceiling).

### **Response 16**

The aforesaid requested information shall be made available by ATTIKO METRO S.A. to the Contractor during the phase of the Designs that he will compile. The Contract Documents are clear and remain valid as they stand.

### **Question 17**

Kindly provide the coordination drawings (or partial designs) presenting, as a minimum, the Low Voltage trays, the High Voltage trays, the locations of Switchboards to be used for the supply of the systems under design, as well as the Station Announcement Points (SAP) at the platforms. This information is necessary in order to assess the cable routing and the respective cost for cabling.

### **Response 17**

The current coordination drawings are included in a CD, enclosed herewith. See also response 158.

### **Question 18**

Kindly provide a series of documents and “AS BUILT” drawings for at least for one typical Station, a tunnel intersection and a typical shaft of the Base Project, if available, or an approved Detailed Final Design (DFD) for the respective Telecommunication systems.

### **Response 18**

The aforesaid requested information shall be made available by ATTIKO METRO S.A. to the Contractor during the phase of the Designs that he will compile. The Contract Documents are clear and remain valid as they stand.



## **CLARIFICATIONS DOCUMENT**

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### **Question 19**

Kindly provide the documents and “AS BUILT” drawings (along with the diagrams) or of the approved Detailed Final Design (DFD) of the main OCC and the backup OCC for the respective Telecommunication systems. The content of these designs is deemed necessary, so that it is possible to specify the works of this Tender as accurately as possible, for all points of interface with the existing systems of the Base Project.

### **Response 19**

The aforesaid requested information shall be made available by ATTIKO METRO S.A. to the Contractor during the phase of the Designs that he will compile. The Contract Documents are clear and remain valid as they stand.

### **Question 20**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 7.1.1, stipulates that: “The Contractor shall design, supply, install, test and commission a modern Public Announcement (PA) System, which will be used to make announcements and issue on time warnings to passengers in all areas of the Thessaloniki Metro extension to Kalamaria”.

Kindly confirm that the text “in all areas of the Thessaloniki Metro extension to Kalamaria” means “in all concourse areas of the stations”, as also mentioned in the following paragraphs of the document.

### **Response 20**

It is clarified that, apart from the usual Public Areas (e.g. platforms, ticketing areas, etc.) and as described in paragraphs 7.2.4 and 7.2.5 of the Specifications, the passengers’ escape routes in the stations shall be covered by the PA system. Escape routes also integrate the respective escape staircases.

### **Question 21**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 7.2.4, stipulates that: “There will be sound coverage throughout the passenger path from the moment they enter the station up to the moment they enter the train in all doors used by the operation and maintenance personnel (including escape routes) and in all doors easily accessible by the public”. Kindly specify the referenced “escape routes”.

### **Response 21**

It is stressed that “escape routes” means all routes that the passengers can use for exiting the area they are in, under normal operation conditions and emergencies / area evacuation related incident. The escape routes are shown on the stations’ architectural drawings delivered to you; the subject escape routes also integrate the respective escape staircases. The Contract Documents are clear and remain valid as they stand.

### **Question 22**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 7.2.5, stipulates that: “The Public Announcement System shall offer

## **CLARIFICATIONS DOCUMENT**

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sound coverage via loudspeakers to all passenger areas, concourse areas, escalators and lifts in stations, in the escape routes, tunnels, or elsewhere required”.

Kindly clarify whether the reference to “tunnels” also includes the track tunnel sections between stations. Moreover, please specify which other areas require sound coverage, which can be included in the term “elsewhere required”.

### **Response 22**

It is stressed that no sound coverage is required via the Public Announcement System within track tunnel sections, where trains are moving. Reference to “tunnels” means that there is sound coverage adjacent to the tunnel entrances from the Station’s side and to the tunnels / galleries within station areas where passengers are circulating. Reference to “elsewhere required” means that there is sound coverage in all areas where passengers are passing by. The Contract Documents are clear and remain valid as they stand.

### **Question 23**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 7.2.2, stipulates that: “Each new station shall be fitted with the appropriate equipment receiving the necessary messages and information on the operation status of the Metro Base project in general and the Kalamaria extension and shall inform passengers through the appropriate loudspeakers of the PA system in platforms, public areas and concourse areas”.

Kindly confirm that no other equipment of the PA system (apart from the microphones of the noise system) is foreseen for the receipt of messages and information about the operation status of the entire Metro system and that information shall be received only via interfaces, as specified in paragraph 7.7.1 of the same document.

### **Response 23**

The question is not clear, since you state that the Public Announcement System relates to the receipt of messages and information about the operation status of the entire Metro system, which is not the case. What is valid is that information is received only through the interfaces with other systems or further to the Station Master’s relative actions (e.g. telephone call to the OCC).

### **Question 24**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 10.1.6, stipulates that: “The Contractor shall provide a risk and threat analysis necessary to design the safety and security systems for the protection of passengers, personnel and, in general, of the equipment in the extensions”.

Kindly clarify that the subject design refers to the qualitative risk analysis of the systems’ operation and concerns only the scope of this contract.

### **Response 24**

The Contract Documents are clear and remain valid as they stand.

## CLARIFICATIONS DOCUMENT

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### **Question 25**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 10.3.9, stipulates that: “All data shall be locally recorded at the new stations but also at the OCC. The Contractor shall ensure sufficient capacity for meeting the needs of the system. The Contractor shall ensure the appropriate sizing of the events recording system, including also the events recording equipment in the Depot, should this be required”.

Kindly clarify the time required for data keeping in the recording system.

### **Response 25**

The time required for data keeping in the recording system is as defined by the Greek and European Legislation.

### **Question 26**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 11.2.5, stipulates that: “Along the entire route of the passengers, from the entrance to the station to the train boarding, all the doors destined to be used by the operation and maintenance personnel (including the escape routes), but also any door easily accessible to the public shall have PIS screens at appropriate critical points”.

Kindly clarify whether PIS screens shall be placed on the doors destined to be used by the personnel and, in this case, whether their characteristics shall be notified or not.

### **Response 26**

It is not required for PIS screens to be placed on the doors to be used by the personnel. PIS screens shall be placed at the station platforms (two double sided screens) and two single sided screens shall be placed at the ticketing level or at the concourse level.

### **Question 27**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 11.2.7, stipulates that: “As regards the trains travelling on the extension to Kalamaria, they shall also be fitted with PIS screens, in order to inform passenger at boarding time about the operation status at the Base Project and at the extension, including also visual notifications in case of delays or problems. These screens are provided by the train manufacturers and are not included in the scope of this Contract”.

Kindly notify information about the on-board PIS system (drawings, diagrams), in order to specify the required interface.

### **Response 27**

As mentioned above, the PIS screens are provided by the train manufacturers and are not included in this Contract. The aforesaid information shall be made available by ATTIKO METRO S.A. to the Contractor at the phase of the Designs that he shall compile

**CLARIFICATIONS DOCUMENT**

**Question 28**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 11.4.3, stipulates that: “The normally operating PIS central unit in the OCC shall be fed with the relevant information fully automatically from the central ATS signalling system, i.e. real-time data (in terms of train itineraries and departures from the scheduled itineraries)”.

Kindly notify information about the central ATS signalling system (drawings, diagrams), in order to specify the required interface.

**Response 28**

Sufficient information has already been made available in the Chapter of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Further information available to ATTIKO METRO S.A. shall be provided to the Contractor at the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

**Question 29**

Document “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 11.4.16, it is stated that: “The PIS system screens to be installed in the stations of the extension to Kalamaria will have at least the following technical characteristics:

- .....
- They shall be combined with double faced clocks, or alternatively, they shall directly display the time”.

Kindly notify information about the Clocks system and clarify whether there are independent double faced clocks and in which areas.

**Response 29**

Sufficient information has already been made available in the Chapter of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Further information available to ATTIKO METRO S.A. shall be provided to the Contractor at the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand. In any case, the description of the Clock System of the Base Project is included in a CD in the information data of this Clarification Document.

**Question 30**

Kindly provide with the following designs at Detailed Final Design (DFD) level, namely:

COORDINATION DRAWING	PONTOU SHAFT, GENERAL LAYOUT, PLAN VIEWS & SECTIONS
	TERMINAL SHAFT, GENERAL LAYOUT, PLAN VIEWS & SECTIONS

**CLARIFICATIONS DOCUMENT**

	<p>MIKRA FORESTATION GENERAL LAYOUT, PLAN VIEW</p> <p>MIKRA FORESTATION CUT AND COVER TYPICAL CROSS-SECTION ON A STRAIGHT LINE</p> <p>NOMARCHIA CROSSOVER, GENERAL LAYOUT, PLAN VIEWS - SECTIONS</p>
TUNNEL	TBM TUNNEL TYPICAL CROSS-SECTION
E/M ACTIVITIES	20KV MV GENERAL SINGLE-LINE DIAGRAM – KALAMARIA EXTENSION
20KV NETWORK	SINGLE LINE DIAGRAM FOR 20KV MV SWITCHBOARDS - LAS & MV
KALAMARIA STATION	<p>SINGLE LINE DIAGRAM FOR LAS</p> <p>LAS, TECHNICAL ROOM (3.2-3.3), PLAN VIEW - SECTIONS</p> <p>SINGLE-LINE DIAGRAM FOR 400 AC GENERAL LOW VOLTAGE SWITCHBOARD</p>
TRACTION AND THIRD RAIL SYSTEMS	<p>750V DC GENERAL SINGLE-LINE TRACTION DIAGRAM (INCLUDING THE INTERCONNECTION WITH THE MAIN LINE – PATRIKIOU LINE)</p> <p>SINGLE-LINE DIAGRAM OF RECTIFIER SUB-STATION</p> <p>20KV PPC SUB-STATION ROOM (3.10) – EQUIPMENT LAYOUT AND 20KV MV POWER CABLES' ROUTING</p>
110V DC SYSTEM	110V DC POWER DISTRIBUTION DIGRAM FOR LAS
TELECOMMUNICATIONS	AUTOMATIC TELEPHONY SYSTEM – SCHEMATIC DIAGRAM

**CLARIFICATIONS DOCUMENT**

	<p>DIRECT TELEPHONE SYSTEM – INTER-COMMUNICATIONS</p> <p>CENTRAL NETWORK OF FIBER OPTIC CABLES – GENERAL LAYOUT</p> <p>SCHEMATIC DIAGRAM – CLOCKS SYSTEM</p> <p>INFORMATICS SYSTEMS INFRASTRUCTURE</p>
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**Response 30**

The CDs enclosed with this Clarification Document include some of the data requested above (current coordination drawings, tunnel cross sections drawings, single-line diagrams, etc.) Further information shall be provided to the Contractor at the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

**Question 31**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS-par. GENERAL. Kindly, communicate the following, namely:

- 1) System’s Architecture
- 2) Detailed installation drawings, to show the equipment to be installed
- 3) Manuals for Installation Operation – Use of the following systems. More specifically:
  - a) Automatic digital telephone system – PABX
  - b) Direct Line Telephony (DLT)
  - c) Traction Current Removal (TCR)
  - d) Intercommunication System
  - e) Building Automation Control System (BACS)
  - f) Automatic Fare Collection System (AFC)
  - g) Time Distribution and Clocks System
  - h) Stations’ IT Infrastructure System
  - i) Management Information System (MIS)

**Response 31**

Sufficient information has already been made available in the Chapter of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems, as well as in the CDs enclosed herewith. Further information shall be provided to the Contractor at the phase of the Designs that he shall compile.. The Contract Documents are clear and remain valid as they stand.

**Question 32**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS-par. GENERAL

Kindly provide to us the characteristics of the fiber optic installed by the main Contractor.

## **CLARIFICATIONS DOCUMENT**

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### **Response 32**

Sufficient information has already been made available in Part D of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems. Further information shall be provided to the Contractor at the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 33**

Kindly, communicate to us the following multi-line drawings:

1. MV power sub-stations
2. Lighting sub-stations
3. LAS sub-stations
4. Low Voltage switchboards of Lighting sub-stations
5. LAS Low Voltage switchboards
6. Traction sub-stations
7. DC breaker switches
8. Traction circuit breakers
9. Remote control circuit breakers
10. DC breaker switches in the Depot area
11. 750V DC switchboards
12. Traction Circuit Removal (TCR) system switchboards
13. Emergency general release system switchboards of Traction Sub-stations

### **Response 33**

Sufficient information has already been made available in the Chapter of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the provision of the existing systems, as well as in the CDs enclosed herewith. Further information available to ATTIKO METRO S.A. shall be provided to the Contractor at the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

## CLARIFICATIONS DOCUMENT

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### **Question 34**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS-DTS – paragraph 5.2.8:

Moreover, the DTS system must support either directly or indirectly the Kalamaria Extension trains at stopping points or if they are standstill.

Kindly define your reference to “either directly or indirectly”.

### **Response 34**

The Digital Transmission System (DTS) is not related to the trains, which are mainly using the Digital Communication System (DCS) for digital (data) transmission operations.

The Contract Documents are clear and remain valid as they stand.

### **Question 35**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS-DTS – paragraph 5.4.2:

In view of the best utilization of the re-routing option, the DTS system shall be designed in such a way so as alternative routing methods – both at physical and logical levels – be foreseen.

Kindly confirm that the alternative routing method at physical level constitutes the Main Contractor’s responsibility.

### **Response 35**

The alternative routing method shall be also supported by the equipment offered by this Contract. The Contract Documents are clear, as to the segregation of the scope of works of this Contract and the contracts of other Contractors and remain valid as they stand.

### **Question 36**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS-PA- paragraph 7.2.11:

The listening microphones of the PA system located on each platform and in the ticketing area, combined with specified CCTV cameras at the platform and concourse levels, shall be connected to the CCTV system.

Kindly confirm that this requirement is satisfied through the use of a camera with a microphone.

### **Response 36**

The question has been cut to the middle of the sentence of the Specification and this fact alters its meaning. It is clarified that the requirement concerns the control performed by the station master or the OCC of the area (e.g. platform) where a passenger makes a request via the microphone through which he/she communicates with the station master, which (microphone) once activated, should in its turn activate the appropriate – most adjacent – CCTV camera for the required control to be made.



## CLARIFICATIONS DOCUMENT

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### **Question 37**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS-PA – paragraph 7.7.2 :

The Contractor’s design shall take into consideration the required interface points between the PA system on board the train and the ATS System/ Signalling, Public Announcement (PA).

Kindly communicate the following to us, namely:

- 1) System’s Architecture
- 2) Detailed installation drawings, to show the equipment to be installed
- 3) Manuals for the Installation Operation – Use of the following systems: 1) PA on board the train and 2) ATS / Signalling

### **Response 37**

Further information shall be provided to the Contractor at the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 38**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – CCTV – paragraph 8.2.5:

As a means of support, rotating cameras must be placed to play an auxiliary role -at some points- to the fixed cameras, as well as to assist in controlling the stations, especially at peak hours and especially in case of special events.

Kindly clarify the areas where rotating cameras should be installed.

### **Response 38**

It is stressed that rotating cameras should be placed at suitable points in the concourse level. This shall be determined at the Final Design and the Detailed Final Design phases by the Contractor of this contract. The Contract Documents are clear and remain valid as they stand.

### **Question 39**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – CCTV – paragraph 8.2.11:

The Contractor shall be responsible for the overall integration and management of the CCTV system at Kalamaria extension and on board the trains (18 initial trains of the Base Project and 15 new ones of Kalamaria extension). The on-board transmission of cameras shall be effected through the radio DCS signalling system, as in the Thessaloniki Metro Base Project.

Kindly communicate the following to us, namely:

- 1) System’s Architecture
- 2) Detailed installation drawings, to show the equipment to be installed
- 3) Manuals for the Installation Operation – Use of the following systems: 1) CCTV on board the trains and 2) Radio DCS signalling system.

### **Response 39**

Sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and

## CLARIFICATIONS DOCUMENT

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Low Voltage Systems describing the supply to the existing systems. Any further information shall be made available to the Contractor during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.. In any case, the onboard CCTV system and the DCS wireless data transmission system are not parts of the scope of this tender.

### **Question 40**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – CCTV – paragraph 8.4.36:

The possibility to support VIDEO ANALYTICS functions shall exist in the future by using the appropriate software.

Kindly clarify the capabilities of VIDEO ANALYTICS.

### **Response 40**

The Contractual Documents are clear and remain valid as they are. As mentioned above, the option for future support for Video Analytics should be available and the ability to provide at least the basic features of such a system. This requirement applies to the entire CCTV equipment.

### **Question 41**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – CCTV – paragraph 8.8.1:

Via the DLT system so that, upon activation of the DLT emergency devices, the respective camera that surveys an area is activated.

Kindly clarify that activation of the camera means the pop-up display to the operator of the OCC and of the Station Master.

### **Response 41**

We confirm that what is meant is the pop up display of the image to the OCC operator and the Station Master when activating the relevant camera.

### **Question 42**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – CCTV – paragraph 8.8.1:

Via the CCTV system on the initial trains of the Base Project and the new trains to be added in the framework of the extension to Kalamaria.

Kindly communicate the following to us, namely:

- 1) System's Architecture
- 2) Detailed installation drawings, to show the equipment to be installed
- 3) Manuals for the Installation Operation – Use of the following systems:1) CCTV on board the trains.

### **Response 42**

Please see response No. 39.

## **CLARIFICATIONS DOCUMENT**

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### **Question 43**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – SMS – paragraph 9.3.2:

The Contactor shall incorporate the software of the system of the Kalamaria extension into the central unit (DMT) of the SMS and into the ICCS system central unit located at the OCC and the ECR of the Thessaloniki Base Project.

Kindly communicate the following to us, namely:

- 1) System's Architecture
- 2) Manuals for the Installation Operation – Use of the following systems: 1) SMS System of the Base Project.

### **Response 43**

Sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems, while additional information regarding the ICCS system is also attached. Any further information shall be the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 44**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – SMS – paragraph 9.3.10

...the SMS system shall feature interfaces with the Building Automation Control System (BACS), the signaling subsystem (ATS),...

Kindly communicate the following to us, namely:

- 1) System's Architecture
- 2) Detailed installation drawings, to show the equipment to be installed
- 3) Manuals for the Installation Operation – Use of the following systems: 1) Building Automation Control System (BACS) and 2) ATS / Signalling.

### **Response 44**

Sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Any further shall be made available to the Contractor the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand

### **Question 45**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – ICCS – paragraph 12.1.3:

Signalling/ Automatic Train Protection/ Automatic Train Supervision/ Automatic Train Operation (ATP/ ATS/ ATO), Automatic Fare Collection (AFC), Environmental Control System / Building Automation Control System (ECS / BACS), Direct Line Telephony System (DLT)

Kindly communicate the following to us, namely:

- 1) System's Architecture

## **CLARIFICATIONS DOCUMENT**

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- 2) Detailed installation drawings, to show the equipment to be installed
- 3) Manuals for the Installation Operation – Use of the following systems: 1) ATS / Signalling, 2) Automatic Train Operation, 3) Automatic Fare Collection, 4) Environmental Control System / Building Automation Control System (ECS / BACS) and 5 Direct Line Telephony System (DLT)

### **Response 45**

Sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Any further information shall be made available to the Contractor during the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 46**

Document RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS – Part C – Digital Transmission System – DTS - General.

For the purpose of interconnecting the digital transmission system and in view of avoiding any incompatibility of equipment items, a detailed list of the active equipment – installed in the Base Project – should be provided. This list should include the following as a minimum: a) precise type, b) the firmware software version, c) both protocol and settings for ensuring the loop.

Kindly state the existing free ports for the connection of the active equipment’s fiber optics to 25 Martiou STATION. Kindly provide the detailed final design of the network’s architecture at Levels 2 and 3 per OSI (Open Systems Interconnection).

### **Response 46**

Sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Any further information shall be made available to the Contractor during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 47**

The Document entitled: “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 5.3.7 stipulates as follows: “The DTS of Kalamaria extension shall be integrated into the existing NMS of the Base Project, while the appropriate customization shall be implemented therein».

As regards the NMS system, kindly provide the software and its version, as installed in the Base Project. In addition, kindly clarify the characteristics and configuration of the server, integrating the NMS software.

### **Response 47**

Sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Any further information shall be made

## **CLARIFICATIONS DOCUMENT**

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available to the Contractor during the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 48**

The Document entitled: “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 5.4.11 stipulates as follows: “In order to protect the metro-wide network and to separate users, firewalls/routers shall be installed in each location”.

In order to protect the metro-wide network, kindly state the characteristics of the router/firewall installed in the base project, including as a minimum: a) precise type, b) the firmware software version. Kindly define the required safety policy in the base project and the safety protocols.

### **Response 48**

All the necessary measures shall be taken to ensure the security and protection of the network in the Metro system, as required and specified in the contractual documents. Any further information shall be made available to the Contractor during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 49**

The Document entitled: “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 5.5.3 stipulates as follows: “...1+1 redundancy for internal ventilator module...”.

Kindly clarify whether the 1+1 redundancy refers to the entire node or to the node unit integrating the ventilator module.

### **Response 49**

Redundancy refers to the units as defined in the contractual documents. The Contractual Documents are clear and remain valid as they stand.

### **Question 50**

The Document entitled: “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, PART C CURRENT TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS stipulates as follows: “The general architecture of the TETRA System for Thessaloniki Metro Base Project is presented below along with the implementation of the interconnection of all stations with the OCC and the ECR.”

Kindly provide a more detailed and clearer diagram of the base project’s existing TETRA system architecture.

### **Response 50**

A TETRA system diagram is included in the CDs enclosed herewith. Any further information shall be made available to the Contractor of this tender during the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

**CLARIFICATIONS DOCUMENT**

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**Question 51**

Document K\_LV\_DP015460 DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR POWER REMOTE CONTROL SYSTEM (PRCS) stipulates that the peripheral units will be connected to the central parts of the base project and to the equipment to be installed by the contractor of the Kalamaria extension. Given the quantity and the importance of the interfaces, many technical data of the items of equipment that has been either installed or is to be installed are required in order to identify the technical solution needed; however these data are not included in the documents of the invitation to tender, as stated in paragraph 1.10 of the aforesaid document. More specifically, the following information is required as a minimum; once submitted, the subject information may give rise to further questions:

- i. Technical data of the FEP-TCI equipment of the OCC and the Emergency Control Center (ECC) related to the communication of the new peripheral stations, including:
  - Detailed technical description and data of the FEP-TCI, including the communication with the peripheral units for the identification of the capacity, as referred to in paragraph 7.9.2 of the document
  - FEP-TCI Electrical drawings
  - Logical diagrams for the operation of PLCs
  - Manufacturing firm and type of PLCs
  - Manufacturing firm and type of Router / Switches
  - Communication protocols with the peripheral units
  - Communication protocols with the Servers
  - System's expansion options.
- ii. Detailed data about the software used for the presentation and control of the sub-stations' equipment, such as:
  - Manufacturing firm of the software and its version
  - Operation manuals of the system in order to identify whether (and in which way) it can integrate data of the new equipment developed by another manufacturing firm or if an intervention only by the existing supplier is required
  - Communication protocols with the Servers
  - Requirements concerning the signaling of the equipment
  - System's expansion options.
- iii. As concerns the stations integrating RSs (paragraph 2.1 Schematic diagram PRCS):
  - Technical description of the communication of logic controllers, referred to as "RS PLC"
  - Electrical drawings of the cabinets wherein the logic controllers, referred to as "RS PLC", are installed
  - Logical diagrams of the logic controllers, referred to as "RS PLC"
  - Manufacturing firm and type of PLCs, referred to as "RS PLC"
  - Manufacturing firm and type of Router / Switches, that may be used
  - Communication protocols with the logic controllers, referred to as "RS PLC"
- iv. Restrictive technical data concerning the interconnection with the existing system, such as cables, fiber optics, data cables, etc., that must be used on the basis of the equipment of the base project that has been installed or is to be installed.

## **CLARIFICATIONS DOCUMENT**

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v. Technical data concerning the RTUs peripheral units - either installed or to be installed – so that a technical solution ensuring that the new equipment will be similar to the old one, as foreseen in paragraph 10.5.11 of the document, can be feasible. The following will be needed as a minimum, namely:

- Detailed technical description
- Electrical drawings of the units
- Logical diagrams for the operation of PLCs
- Manufacturing firm and type of the PLCs and their peripherals, such as input/output cards, analog ones, etc.
- Manufacturing firm and type of Router / Switches
- Communication protocols

### **Response 51**

Any further information shall be made available to the Contractor of this tender the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 52**

Document entitled: K\_LV\_DP015460 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR POWER REMOTE CONTROL SYSTEM (PRCS)”, in paragraph 1.10 stipulates as follows: "The information presented in this Specification may not cover all the design criteria in details, such as, communication protocol, WAN/LAN network, software development, hardware / software integration, interface requirements, graphic displays etc. All information related to the existing system shall be made available to the Contractor upon his request to AM. The Contractor shall be responsible to the needed details in order to implement the system's extension as required". Given that the information to be provided is critical in view of identifying the appropriate technique, the submission of the required technical data may give rise to further questions.

Kindly clarify whether the required time is going to be granted for submitting the relevant questions, further to the provision of information.

### **Response 52**

Any further information shall be made available to the Contractor of this tender during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

The information provided in this specification is sufficient to identify te details of the systems to be offered.

### **Question 53**

Document entitled: K\_LV\_DP015460 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR POWER REMOTE CONTROL SYSTEM (PRCS)”, in paragraph 10.5.11 stipulates as follows: "The firmware of the equipment within the RTU's cubicles shall be identical and exchangeable in the new RTU's cubicles at the peripheral stations."

## **CLARIFICATIONS DOCUMENT**

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Kindly clarify the extent to which this requirement is binding, in case the equipment that has been installed or is to be installed has been abolished and the new equipment cannot be exchangeable with the former one.

### **Response 53**

In any case it is the Contractor's responsibility to ensure compatibility and smooth operation of the offered equipment in relation to the existing.

### **Question 54**

Document entitled: K\_LV\_DP015460 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR POWER REMOTE CONTROL SYSTEM (PRCS)” describes that the equipment of the new peripheral units shall be controlled by the software that has either already been installed or is to be installed. Kindly confirm that this is an “Open Source” software, i.e. the addition of the new stations can be performed, graphically and functionally, without being necessary for the specific supplier of the system to intervene in the base project. In any other case, kindly provide us with all necessary information about the software and the supplier / designer of the system.

### **Response 54**

Any further information shall be made available to the Contractor of this tender during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 55**

Document entitled: K\_LV\_270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, in paragraph 2.4 stipulates as follows:

“...The Contractor shall also provide systems, additional equipment and operations not mentioned or clearly specified in this Performance Specification, but required for the safe and reliable operation of the aforementioned systems, taking into account the fact that the Project operation is ensured via automatic trains. Moreover, in case additional requirements are identified for the installation of a structured cabling serving the Digital Data Transmission and the UPS systems, these must be provided by the Contractor of this Contract”.

Kindly clarify which systems, additional equipment and operations you refer to.

### **Response 55**

In case additional requirements emerge in the DFD phase of the systems offered by the Contractor of this contract, both in relation to the equipment and in relation to the wiring and networking, these requirements shall be satisfied by the Contractor of this contract, so as to ensure the safe and reliable operation of the systems.

### **Question 56**

Document entitled: K\_LV\_270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, in paragraph 3.4 stipulates as follows:



## CLARIFICATIONS DOCUMENT

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“The Thessaloniki Metro network shall operate as a driverless system, i.e. without any human intervention being necessary from the On Board Personnel (Train Attendants) during normal operation. For more information, please refer to the Planning Manual of the main contract for the extension to be provided to the bidders as information document, in the framework of this Tender. The Telecommunication and Low Voltage sub-systems should meet the aforementioned operation requirements”.

Kindly provide us with the Planning Manual of the main contract of the Extension.

### **Response 56**

Please find attached the Planning Manual for the extension to Kalamaria (In English and in Greek).

### **Question 57**

Document entitled: K\_LV\_270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, in paragraphs 3.6 and 3.7, stipulates as follows:

“3.6. ...Trains shall consist of maximum four vehicles. Each train shall be equipped with one Emergency Driving Position (EDP) at each end. Service trains shall be equipped with the required communication facilities. For more information, the Contractor can refer to the Performance Specifications for signalling and rolling stock. 3.7. ... The traction power is supplied by a third rail right next to the running rails. The nominal traction power is 750V DC. For more information, the Contractor can refer to the Performance Specifications for Traction Power and Trackwork”.

Kindly provide us with the aforementioned specifications.

### **Response 57**

Any further information shall be made available to the Contractor of this tender during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 58**

Document entitled: K\_LV\_270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, in paragraph 4.2, stipulates as follows:

“Information provided by these Specifications should in no way be considered as overall technical determination of a specific system or part of a similar system”.

Kindly provide us with a complete technical description of the systems or indicate the items of the specifications we can deviate from.

### **Response 58**

It is pointed out that your interpretation of the above Contractual Reference as a possibility to deviate from the technical specifications of the Contract, is not ATTIKO METRO S.A.’s position. The Contractual Documents are clear and remain valid as they stand.

## CLARIFICATIONS DOCUMENT

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### **Question 59**

Document entitled: K\_LV\_270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, in paragraph 4.5, stipulates as follows:

“The handling, surveillance, management of all Telecommunication systems of the extension shall be carried out exclusively through the existing equipment in the OCC and the ECR”.

Kindly confirm that this is an “Open Source” software, i.e. the addition of the new stations can be performed, graphically and functionally, without being necessary for the specific supplier of the system to intervene in the base project. In any other case, kindly provide us with all necessary information about the software and the supplier / designer of the system.

### **Response 59**

It is confirmed that the addition of new stations (both in terms of graphics and operation) is technically feasible. Regarding the software used, sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Any further information shall be made available to the Contractor during the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 60**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraphs 5.1.6 and 5.1.7, it is stated that:

“5.1.6 The Contractor shall submit a risk and threats’ analysis, which is required for the design of the safety, protection and communication systems for the passengers, the personnel and the items of equipment as a whole, including those in the extensions. The aforesaid analysis shall be approved by ATTIKO METRO

5.1.7 The Contractor shall prepare a safety design to ensure all telecommunication systems, with particular emphasis on the Digital Transmission System. This design shall be based on real data from the operation of similar Metro systems, the international experience and practice and the risk analysis procedure”.

Kindly clarify whether you refer to the cyber security of the system.

### **Response 60**

For the sake of security and protection of the Metro systems and the DTS Digital Transmission System, all the necessary measures shall be taken in order to provide the required assurance, as required and specified in the contractual documents. The Contract Documents are clear, they remain valid as they stand and they define the security requirements of the systems.

### **Question 61**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 5.2.2, it is stated that “In every new station of the Metro extension, in selected locations of the extension and the Base Project, in selected shafts, in Tunnels, and in the OCC and the ECR, the Digital Transmission System to be installed shall be state-of-

## CLARIFICATIONS DOCUMENT

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the-art technology and shall serve as a minimum the communication needs of the following sub-systems of the Extension to Kalamaria”. Many referenced subsystems do not fall within the contract scope. Kindly provide us with the requirements of each system, in order to calculate the integrity of the DTS system.

### **Response 61**

Sufficient information has already been made available in the section B of the document. Any further information shall be made available to the Contractor of this tender during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 62**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 5.4.21, it is stated that “The existing NMS that has been installed in the OCC should be properly upgraded and allow to the System Administrator to manage and monitor the extension of the network in Kalamaria section in the most efficient way. The NMS screen located in a DTM work station shall display information about the settings and the operation of the network, the encasing of the node and the interface cards”.

Kindly confirm that the software is “open source”, i.e. it allows the addition of new stations, graphically and operationally, without necessitating the intervention of a specific supplier of the system in the Base Project. If this is not the case, kindly provide us with all necessary information on the software and the supplier/designer of the system.

### **Response 62**

It is confirmed that the addition of new stations (both in terms of graphics and operation) is technically feasible. Regarding the software used, sufficient information has already been made available in the section of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the existing systems. Any further information shall be made available to the Contractor of this tender during the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 63**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 5.6.1, it is stated that “The DTS shall feature at least the appropriate interfaces in view of ensuring smooth coordination with the following systems and transfer of their data:

....

- Any other current system or sub-system – as installed by the main Contractor of Kalamaria Extension – that requires transmission of digital data”.

Kindly provide us with the requirements of each system, in order to calculate the integrity of the DTS system.

## CLARIFICATIONS DOCUMENT

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### **Response 63**

Sufficient information has already been provided in chapter B of the document. Any further information shall be made available to the Contractor of this tender during the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 64**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 6.4.4, it is stated that “6.4.4 Remote sites also known as Base Radio Stations shall be installed in each station of the extension to carry out the following main functions:

.....

- Interface with the local PABX”.

Kindly provide us with the PABX system requirements.

### **Response 64**

The main item required consists in the option for interface and not in the interface itself of the PABX system with the radio base stations. Sufficient information has already been made available in the chapter of the Design, Performance, Material and Workmanship Specifications for the Telecommunications and Low Voltage Systems describing the current systems. Any further information shall be made available to the Contractor of this tender during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 65**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraphs 6.5.3 and 6.7.2, it is stated that:

“6.5.3 The Contractor shall supply at least (20) portable radios (also named as mobile radios, since they are located on-board the trains), which shall be installed in each of the Emergency Driver position in the trains. Installation of the radios in the trains shall require close coordination with the manufacturer of the trains to ensure proper integration of the radio equipment into the design layout of the train.

6.7.2 The TETRA system equipment on the trains shall be provided by the Rolling Stock Contractors and it is not related to the present contract, except at the level of interface with the respective systems in the new stations and in the OCC and the ECR”.

Kindly confirm that paragraph 6.5.3 is not valid if paragraph 6.7.2 applies.

### **Response 65**

It is hereby confirmed that paragraph 6.7.2 applies. As concerns Train equipment and Rolling Stock Contractors, these are not included in the scope of works of the Contractor of this Contract.

## CLARIFICATIONS DOCUMENT

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### **Question 66**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 6.6.1, it is stated that “**System’s Availability.** 6.6.1The supplied TETRA radio system (Base Project and Extension to Kalamaria) shall be designed to meet the following system availability figures:

The Contractor cannot commit himself on the availability of another Contractor’s system. Kindly refer to the availability of the system – scope of the Contract.

### **Response 66**

It is stressed that the specification refers to the scope of the Contract related to the extension. The Contractual Documents are clear and remain valid as they stand. It is pointed out that it is the obligation of the Contractor of this tender to ensure compatibility of both systems (Base Project’s and Extensions’) and their unhindered interface and operation. The availability of the system of the Base Project is assumed to be the same as the one requested for the extension.

### **Question 67**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 7.1.5, it is stated that “The Contractor shall ensure that he possesses all necessary protocols enabling smooth integration in the existing public announcement system of the Base project and in view of integrating all required modifications and additions to both hardware and software”.

Kindly confirm that the software is “open source”, i.e. it allows the addition of new stations, graphically and operationally, without necessitating the intervention of a specific supplier of the system in the Base Project. If this is not the case, kindly provide us with all necessary information on the software and the supplier/designer of the system.

### **Response 67**

It is confirmed that the addition of new stations (both graphically and operationally) is technically feasible. As regards the software that has been used, sufficient information has already been made available in the chapter of the document describing the current systems. Any further information shall be made available to the Contractor of this tender during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 68**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 8.4.12, it is stated that “The image of all cameras shall be recorded without any further processing (e.g. Transcoding) to keep all information included in the video signal, without requiring any specialized hardware. The video recording should be synchronized, irrespective of the resolution, speed or frame rate, while all recordings shall be executed in real time and shall have the Date and Time recording stamp on a per second basis, as well as the title of the camera at frame level”.

## CLARIFICATIONS DOCUMENT

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Kindly clarify whether the signage must be recorded from the camera or from the recording system.

### **Response 68**

The aforesaid requirement should be achieved by ensuring the transmission of image by each camera with the resolution required and in real time, while its recording must be executed in real time ensuring the band width and the transmission speed in the network in a sufficient and unhindered way.

### **Question 69**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraphs 8.7.1 and 8.7.3, it is stated that:

“8.7.1 The availability of the system shall be at least 99.75 %.

8.7.3 The Contractor should examine whether the targeted high availability of the system is now covered by the additional equipment of Kalamaria extension”.

The Contractor cannot commit himself on the availability of another Contractor’s system. Kindly refer to the availability of the system – scope of the Contract.

### **Response 69**

It is stressed that the specification refers to the scope of the Contract. The Contractual Documents are clear and remain valid as they stand. See also response #66.

### **Question 70**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraphs 8.9.4 and 8.10.3, it is stated that:

“8.9.4 The CCTV on-board equipment shall be Solid State fanless industrial PC type.

8.10.3 The on-board CCTV and safety/protection system shall be powered by a UPS unit with 1-hour autonomy”.

Kindly confirm that paragraphs 8.9.4 and 8.10.3 fall outside the scope of the Contract.

### **Response 70**

It is confirmed that the reference to paragraphs 8.9.4 and 8.10.3 concerns the Contractor’s information and that the subject paragraphs are not included in his scope of contract. As regards Train equipment items, these are not included in the scope of the Contractor of this Contract.

### **Question 71**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 8.12.3, it is stated that “The Contractor has the obligation to declare the applicable Standards to be used”.

If during the Contract a Standard is revised, will the Contractor make available to AM the revised Standard?

## CLARIFICATIONS DOCUMENT

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### **Response 71**

It is confirmed that the Contractor shall provide to ATTIKO METRO S.A. the revised Standard. The Contractor ought to comply with the most recent standards, as regards the systems. The Contractual Documents are clear and remain valid as they stand.

### **Question 72**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 10.7.1, it is stated that “**ACC/IDS Availability.** 10.7.1 The availability of the ACC/IDS system and of the SMS system shall be at least 99.99 %”.

The Contractor cannot commit himself on the availability of another Contractor’s system. Kindly refer to the availability of the system – scope of the Contract.

### **Response 72**

It is stated that it is the obligation of the Contractor of this tender to ensure compatibility of both systems (Base Project’s and Extension’s) and their unhindered interface and operation. The availability of the system of the Base Project is assumed to be the same as the requested one for the extension. It is stressed that the specification refers to the scope of the Contract pertaining to the extension. The Contractual Documents are clear and remain valid as they stand.

### **Question 73**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 11.2.4, it is stated that “11.2.4 Each station shall be fitted with the appropriate equipment that will receive the necessary messages and information about the operation of the Base Metro Project and the extension to Kalamaria and will inform the passengers via the appropriate electronic screens of the PIS system located on the platforms, the public areas and the concourse areas”.

Kindly clarify whether the same screen type applies to all locations (see 11.4.16).

### **Response 73**

The screens of the Passenger Information System, as determined in this specification, in relation to the location, shall be designed and manufactured based on those dimensions and materials for them to fit – in terms of aesthetics – into the architecture of the area and the respective finishes of the platform areas, as defined in paragraph 11.2.1. The Contractual Documents are clear and remain valid as they stand. In any case, the materials – equipment used in the stations shall be the same for uniformity and maintenance reasons.

### **Question 74**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 11.3.7, it is stated that “11.3.7 The design of the PIS screens shall be harmonized with the station’s design. For this reason, the shape of the screens shall

## **CLARIFICATIONS DOCUMENT**

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be designed according to the architectural requirements and in coordination with this discipline, while their layout shall be coordinated with the architectural aspects and shall be submitted to AM for approval”.

Kindly clarify whether the same screen type applies to all locations (see 11.4.16).

### **Response 74**

See response #73.

### **Question 75**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 6. The type and manufacturer of the main parts of equipment of the

#### **Item Manufacturer Type**

Passenger Information Display AESYS MA5x5.3x240x161 T0420B

Workstation with PIS related software - Same as ICCS – Workstation with PIS related software (SMR)”.

Kindly provide us with more data on the “PIS software”.

### **Response 75**

Sufficient information has already been made available in the chapter of the document describing the current systems. Any further information shall be made available to the Contractor of this tender during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

### **Question 76**

In document K\_LV\_DP270000 “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”, paragraph 7.4, it is stated that “The type and manufacturer of the main parts of equipment of the DTS system for Thessaloniki Metro Base Project are presented in the following table”.

Kindly confirm that you refer to the equipment of the ICCS system for the Base Project.

### **Response 76**

It is confirmed that in paragraph 7.4 of chapter C, we refer (for information reasons) to the equipment of the ACC/IDS system of the Base Project.

### **Question 77**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 1.9 – Power Supply**

Kindly confirm that the distribution switchboards equipped with the required power supply automations for UPS telecommunication and the batteries ensuring the aforementioned



## **CLARIFICATIONS DOCUMENT**

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autonomy are included in the scope of the UPS units made available by the main Contractor of Kalamaria extension and do not fall within the scope of this Contract. Kindly confirm that the required uninterruptible power supply autonomies are ensured by the main Contractor of the extension.

### **Response 77**

It is confirmed, on condition that neither a requirement nor a need for over-dimensioning the equipment offered by the Contractor arises. The Contractual documents are clear, as regards the distinction between the scope of this contract and the contracts of other Contractors, and remain valid as they stand.

### **Question 78**

#### **SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP REQUIREMENTS - Article 2.3 – PSD Interface**

Kindly clarify the interface between the platform screen doors and the telecommunications system.

### **Response 78**

The Contractual documents are clear and remain valid as they stand. The interface between the platform screen doors – PSDs and signalling – ATC, power supply, earthings, intrusion detection system – IDS and digital transmission system – DTS, must be taken into account by the Contractor of this contract.

### **Question 79**

#### **SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP REQUIREMENTS - Article 2.4 – Structured cabling**

Based on the content of the above article, we understand that any requirements related to structured cabling installation, in addition to the infrastructures of the main Contractor of Kalamaria Extension, including passive and active equipment, should be made available by the Contractor of this Contract. Kindly confirm. Moreover, kindly explain the reference made to the UPS system in the same paragraph/sentence.

### **Response 79**

It is confirmed. See also response 189.

It is stressed that if any interface with the UPS system is required, then this should be taken into account by the Contractor of this contract. The Contractual documents are clear and remain valid as they stand.

### **Question 80**

#### **SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP REQUIREMENTS - Article 2.5 – Other extensions**

Kindly clarify the following sentence: “Similarly, the Contractor shall ensure the above in case of any interconnection with new future extensions, in addition to Kalamaria extension”. We believe that the Contractor of this Contract cannot ensure minimization of the impact on

## CLARIFICATIONS DOCUMENT

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the Base Project during commissioning, trial run and training provided for any other extension.

### **Response 80**

It is clarified that any interventions in the hardware or software positioned in the Base Project by the Contractor of this Contract should guarantee minimization of the impact on the Base Project during commissioning, trial run and training. As regards other future extensions, the Contractor of this Tender shall ensure the provision of information and support, so as unhindered interface, smooth commissioning, trial run and training be achieved.

### **Question 81**

#### **SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP REQUIREMENTS – Article 2.6 – Other extensions**

We believe that the requirement of this paragraph is unclear. Kindly clarify. Any possible future extensions to which you refer should be stated as a minimum.

### **Response 81**

The systems offered by the Contractor should be expandable and this is what is required by this paragraph.

### **Question 82**

#### **SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP REQUIREMENTS - Article 5.1.2 – Upgrading of the DTS of the Base Project**

Kindly specify what is meant by specifying that the main purpose is also to provide an upgrading of the DTS system of the Base Project as compared to the Extension to Kalamaria. Does it concern upgrading or adding hardware and software to the Base Project (OCC/ECR) or just upgrading and resetting the software for the common by now DTS system to manage and operate the extension to Kalamaria?

### **Response 82**

It is clarified that your question can be responded only after the design of the expansion of the DTS system to Kalamaria at Detailed Final Design level; this design falls under the scope of this Contract. The Contractual documents are clear and remain valid as they stand.

### **Question 83**

#### **SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP REQUIREMENTS - Article 5.2.1 – DTS Interface**

Kindly confirm that in order to ensure the interface between the DTS system of the extension to Kalamaria and the corresponding system of the Base Project only fibers from the central fiber optic cables, as installed by the Main Contractor of the Kalamaria extension, shall be used.

### **Response 83**

It is confirmed. The Contractual documents are clear as regards the distinction between the scope of this contract and those of other Contractors', and remain valid as they stand.

CLARIFICATIONS DOCUMENT

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**Question 84**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 5.2.8 - DTS**

Kindly specify the needs of the trains at parking or stopping positions to be covered by the DTS system.

**Response 84**

The DTS should serve the needs for the train systems' data transmission in cooperation with the Data Communication System (DCS), as regards data capacity, volume and speed, as these are defined in the contractual documents. The Contractual documents are clear and remain valid as they stand.

**Question 85**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 5.3.2 – Integration of the DTS into the ICCS**

Kindly confirm that the DTS system configuration system in the Kalamaria extension must be integrated into the central ICCS system of the Base Project, since we believe that this is not easy to do, especially if this feature is not available in the ICCS system of the Base Project. Taking into consideration the specifications of the ICCS system from which it arises that this is a system that facilitates operational handling of the systems and integrates the subject systems, without however facilitating maintenance and customization operations, we consider that the integration of the DTS configuration software into the ICCS is not a step in the right direction.

**Response 85**

The ICCS system shall execute operational handling of the systems both at central and local levels. Any handling operations related to maintenance and customization are feasible, they must be executed by the ICCS at central level and should be implemented by the Contractor of this Contract. The Contractual documents are clear and remain valid as they stand.

**Question 86**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 5.3.5 – Common Local TCP/IP Network**

It is understood that this paragraph refers to the “Common Local TCP/IP Network” LAN as the natural medium where sound and image data are collected and transferred and not as the medium where signals are converted into data. Kindly confirm accordingly.

**Response 86**

We hereby confirm that the Common Local TCP/IP Network is not the medium where signals are converted into data. The Contractual documents are clear and remain valid as they stand.

**CLARIFICATIONS DOCUMENT**

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**Question 87**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 5.3.7 – Workstation for the Network  
Management System (NMS)**

Kindly clarify whether the Network Management System (NMS) you refer to is the workstation already existing in the Base Project, into which the DTS system of the extension must be integrated, or a new workstation to be exclusively used in the extension to Kalamaria.

**Response 87**

It is clarified that the specification refers to the existing work station of the Base Project.

**Question 88**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 5.4.18 – DTS Operation temperatures**

Kindly confirm that the temperature range of the system is correctly set between 5°C and +50°C for machinery intended for special applications instead of the temperature range of 0°C - +45°C for standard commercial equipment, as the equipment installed in the Base Project, in line with the technical information of the existing systems included in Part C of this specification. Given that the equipment of the system shall be installed in a fully controlled/ air-conditioned area, a solution featuring specifications like the ones of the Base Project, sounds more appropriate.

**Response 88**

The temperature range of the system is correctly set between 5°C and +40°C for the requested equipment. It is stressed that the installation area is an air-conditioned area and the surveillance of the operation of the air-conditioning system is effected centrally.

**Question 89**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 6.1.2 – Existing TETRA system Standards**

Please clarify if the existing main TETRA system is fully compatible and completely support and provide all functions and interfaces according to the EN 300 392-3-1 (TETRA ISI General design) and EN 300 392-3-5 (TETRA Inter-system interface. Add. feature for Mobility) which are requirements of the Kalamaria extension TETRA system.

**Response 89**

The Contractor ought to bind himself about the compatibility of the system he offers in relation to the existing one and to its smooth and unhindered operation as a whole. The option must be given for the future support to the functions referred to, along with the option for the provision of at least the basic characteristics of the most recent standards for TETRA system. The Contractual documents are clear and remain valid as they stand.

CLARIFICATIONS DOCUMENT

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**Question 90**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 6.1.2 – Existing TETRA system Inter-  
System interface**

Please inform us the vendors with which the vendor of the existing main TETRA system (Leonardo), has established and certified ISI tests and interoperability respectively.

**Response 90**

It is clarified that it is neither ATTIKO METRO S.A. obligation nor its authority to provide information about certifications or cooperations that the supplier of a system may have. The Contractual documents are clear and remain valid as they stand.

**Question 91**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 6.1.3 - Replacement of the Existing TETRA  
system**

According to paragraph 6.1.3: “The Contractor shall also integrate the new TETRA system of the Kalamaria extension into the system of the Base Project of Thessaloniki Metro and shall guarantee the necessary smooth operation of the system as a whole.” Please clarify if it is acceptable for the Contractor to replace the existing active equipment of the TETRA system of the Base Project with new equipment that will be used for the Kalamaria extension?

**Response 91**

The Contractor ought to bind himself about the compatibility of the system he offers in relation to the existing one and to its smooth and unhindered operation as a whole. The Contractual documents are clear and remain valid as they stand.

**Question 92**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 6.5.1.1 – Quantities of EBTS equipment**

In paragraph 6.5.1.1 of the Greek text of the specifications it is stated that for the TETRA system each EBTS site shall as a minimum be equipped as follows:

- Minimum number of base station units: two (2)
- TETRA site controllers operating in redundant configuration: one (1)

In the corresponding article of the English text the respective quantities are as follows:

- Minimum number of base station units: three (3)
- TETRA site controllers operating in redundant configuration: two (2)

Kindly confirm the correct required quantities.

**Response 92**

It is clarified that, in any case, the text in effect is the Greek one.

**CLARIFICATIONS DOCUMENT**

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**Question 93**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 6.5.3. 6.7.2 – Portable radios**

In paragraph 6.5.3 it is stated that the Contractor shall supply at least (20) portable radios (also named as mobile radios, since they are located on-board the trains), while in paragraph 6.7.2 it is stated that the respective supply shall be performed by the Rolling Stock Contractors. Kindly clarify.

**Response 93**

It is clarified that any item regarding Train equipment concerns the Rolling Stock Contractors and falls outside the scope of the Contractor of this Contract.

**Question 94**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS – Article 6.5.4 – Operating temperature of  
TETRA mobile radios**

In paragraph 6.5.4 of the Greek text of the specifications, it is stated that the supplied TETRA system mobile radios for installation outside the train shall meet the technical specification: Operating temperature range: -10°C to +50°C. In the respective English text the relevant range is: -10°C to +58°C. Kindly specify which is the correct requirement.

**Response 94**

It is clarified that, in any case, the text in effect is the Greek one. It is a typographical error.

**Question 95**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Articles 6.8.2 6.8.3 – TETRA installation  
requirements**

We understand that in paragraphs 6.8.2 & 6.8.3 reference is made to a transmission system exclusively used by the TETRA system, whereas in the DTS system specification it clearly arises that the DTS system is the transmission system of the central TETRA equipment. Therefore, we believe that the requirements of the specific paragraphs are not applicable to the TETRA system. Kindly confirm.

**Response 95**

The TETRA system data must be transmitted through the Base Stations of the TETRA system and through their interface with the DTS system.

**Question 96**

**SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS  
K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND  
WORKMANSHIP REQUIREMENTS - Article 7.2.4 – Sound coverage of areas**

Kindly clarify whether sound coverage in all doors accessed by the personnel concerns the doors found to the side of public areas. Moreover, clarify whether the coverage of the escape routes concerns passenger emergency exits in public areas and emergency exit

## **CLARIFICATIONS DOCUMENT**

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staircases or whether it also concerns the escape corridors for technical personnel or operations personnel in technical rooms and corridors.

### **Response 96**

See responses 20 and 21. In addition, it is stated that the platform screen doors, referred to in the Specification, are located at the end of each platform to the side of the trains and the sound coverage concerns public areas. It is also stressed that the escape corridors constitute all routes the passengers may follow in order to exit the areas they are in, both under normal and emergency conditions / in area evacuation incidents; this also includes the respective staircases. The Contractual documents are clear and are valid as they stand.

### **Question 97**

#### **SPECIFICATION OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP REQUIREMENTS - Article 7.2.5 – Sound coverage of tunnels**

Kindly clarify whether sound coverage concerns galleries where passengers circulate or train tunnels.

### **Response 97**

See response 22.

### **Question 98**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Articles 7.4.2 7.4.5 – Acoustical design requirements**

It is made clear in paragraph 7.4.2 that the Contractor shall perform noise and sound reverberation measurements in the stations of the extension, whose results shall be utilized in the development of the appropriate technical solution for sound coverage in the stations. Paragraph 7.4.5 defines theoretical desired sound reverberation times. We understand that these theoretical values are target values for the civil engineering works and the architectural finishes, which determine the sound reverberation times in each station. They can only be perceived by the Contractor of this contract as information data for the technical solution's development and costing purposes in the current phase of the Project. Please confirm

### **Response 98**

It is clarified that the acoustics of the area (paragraph 7.4.5) are directly dependent on the design and implementation of the Civil Works Contractor of the Kalamaria Extension. Please find below a text with the articles of the description concerning the architectural finishes for the 5 stations of the extension which is provided in order to assist the bidders in establishing a better estimate of the proposed Public Announcement System (the paragraphs concern the reference to the Document of the Technical description of the main contract of the extension). Finally, the acoustic designs/simulations of the public areas of the 5 stations shall be made available to the Contractor. The Contractor of this Contract must certify that the Public Announcement System complies with the requirements of paragraph 7.4.7.

## CLARIFICATIONS DOCUMENT

### DESCRIPTION OF ARCHITECTURAL FINISHES FOR STATION PUBLIC AREAS

#### 4.3.3.12 Lining of public areas

##### 4.3.3.12.1 Lining of walls / parapet walls

For lining works of walls / parapet walls in public areas, see finishes schedule and section drawings for KALAMARIA and ARETSOU Stations.

- Suspended colored in-mass fiber-cement board panels of indicative dimensions 60x2.75x0.8 cm or 120x2.75x0.8 cm. The aforementioned material shall be used as a finish in the internal masonry wall that embraces the escalators' gallery from the concourse level up to the platform level, in the internal masonry wall at the concourse level (1.4), as well as for the partial lining of the facades over the PSD and of the platform headwalls. The fiber-cement board panels over the Screen Doors shall accommodate slots to exhaust air from the adjacent air-ducts.
- Perforated and non-perforated galvanized metal panels with powder-coated paint, 0,7mm thick, perforation percentage 15% - 50% (according to the acoustic design), properly supported on a metal galvanized supporting system with an horizontal scotia up to the height of the false ceiling. The perforation type shall be selected by AM. All steel panels shall be equipped with a 3 cm thick sound-insulating layer and mineral wool. Their dimensions shall be finalized during the DFD phase.
- Fair-faced concrete surface of RECKLI type finish with separating zones made of plain fair-faced concrete. The pattern and texture to be finalized during the DFD stage. The final layer shall be painted with anti-dust paint and antigraffiti treatment, while any repairs shall be made by means of a special cement material.
- The aforementioned material shall be utilized as a finish for the entrances, the entrances' corridors and for the external walls of the Station box at the concourse level – public area (1.4).
- A  $\Phi 50$  circular section ring made of stainless steel 2mm. thick shall be supported on the propping with stainless steel rosettes and at a distance of 5 cm.
- Lining using stainless steel sheets 1.5mm. thick all along the platform headwalls, for the emergency units, as well as for internal masonry walls – recesses adjacent to ATIMs.
- Panels made of glass security panes (8mm+8mm)=16mm on a stainless steel supporting system for the lifts.
- Stainless louvers, properly supported, for public areas in the ATIMs.
- Bullet proof glass panel, 22mm thick as a minimum, placed on a continuous supporting system made of stainless steel, for the windows of rooms 2.3 and 2.2.
- Parapet wall made of 10+10 mm security glass panels embedded in concrete parapet walls and stainless handrail.



## CLARIFICATIONS DOCUMENT

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- Powder-coated painted metal roller shutter by perforated / non-perforated and compact heavy-duty bands (at a percentage of 70% - 30% respectively) for the station entrances.
- Sound-proofing treatment at fair-faced concrete surfaces/masonry walls using a material 5cm thick as a minimum (mineral wool) on a metal galvanized supporting system with 1.5mm thick perforated powder-coated painted metal sheet lining (cassettes) height-wise at the headwalls of the platforms up to the rails level, as well as opposite to the side of the external walls.
- Grey-red granite 90 x 30 x 1.5 cm skirting placed in a recess in all public areas.
- For all types of panels, details shall be submitted as regards special items and dimensions – as required – for their finishes in relation to floor, false ceiling and walls.

### 4.3.3.12.2 Floor lining

#### Floor lining for public areas

- 40X40X3 cm slabs of grey and red polished granite, with an anti-slip surface, for the public areas. 40X40X3 cm slabs of grey honed granite (as required).
- 80X60X5 cm flame-treated red and gray granite slabs for the configuration of platform edges and 80X20X3 cm flame-treated red granite for the installation of the stripe that defines the safe area of the platform.
- 40X40X3 cm embossed red granite slabs for the visually impaired persons.
- Red polished granite slabs for the configuration of architectural motifs to be defined in DFD stage.
- For the staircases: 100/140x30x4cm flame-treated grey granite slabs for the treads, 100/140x15x2cm polished grey granite slabs for the risers, 40x40x3cm grey/red flame-treated granite slabs at the staircase ends. 40x40x3cm honed grey granite tiles for landings. All treads of the staircases in public areas shall have cuts to be filled in using a special anti-slip resin, its color to be selected by AM. The number and the size of the cuts shall be finalized during the DFD stage.
- Sheets of stainless steel lamina, 10X80X0.1 cm (with a special finish sideways) to clad the edges of the staircases neighboring with the escalators and granite with the edge neighboring with granite.

#### Floor lining for areas located at street level

- Structured pattern concrete surface for the configurations of routes (at a percentage of approximately 10%), whose color and motif shall be selected by AM (with joints at the concrete surfaces). The structured pattern flooring shall be manufactured by means of poly-propylene fiber reinforced concrete and be coated using two layers of hardener at a color to be selected by AM. When the concrete reaches the plasticity level, it is then coated with joint paint and embossed by means of selected moulds. Finally, after the curing of the floor, expansion joints are constructed and the floor is sealed using a specific varnish.

## CLARIFICATIONS DOCUMENT

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- 40X40X5 cm cement/pebble sidewalk slabs (at a percentage of approximately 60%) for the configuration of the square / street level.
- 40X40X5 cm embossed cement slabs for the visually impaired persons at street level.
- Configuration of surfaces using natural paving blocks (at a percentage of approximately 30%) of indicative dimensions: 18.80x12.30x6cm, 12.30x12.30x6cm and 12.30x6.20x6cm resistant to great temperature alterations, to chemical substances and solvents, with mechanical strength against heavy loads, providing anti-slip protection in a variety of colors. The sub-base of the paving blocks, the finish of the sub-base, the sand laying, the placement and compression method of the paving blocks, as well as the finishes of their final surface shall be designed by the Contractor during the DFD phase.
- Stainless steel metal grid for the rainwater sump pits.
- Grass (lawn) – small bushes, soil-covering plants for planting work at the square / street level. Planting of trees and planting work in general at street level shall be finalized during the DFD stage upon AM's approval and with the consent of the Local Authorities.

### 4.3.3.12.3 Lining of Ceilings

#### Ceiling lining at public areas

- Safety Glass panels (8+8 mm) 16mm, mounted on a hot-dip galvanized, painted metal frame support system, for the sheds and stainless steel frame for the skylights.
- Perforated and non-perforated, powder-coated painted, metal false ceiling panels, 0.7mm thick, with sound-insulating layer and 3cm mineral wool (perforation percentage 15%-50% and indicative minimum dimensions as per the acoustic design 60x60 cm and 60x120 cm). The false ceiling shall be mounted on a galvanized steel frame. The support of the lighting fixtures shall be other than the support given to the bearing structure (reinforced concrete) of the Station.
- Non-perforated powder-coated painted metal stripes, 0.7mm thick, with sound-insulating layer and 3cm mineral wool.
- Stainless steel panels, 1mm thick, for covering the bottom side of all escalators. The escalators along with their cladding shall be projected as a mass in relation to the remaining false ceiling.
- The visible ceilings (without false ceiling) shall be plastered and painted with anti-dust paint. In case plastering is required, the surface shall be plastered and painted.
- The front parts of the slabs in the openings of the staircases shall be clad as a continuity of the false ceiling, at a length to be finalized in the DFD phase.
- The false ceilings shall not cover the entire width of the slabs. They shall not be in contact with the lateral vertical cladding and shall be flush with the external escalators. As regards the false ceilings in the concourse level, a

## CLARIFICATIONS DOCUMENT

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respective design shall be followed, i.e. the masonry shall not be in contact with the false ceiling.

- The false ceilings in the public areas of the stations shall be constructed in correspondence with the upward view drawings and the lighting design of KALAMARIA Station. The false ceilings (in the same room, e.g. room 1.4) shall have height-difference to be finalized in the DFD phase and shall be in line with the face scotia.

### **Question 99**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 7.5.7 - Lock for SAP at ECU**

Given that supply and installation of the ECUs falls under the scope of the main contractor of the Kalamaria extension, please confirm that the lock of the ECU cabinet, wherein the SAP unit is installed, also falls under the scope of the main contractor

### **Response 99**

The supply and installation of the lock of the ECU cabinet fall within the scope of the main Contractor of the Extension. The Contractual documents are clear as regards the distinction between the scope of this contract and those of other Contractors', and remain valid as they stand.

### **Question 100**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 7.5.23 - Failures in PA cabinets**

Please explain the concept of checking the failures in the PA cabinets from any other station.

### **Response 100**

Any failures of the equipment - as compared to the requirements of the existing cabinets - to be supplied by the bidders shall constitute the liability of the Contractor of this Contract.

### **Question 101**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 7.7.1 7.7.2 – PA system Interfaces**

Our understanding of paragraphs 7.7.1 and 7.7.2 is as follows:

- There is no direct interface between the PA system and ATS and TETRA systems, but there is a requirement for their functional interface.
- The functional interface between the PA system and the TETRA system has to do with the broadcasting of announcements in the trains. You are kindly requested:
  - to confirm and informed us about the manner this is implemented at the Base Project, e.g., via the ICCS system.
  - to clarify the functional interface between the PA system and the ATS system.

**CLARIFICATIONS DOCUMENT**

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**Response 101**

Any further information shall be made available to the Contractor during the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

**Question 102**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 8.2.4 – Surveillance by the CCTV system**

Kindly clarify whether surveillance of escape routes concerns the passenger emergency exits at public areas and escape staircases or also the emergency exits of technical or operation personnel at technical rooms and corridors.

**Response 102**

It is noted that escape routes are all the routes that passengers can take in order to exit the area they are in during normal operation and during an emergency/ area evacuation incident. The Contractual Documents are clear and remain valid as they stand.

**Question 103**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 8.2.6 – Direct Telephones DLT**

Please specify the public areas fitted with a DLT telephone which must be covered by a CCTV camera, e.g. station master room, ticket office, ECU points etc.

Moreover, please confirm if at least one camera shall automatically appear on the CCTV workstations when each communication device is activated.

Finally, please clarify whether these telephone sets have auxiliary contacts for local interface with the CCTV system or whether the systems shall be interfaced at a central level

**Response 103**

Any further information shall be made available to the Contractor during the the phase of the Designs that he shall compile. The Contract Documents are clear and remain valid as they stand.

**Question 104**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 8.2.11 – CCTV integration and  
management**

Please clarify if the integration and management of the trainborne CCTV in the CCTV system of the Kalamaria extension is performed in the OCC or locally, at each station

**Response 104**

It is clarified that integration and management of the CCTV system of the trains into the CCTV system of the Kalamaria extension shall be performed centrally at the OCC level.

**CLARIFICATIONS DOCUMENT**

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**Question 105**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 8.3.3 – CCTV Servers**

Please clarify if the CCTV servers of the extension shall be new, independent of the Base Project servers or if it is possible to upgrade the existing servers.

**Response 105**

The response to the question shall be provided by the Contractor upon completion of the corresponding Detailed Final Designs that he will compile. The Contractual Documents are clear and remain valid as they stand.

**Question 106**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 8.4.19 – CCTV installation in Lifts**

Kindly confirm the requirement for the installation of cameras inside lifts. Also, confirm the feasibility of installing in lifts cameras that have been procured by the main contractor of the Kalamaria extension.

Finally, confirm that the required cable infrastructure for the installation of the above cameras is in place.

**Response 106**

No cameras shall be installed inside lifts. Paragraph 8.4.19 of the Specifications is amended as follows:

“8.4.19           No cameras shall be installed inside the lifts”.

**Question 107**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 8.9.3, 8.9.4 - Requirement for installation  
of CCTV on board the trains**

Our understanding is that these paragraphs only refer to the requirements for trainborne CCTV equipment, therefore do not apply to the contractor of this contract.

Please confirm

**Response 107**

It is confirmed that the specific paragraphs concern equipment requirements for the CCTV system on board the trains and do not concern the Contractor of this contract.

**Question 108**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 9.2.1 - SMS Interfaces**

Our understanding is that the SMS system shall be interfaced with the interconnected systems at the station level. Please clarify if this precludes the implementation of centrally level interfaces, through the servers of the systems and the use of communication protocols.

## **CLARIFICATIONS DOCUMENT**

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### **Response 108**

The Contractual Documents are clear and remain valid as they stand. Additional information shall be made available to the Contractor during the phase of the Designs that he will compile.

### **Question 109**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 9.4.6 - Time to display events on the SMS  
screens**

Please clarify exactly what the 200ms time corresponds to. The time required to display an event of the SMS screen is influenced by the response times of various other systems, such as DTS, Local LAN, SMS and each system interfaced with the SMS (CCTV, PA, ACC, INT, etc.) and therefore we consider that the requested time is too short to be achieved. Moreover, please confirm that the corresponding time of the existing SMS system is less than 200ms, since it shall also contribute to all times of "live" display of incidents on the Kalamaria extension.

### **Response 109**

It is noted that the actual time which elapses between the occurrence of an incident and the display of the corresponding information (CCTV, ACC/IDS information) at the SMS workstation must be up to 1s. If the Contractor deems that the equipment of the Base Project may burden in terms of time the achievement of this goal, it is permitted to further develop an additional escape route. However, it is stated that a further relaxation of this target beyond 1s cannot be acceptable.

### **Question 110**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 9.4.12 - Systems integration via SMS**

Our understanding is that the purpose of integrating the various systems via the SMS system is to simplify the operation, increase the security and facilitate the communication among the systems. In no case does it replace the management and configuration systems of the individual systems e.g. CCTV, ACC, INT etc. Please confirm.

### **Response 110**

It is noted that your interpretation of the aforementioned Contractual reference is not the position of ATTIKO METRO S.A. The Contractual Documents are clear and remain valid as they stand. Further information shall be made available to the Contractor during the phase of the Designs that he shall compile.

### **Question 111**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 10.2.2 - ACC/IDS Requirements**

Please specify the selected stations whose signaling rooms shall house the ACC card reader and door opening contacts of the intrusion detection system.

## CLARIFICATIONS DOCUMENT

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### **Response 111**

All stations have signalling rooms except for NOMARCHIA Station. The signalling room of the subject station is located at Nomarchia cross-section. These rooms must be equipped with ACC card readers and door opening contacts. Further information shall be made available to the Contractor during the Detailed Final Design phase. The Contractual Documents are clear and remain valid as they stand.

### **Question 112**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 10.4.1 - IDS requirements**

Please clarify the requirement specifically as regards the prevention of depositing dangerous luggage items in trains. How does this requirement differ from the general requirement for intrusion prevention to avoid vandalism, graffiti, etc.?

### **Response 112**

It is clarified that the aforementioned paragraph of the Specifications concerns the prevention of entrance in areas which could generate problems or vandalisms to metro properties/areas/trains etc.. The Contractual Documents are clear and remain valid as they stand.

### **Question 113**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 10.4.1 - IDS recording requirements**

Please clarify the requirement to record data in the recording system locally in the SMR. What is the mentioned recording system? What data are recorded?

### **Response 113**

In the work station to be installed in the SMR it must be possible to record locally the necessary volume of data as compared to the local system. The Contractual Documents are clear and remain valid as they stand.

### **Question 114**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 10.4.3 - IDS requirements**

Kindly clarify if the requirement for cameras to survey the tunnel access refers to entries in tunnels starting from the station platform or to entries in tunnels starting at street level, e.g. from the depot, in which case this requirement is not applicable to the Kalamaria extension.

### **Response 114**

At platform level, it should be possible to cover the portal of each tunnel through the closest camera to the side of the station. The Contractual Documents are clear and remain valid as they stand.

## CLARIFICATIONS DOCUMENT

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### **Question 115**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 10.5.2 - ACC recording requirements**

Kindly clarify the requirements for the recording system.

Where is it located?

Which data are recorded? What are its specifications?

### **Response 115**

The response to the question shall be provided by the Contractor upon completion of the corresponding Detailed Final Designs that he will compile. The Contractual Documents are clear and remain valid as they stand.

### **Question 116**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 9 10.3.5 10.5.3 - ACC Managements by  
the SMS**

As it results from the specifications of Chapter 9, the SMS system integrates a number of systems, providing support for the operation of the ACC and INT systems. Therefore, we consider that the SMS collects and displays the system's operational information, enabling at the same time the user to perform basic functions; however it is not the SMS system that controls and responds to access requests, but rather these functions are performed by the ACC system. Please confirm

### **Response 116**

It is noted that your interpretation of the aforementioned Contractual reference does not constitute the position of ATTIKO METRO S.A. The Contractual Documents are clear and remain valid as they stand.

### **Question 117**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 10.5.5 - ACC card**

The procedures for personal data acquisition, badge personalisation, badge issuing are internal procedures of the Operation company and are not subject to the technical characteristics of the finally selected ACC system. In our opinion, therefore, badge issuing cannot fall under the responsibilities of the contractor of this contract. Please confirm.

### **Response 117**

It is noted that your interpretation of the aforementioned Contractual reference does not constitute the position of ATTIKO METRO S.A. The Contractual Documents are clear and remain valid as they stand.

### **Question 118**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP  
SPECIFICATION REQUIREMENTS - Article 10.6.1 - ACC/IDS hardware**



## CLARIFICATIONS DOCUMENT

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Kindly confirm the correctness of the requirement for a workstation in each SMR, with capabilities to manage system database, read, program and print proximity access cards. The above capabilities in all five (5) stations of the extension are considered excessive, both in terms of the number of users of the system, as well as in terms of controlling and securing the card issuance procedures.

### **Response 118**

It is noted that your interpretation of the aforementioned Contractual reference does not constitute the position of ATTIKO METRO S.A. The Contractual Documents are clear and remain valid as they stand.

### **Question 119**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 10.6.10 - ACC/IDS hardware**

Kindly clarify if separate ACC / INT workstation or ICCS workstation management software or stand-alone keyboard is installed to manage ACC / INT systems within SMRs, or if the management is carried out via the SMS

### **Response 119**

An independent work station at the Station Master Room for the ACC/INT system (ACC/IDS term used by AM) shall not be installed. It is clarified that the complete control of the ACC/IDS sub-systems is carried out by the system where these are unified, namely by the SMS. Therefore, at the Station Master Room, it shall be possible for the Station Master to control the ACC/IDS sub-systems installed in the area falling under his responsibility. It is stated that it is acceptable that this control is carried out by the ICCS work station in the Station Master Room.

### **Question 120**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 11.2.5 - PIS requirements**

Reference is made in this paragraph to the use of PIS screens in locations other than station platforms, while throughout the rest of the relevant specification reference is made only to screens on the station platforms.

Please confirm that this requirement is not applicable to this Project.

### **Response 120**

PIS screens shall be installed at the station platforms (two (2) double – sided), while two (2) single sided screens shall be installed at the ticketing or concourse areas.

### **Question 121**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 12.1.3 - ICCS Interfaces**

Kindly clarify if the existing Contractors providing the Automatic Telephone System, the Direct Telephones, the Time Distribution System and Clock System, the Signaling system,

## CLARIFICATIONS DOCUMENT

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the Automatic Fare Collection System and the BACS have provided interfaces for connection to the ICS system. If yes, please specify the relevant provisions for each system.

### **Response 121**

It is pointed out that the integration of the various sub-systems installed at the stations of the Kalamaria extension (by other Contractors or by the Contractor of this contract) in the ICCS system constitutes the scope of this Contract and shall be implemented once ATTIKO METRO S.A. provides the required information and interface points for each one of the systems to the Contractor of this Contract. ATTIKO METRO S.A. points out that this integration is technically feasible.

### **Question 122**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Articles 12.1.8 & 12.1.12 – ICCS Specifications**

Please clarify whether the ICCS system itself is considered a passenger safety and security system rather than an integrated central management and supervision system that ensures integrated management and supervision of the telecommunications systems to enhance and support the safety of passenger trips and staff movements along the facilities of the extension to Kalamaria, in accordance with paragraphs 12.1.5 and 12.1.9 of this specification.

### **Response 122**

The Contractual Documents are clear and remain valid as they stand. The ICCS system is considered to be a central integrated management and supervision system which ensures unified management and supervision of telecommunications system. Moreover, the ICCS system includes the security and safety systems.

### **Question 123**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 12.2.1 – ICCS Architecture**

Based on the content of this paragraph, we understand that the interfaces between the ICCS system and the interconnected systems shall be implemented locally at the station level. Please clarify if this precludes the implementation of interfaces at a central level, via the system servers and the use of communication protocols.

### **Response 123**

The interfaces of the ICCS system with the interfaced system shall be implemented either locally or centrally depending on the case and do not exclude one another. This will be determined during the phase of the Designs to be compiled by the Contractor.

### **Question 124**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 12.2.3 – ICCS Interfaces**

Kindly specify the requirement for coverage of the PSDs by the ICCS system.

## CLARIFICATIONS DOCUMENT

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### **Response 124**

The ICCS system should be informed in the event of a general fault or problem in relation to the PSD doors, either directly or indirectly. Moreover, terminal PSD doors at each station platform end leading to the tunnels are connected to the IDS system, which informs the SMS, which, in turn, informs the ICCS, while BACS system is also informed.

### **Question 125**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 12.4.5 - ICCS Architecture**

Please confirm the requirement for an ICCS workstation in each new SMR, therefore in each new station of the extension, a fact that differs from the Architecture of the Base Project, where the ICCS workstations are installed only in the OCC and in the SMR, as it results from Part C, paragraph 9. Integrated Central Communications Control System (ICCS) of this specification. Also, please clarify whether new ICCS workstations are required in the OCC and the ECR, or only upgrades to existing ICCS workstations are required.

### **Response 125**

The requirement for an ICCS workstation intended for the Station Master in every new station is confirmed (i.e. in the SMR)

### **Question 126**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART B: DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION REQUIREMENTS - Article 12.6.2 - ICCS Interfaces**

Please identify the appropriate ICCS interfaces with the PABX, DLT, Intercom systems of the Main Contractor and the main contractor of the Kalamaria extension, so as they can be included in the offered ICCS system.

### **Response 126**

Any further information shall be made available to the Contractor during the phase of the Designs that he shall compile. The Contractual Documents are clear and remain valid as they stand.

### **Question 127**

#### **TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION \_LV\_DP270000 PART D: SPECIAL REQUIREMENTS- Article 1.3.4 - Fiber Optic Cables**

Please clarify whether it is mandatory to use single-mode fiber optic cables instead of corresponding multimode cables, always taking into account the optical signal loss requirements of the applications for which they are used, especially in the case of short cables.

### **Response 127**

It is stated that, even though not recommended, the use of multimode fiber optics of similar characteristics and performance as compared to the ones specified for the single-mode fiber optic cables is permitted for the interconnection of equipment within the boundaries of a station.

CLARIFICATIONS DOCUMENT

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**Question 128**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 PART D: SPECIAL REQUIREMENTS - Article 1.4.2 - Copper Cables**

Please clarify whether the E30 fire resistance requirement applies to all types of cables of all systems, or only to those that are required to be fire resistant as per fire regulations, legislation or specific specifications of Attiko Metro, e.g. life safety systems.

**Response 128**

The Contractual Documents are clear and remain valid as they stand.

**Question 129**

**TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS SPECIFICATION  
\_LV\_DP270000 – Interface with the Base Project**

We understand from the individual technical descriptions of the systems of this contract the requirement for full integration of the Kalamaria extension systems in the existing central systems in the OCC and the ECR of the respective systems of the Base Project, upgrading the existing hardware and software so as to manage and operate and systems of the extension. Please confirm that both types of solutions are accepted. i.e., the existing systems are expanded and upgraded, or new central hardware is added to the Kalamaria extension systems, which are then interfaced with the existing central systems for complete operability from the workstations in the OCC.

**Response 129**

The Contractual Documents are clear and remain valid as they stand.

**Question 130**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR  
THE PRCS SYSTEM K\_LV\_DP015460 - Article 10.1.2 - Communication Circuit  
Cables**

Please clarify whether the exclusive fiber optic cables shall be used for the connection of the PRCS system with the peripheral stations of the extension and the OCC / ECR, or the DTS system, as stated in the Performance Specification for Telecommunications. In the event fiber optic cables are used, please clarify whether they fall under the scope of the contractor of the Base Project and of the main contractor of the Kalamaria extension, or if they are new cables falling under the scope of this contract.

**Response 130**

The transmission of data through the DTS system is required. Fiber optic cables falling within the scope of the Base Project Contractor and the main contractor of the Kalamaria extension shall be used.

**Question 131**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR  
THE PRCS SYSTEM K\_LV\_DP015460 - Articles 1.6 & 2.1a) - Functions served by  
the PRCS**

In order to have remote control and surveillance of PPC equipment, AM must ensure the ability of PPC equipment to be connected to the PRCS, so that it can be remotely operated

## CLARIFICATIONS DOCUMENT

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and surveyed, since as the prospective contractor does not supply this equipment. If this function is not present in the Base Project line, then it cannot be achieved by any actions of the contractor of this contract. Please confirm

### **Response 131**

It is confirmed. The PPC equipment at the stations and at Nomarchia crossover shall be installed by the main contractor of the extension, while the option shall be provided for surveillance.

### **Question 132**

#### **DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Article 1.9 – Contractor’s responsibilities**

“The Contractor shall be also responsible to deliver a unified and functional PRCS system for the Base Project and the extension, regardless.....”. How can the contractor be responsible for the PRCS completeness and functionality at the Base Project?

### **Response 132**

The PRCS completeness and functionality in the Base Project shall be ensured by the Contractor of the Base Project. When the Contractor of this contract would have to intervene in order to supplement/modify the existing PRCS system, he must ensure the PRCS unobstructed operation both in the extension and in the Base Project.

### **Question 133**

#### **DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Articles 2.1 π) & 2.1 σ) – Functions served by the PRCS**

Please clarify the content of the above two points.

### **Response 133**

Point 2.1 π refers to the equipment control at the tunnel recesses (at Mikra forestation). Point 2.1 σ refers to points 2.1 λ and 2.1 ξ.

### **Question 134**

#### **DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Articles 5.4 & 5.5 – Critical and sensitive equipment - redundancy**

Please identify critical and sensitive equipment. Has it been already installed? Which is the third subsystem in stand-by inactive redundancy? Has it been already installed?

### **Response 134**

Critical and sensitive equipment (which, in any case, has already been installed in the OCC and the ECR) means any item of equipment not allowed to fail and, thus, it has redundancies. The current Contractor shall ensure that the subject equipment shall continue to be operational, further to any interventions he makes.

As regards the third subsystem, it has already been installed by the main contractor of the extension and constitutes an independent surveillance and control system at the SMRs of the stations which feature traction substations (Nomarchia, Aretsou, Mikra). The Contractor

## CLARIFICATIONS DOCUMENT

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of this contract shall ensure that the subject equipment shall continue to be operational, further to interventions he makes.

### **Question 135**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Article 10.5.1 – Interfaces between PRCS and hardware**

Are there any network connections between the PRCS and the hardware? If yes, what type of hardware and which are the communication protocols?

### **Response 135**

The requested information shall be provided to the Contractor during the phase of the Designs he will compile.

### **Question 136**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Article 10.5.8 – RTU connection cables**

Do the cables mentioned in this paragraph fall under the scope of this contract? Are they copper cables?

### **Response 136**

The cables mentioned in paragraph 10.5.8 fall under the scope of this contract and shall be installed by the Contractor. The type of cables shall be determined by the Contractor during the Detailed Final Design phase that he will compile.

### **Question 137**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Article 11 – Contractor’s obligations related to the Base Project equipment**

What type of equipment does it exist in the 25 Martiou Crossover?

Given that the Kalamaria LAS M.V. is connected to N. Elvetia Station and not to 25 Martiou Station, we consider that the re-configuration of the M.V. supply involves N. Elvetia Station. Kindly confirm.

### **Response 137**

The equipment in the 25 Martiou Crossover includes a full set of ten (10) 750 VDC switches ensuring the sectioning of the main line and of the extension at the subject point, while these are supplemented by the necessary auxiliary equipment, such as battery chargers, RTU unit, stray current switchboard, etc..

Second part of the question: Confirmed.

### **Question 138**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Articles 13.5.2 & 13.5.4 – Access Rights**

We expect that the access rights – at least in principle – have already been identified in the Base Project and that their detailed implementation lays with the candidate contractor and to

## CLARIFICATIONS DOCUMENT

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the contractor responsible for the extension to Kalamaria, so that a unified management method be followed by the users in the entire network. Kindly clarify.

### **Response 138**

The requested information shall be provided by the Contractor, during the phase of the Designs he will compile.

### **Question 139**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Article 13.12 – Monitoring the quality of the supply voltage**

Will the Contractor install devices to monitor the quality of the current or will he be interconnected with the existing ones? If the Contractor interconnects with the existing devices, then he should manage the pertinent information (data). Kindly clarify.

### **Response 139**

The main contractor of the extension shall install devices to monitor the quality of the current in the Project. The Contractor of this contract shall interface with the existing devices and should manage the pertinent information (data).

### **Question 140**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Articles 16.10 & 17 – System’s Performance and Reliability**

In these articles, the specification makes reference to the performance and reliability of the new integrated system. The current system ensures these requirements and allows its expandability, satisfying, at the same time, the aforesaid requirements. In any other case, is the Contractor called upon to replace the existing system?

### **Response 140**

The Contractor shall not replace the existing system. All additions/modifications that he will make to the existing system, in combination with the subject system’s new part that shall cover the extension, shall meet the requirements of articles 16.10 and 17 as a whole of the Specifications. If, in the Detailed Final Design, this is proven to be technically not feasible due to the extension adding new control points, then the Contractor would have to ensure that the requirements of articles 16.10 and 17 are met as regards the extension project, whatever the consequences this entails for the overall performance of the system.

### **Question 141**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Article 18.4 – UPS related requirements**

If the calculation of the Contractor proves that the existing UPS is not sufficient, then who will be responsible to deal with this matter?

### **Response 141**

The UPSs at the extension have been dimensioned in order to provide support to the PRCS of the extension. If the above are proven to be insufficient, the replacement of the UPSs does not constitute the responsibility of the Contractor of this contract and the UPS shall be replaced at the care of ATTIKO METRO S.A.

**CLARIFICATIONS DOCUMENT**

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**Question 142**

**DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE PRCS SYSTEM K\_LV\_DP015460 - Article 21 – Interface with SMR equipment**

Which are the functions that this interface is called upon to satisfy? Which are the provisions that the Kalamaria extension Contractor has made?

**Response 142**

The requested interface concerns the independent surveillance and control system at the SMRs of the stations which have traction substations (Nomarchia, Aretsou, Mikra) and, in particular, whether the operation of this system (which constitutes the main contractor's responsibility) is active or has failed, as well as whether it is local or remote. The Contractor of this contract shall ensure the proper operation of this interface.

**Question 143**

**Reference: Design, Procurement, Installation and Commissioning of Telecommunications, Low Voltage and Control Systems in the Thessaloniki Metro Extension to Kalamaria”**

**(1) RFP-380\_20\_CC\_ARTICLE 17, page 29, paragraph 17.1**

**(2) RFP-380\_20\_CC\_ARTICLE 17, page 31, paragraph 17.5**

**(3) RFP-380\_20\_GENERAL SPECIFICATIONS-GS0-0150, page 40, paragraph 1**

With regard to references (1) and (2), the request for one year for preventive maintenance and for three years for corrective maintenance is understood. However, according to “Article 171 of Law 4412/16 [reference (3)], the “period for the obligatory maintenance of the Project” is set to fifteen months.

You are kindly requested to confirm that the requested preventive maintenance period is equal to twelve months, starting from the Final Acceptance, and not equal to fifteen months.

**Response 143**

It is clarified that the reference to article 171, Law 4412/16, paragraph 1 of article GS0150 of the General Specifications is not correct (it is referred to by mistake, since this is not a work contract). Therefore, the requirements of article 17 of the Conditions of Contract are in effect.

**Question 144**

**Reference: Design, Procurement, Installation and Commissioning of Telecommunications, Low Voltage and Control Systems in the Thessaloniki Metro Extension to Kalamaria”**

**(4) RFP-380\_20\_CC\_ARTICLE 18, page 31, paragraph 18.5**

With regard to reference (4), the Awarding Authority is called upon to confirm that all obsolete items are integrated into the requirements and, thus, any replacements of obsolete materials shall be accepted following the relevant justification.

**Response 144**

Any replacements of obsolete materials shall be accepted following the relevant justification.



## **CLARIFICATIONS DOCUMENT**

---

### **Question 145**

**Conditions of Contract para. 8.1: “Completion of the design, procurement, installation, testing and commissioning of all telecommunications, low voltage and power remote control systems included in this contract which concerns the Thessaloniki Metro Extension to Kalamaria, including also the completion of all obligations ensuing from the contractual documents for the sound execution of the contract”.**

**General Specifications GS420 para. 3: “The Commissioning Time Schedule shall comply with the corresponding time schedule of the main Contractor of the extension, who will coordinate all the testing activities on site the project”.**

Taking into consideration that, based on article 8 of the Conditions of Contract, the overall duration of the project is 550 days and based on article 3 of the General Specifications (GS 240), the Commissioning Time Schedule shall comply with the corresponding time schedule of the main Contractor of the extension, who will coordinate all the testing activities on site the project, and given that it is possible that these two obligations might never be aligned in terms of time, the project time schedule of the current offer shall be based on the fact that the overall duration of the application field of this contract shall in no case exceed 550 days. Kindly correct the aforementioned assumption if it is not valid.

### **Response 145**

The time schedule of this contract shall be based on the fact that the overall duration of the entire application field of this contract shall in no case exceed 550 days.

However, in case during the execution of the Contract, delays are noted for which the Contractor is not liable, the provisions of article 8.2 of the Conditions of Contract and, in general, the provisions of Article 206, Law 4412/16 “Materials Delivery Time” shall apply

### **Question 146**

Whereas article 20.6 of the Invitation requires that the candidates indicate in advance their sub-contractors when submitting offer and that they indicate the section of the contract they intend to award in the form of a sub-contracting work and the relevant percentage corresponding to the total of the contract, article 22.1 of the Invitation foresees that the information related to sub-contractors shall be stated to the awarding authority during the signing of the contract, if the sub-contractors are known by that time and the relevant sub-contracting agreements have been signed by then.

Our interpretation is as follows:

- i) Sub-contractors can be also selected, defined and announced to the awarding authority after the signing of the contract
- ii) If the candidate is not successful in the Tender, this shall entail no restrictions in terms of his involvement or, in the case of an Association, this shall entail no restrictions in terms of the involvement of any of the members of the Association in the project as subcontractor on the part of the Contractor.

### **Response 146**

Upon contract award, the Contractor may request the approval of a sub-contractor by ATTIKO METRO S.A. which shall examine the subject request. The proposed subcontractor may be one of the participants in the Tender.

### **Question 147**

In order to delimit the scope and properly assess it, kindly confirm that the information technology infrastructure, to be made available by the main contractor, shall also include

## **CLARIFICATIONS DOCUMENT**

---

active equipment (e.g. Access Switch) allowing for data, video and voice transmission from the point where the IP devices are installed to the main DTS switch installed at the equipment room of each station.

### **Response 147**

The information technology infrastructure to be made available by the Contractor of the Extension includes only cabling work and the ODF racks. The entire active equipment shall be provided by the Contractor of this Tender.

In case further requirements are identified relating to the installation of structured cabling or additional ODF racks, serving the Digital Transmission System and the URS system, these must be fulfilled by the Contractor of this contract (see article 2.4 of the Design, Performance Materials and Workmanship Specifications for Telecommunications and Low Voltage).

The same stands for active equipment.

See also paragraph 5.3.1 of the Specifications.

### **Question 148**

With regard to the requirements specified in paragraphs 7.2.3 and 7.2.5 of the document entitled “Design, Performance, Materials and Workmanship Specifications of Telecommunications and Low Voltage Systems” (K LV DP270000), there is a discrepancy in the list of the areas to be covered by the PAS. Kindly confirm that the requirement of paragraph 7.2.3 of the document in question prevails, taking also into consideration the requirement of paragraph 5.3.1 of the document “Telecommunications” (T DP 15100) which refers to the Base Project.

### **Response 148**

No discrepancy is identified between the articles you refer to. The Contractual documents are clear and remain valid as they stand.

### **Question 149**

DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR POWER REMOTE CONTROL SYSTEM (PRCS) K LV DP015460, para. 5.5

In paragraph 5.5 of Specification K LV DP015460 it is stated that: “The critical and/or sensitive sub-systems in the OCC, the ECC and the peripheral stations shall be connected via redundant pairs to a 3<sup>rd</sup> sub-system in the form of a stand-by inactive redundancy.

Kindly clarify the following items:

- Which are the critical sub-systems you refer to?
- Which is the 3<sup>rd</sup> sub-system you refer to for which stand-by inactive redundancy is required?
- Which is the existing configuration? Is a modification of the configuration required?

### **Response 149**

See response #134. During the implementation, the current PRCS system shall be modified, as required, keeping its functions.

## CLARIFICATIONS DOCUMENT

---

### **Question 150**

DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR POWER REMOTE CONTROL SYSTEM (PRCS) K LV DP015460, para. 10.1.2

In paragraph 5.5 of Specification K LV DP015460 it is stated that: “The Contractor shall provide dual circuits for communication lines along the two independent and different cable routings between the OCC, the ECC and the relevant peripheral stations. This connection shall be realized through fiber optic cables”.

Kindly clarify which are the existing circuits for communication lines between the OCC, the ECC, and whether these circuits must be changed.

### **Response 150**

The Contractor of the Base Project shall provide dual circuits for communication lines along the two independent and different cable routings between the OCC, the ECR and the relevant peripheral stations in the Base Project, while the Contractor of the extension shall provide optic fibers along the extension, in order to ensure dual circuits for communication lines. The Contractor of this Tender should connect to aforementioned dual circuits.

### **Question 151**

DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR POWER REMOTE CONTROL SYSTEM (PRCS) K LV DP015460, para. 10.3.1

Kindly provide us with the existing design for the Base Line concerning the communication protocol between the OCC, the ECC, the relevant peripheral stations and the Depot.

### **Response 151**

The requested information shall be provided to the Contractor of this Tender during the phase of the Designs he will compile.

### **Question 152**

DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS FOR POWER REMOTE CONTROL SYSTEM (PRCS) K LV DP015460, article 24

Kindly provide us with the software configuration files (configuration programming files) for PLC, Server, SCADA, HMI, etc. in the Base Project.

### **Response 152**

The requested information shall be provided to the Contractor of this Tender during the phase of the Designs he will compile.

### **Question 153**

DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS K LV DP270000

Kindly confirm that ATTIKO METRO S.A. will make available to the Contractor of the Project all necessary licenses (Interface Licenses), the Software Development Kits (SDK), the Interface Control Documents (ICD), the Application Programming Interfaces (API) which have been used for the configuration of the Base Project systems on a central OCC level and which must be extended in view of the Extension to Kalamaria. The above are absolutely necessary for the interface between the ICCS, SMS, TETRA, PIS systems of the OCC and the corresponding systems of the extension.

## CLARIFICATIONS DOCUMENT

---

### **Response 153**

The items requested above shall be provided to the Contractor of this Tender during the phase of the Designs he will compile.

### **Question 154**

In the Document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation to Tender, para. 11.2.3, it is stated that:

“The PIS screens shall basically display general information ensuring that passengers are immediately informed on matter related to their safety. There shall also be the possibility of displaying emergency messages, as in the case of a station evacuation, in order to prevent more additional passengers from entering the station from the surface”.

Kindly clarify whether outdoor cameras are required to be installed in all station entrances of the Kalamaria Extension and provide their specifications.

### **Response 154**

There are no screens in outdoor areas.

### **Question 155**

In the Document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation to Tender, para. 11.2.4, it is stated that:

“Each station shall be fitted with the appropriate equipment that will receive the necessary messages and information about the operation of the Base Metro Project and the extension to Kalamaria and will inform the passengers via the appropriate electronic screens of the PIS system located on the platforms, the public areas and the concourse areas”.

Kindly clarify in which areas it is required to install passenger information displays.

### **Response 155**

PIS screens shall be installed at the station platforms (two (2) double sided), while two (2) single sided screens shall be installed at the ticketing or concourse areas.

### **Question 156**

In the Document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation to Tender, para. 11.2.5, it is stated that:

“Along the entire route of the passengers, from the entrance to the station to the train boarding, all the doors destined to be used by the operation and maintenance personnel (including the escape routes), but also any door easily accessible to the public shall have PIS screens at appropriate critical points”

Kindly clarify whether passenger information displays shall be installed in doors used by the personnel and, if this is the case, kindly provide their characteristics.

### **Response 156**

See response #26.

## CLARIFICATIONS DOCUMENT

---

### **Question 157**

In the Document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATIONS OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation to Tender, para. 11.4.16, it is stated that:

“The PIS system screens to be installed in the stations of the extension to Kalamaria will have at least the following technical characteristics:

- Displays with LED technology and RGB indications shall be used
- Displays shall be double faced
- High resolution, HD 1280x720 pixels minimum
- Only one screen type shall be used for the extension to Kalamaria

In addition, in the same document, in paragraph 11.4.17, it is stated:

“The screen shall permit an information capacity of three lines. The display lines shall contain the following information:

- Display of two successive trains with the following information:
  - Destination including temporary terminals (the number of characters shall support the longest station name and shall be finalised during DFD).
  - Digits for the number of minutes to the arrival of the next train (2 digits each for the indication of minutes).
- Remarks for downgraded situations, such as:
  - Non Stop trains - Service train – “DO NOT ENTER”

Given that the displays to be used in the entire system must be of one single type, double faced and of high resolution HD 1280x720 pixels, it results that per location two items of displays shall be installed facing opposite directions.

Kindly confirm.

### **Response 157**

PIS screens shall be installed at the station platforms (two (2) double sided), while two (2) single sided screens shall be installed at the ticketing or concourse areas.

### **Question 158**

Kindly provide us with the architectural drawings of the stations depicting weak and high current grids.

### **Response 158**

Enclosed herewith is a CD containing all current coordination drawings of the five (5) stations and Nomarchia Crossover. These CDs also include the requested trays for strong and weak currents.

On the occasion of this question, it is stressed that the Contractor of this tender shall exhaust all technical solutions in order to implement the systems of this contract on the basis of the existing trays, embedded pipes, cables routing and openings or holes in walls / masonry walls / floors, as these have been implemented by the main Contractor of the extension; it is also stressed that if relevant modifications are required (e.g. a new hole for cable routing in a wall or a new section of a tray, etc.), their cost shall be borne by the Contractor of this tender.

## CLARIFICATIONS DOCUMENT

---

The same principle, i.e. that of implementing technical solutions compatible with the items already designed / constructed / implemented by the main Contractor of the extension, unless it is proved to be impossible, stands also for:

- For ensuring the electromagnetic compatibility of the equipment of this contract, as related to the existing equipment of the main contractor;
- For the more general design coordination, as well as the spatial and operational interfaces, and
- For the spatial coordination, and, more specifically, for not covering the field of the CCTV cameras by other signs/signage means in the public areas in the five (5) new stations.

### **Question 159**

Kindly provide us with the typical cross section drawing of the tunnel.

### **Response 159**

Enclosed herewith is a CD containing the relevant coordination drawing that covers numerous cases of tunnel cross-sections and platform level cross-sections in stations.

### **Question 160**

Kindly provide with us with the single-line diagram of the traction power system of the extension.

### **Response 160**

Enclosed herewith is a CD containing the relevant drawing.

### **Question 161**

Kindly provide with us with the single-line diagram of the MV 20KV switchgears for the Lighting and Auxiliary Substation (LAS) and the MV of the extension, as well as with the Medium Voltage single-line diagram of the extension.

### **Response 161**

Enclosed herewith is a CD containing the relevant drawing.

### **Question 162**

Kindly provide with us with the single-line diagram of the MV 20KV switchgears for the rectifier substations of the extension.

### **Response 162**

Enclosed herewith is a CD including a relevant General Single Line Diagram of the 20 kV Medium Voltage Network of the extension.

### **Question 163**

Kindly provide with us with multi-line diagrams of the **20 MV switchgears for the LAS and RS.**

### **Response 163**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

**CLARIFICATIONS DOCUMENT**

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**Question 164**

Kindly provide with us with multi-line diagrams of the **RS 750V DC Switchgear**.

**Response 164**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

**Question 165**

Kindly provide with us with multi-line diagrams of the **400 AC Switchgears**.

**Response 165**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

**Question 166**

Kindly provide with us with multi-line diagrams of the **Battery Charger Cabinets**.

**Response 166**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

**Question 167**

Kindly provide with us with multi-line diagrams of the **Rectifier Switchgears**.

**Response 167**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

**Question 168**

Kindly provide with us with multi-line diagrams of the **Stray Current Cabinets**.

**Response 168**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

**Question 169**

Kindly provide with us with multi-line diagrams of the **Short Circuiting Device (VLD)**.

**Response 169**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender..

**Question 170**

Kindly provide with us with multi-line diagrams of the **TCR system**.

## CLARIFICATIONS DOCUMENT

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### **Response 170**

Enclosed herewith is a CD containing a text with the description of the TCR system. All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

### **Question 171**

Kindly provide with us with multi-line diagrams of the **Intertripping system**.

### **Response 171**

Enclosed herewith is a CD containing a diagram of the Intertripping system (along with the traction diagram). All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

### **Question 172**

Kindly provide with us with multi-line diagrams of the **General Release system**.

### **Response 172**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

### **Question 173**

Kindly provide with us with multi-line diagrams of the **BACS Cabinet**.

### **Response 173**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

### **Question 174**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **20 MV Switchgear** or whether it is mandatory to use hard-wired I/O signals.

### **Response 174**

See responses #174 – 183 (kindly see below after question 183).

### **Question 175**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **RS 750V DC Switchgear** or whether it is mandatory to use hard-wired I/O signals.

### **Response 175**

See responses #174 – 183 (kindly see below after question 183).

### **Question 176**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **400 AV Switchgear** or whether it is mandatory to use hard-wired I/O signals.



## CLARIFICATIONS DOCUMENT

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### **Response 176**

See responses #174 – 183 (kindly see below after question 183).

### **Question 177**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **Battery Charger Cabinet** or whether it is mandatory to use hard-wired I/O signals.

### **Response 177**

See responses #174 – 183 (kindly see below after question 183).

### **Question 178**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **Rectifier** or whether it is mandatory to use hard-wired I/O signals.

### **Response 178**

See responses #174 – 183 (kindly see below after question 183).

### **Question 179**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **Stray Current Switchgear** or whether it is mandatory to use hard-wired I/O signals.

### **Response 179**

See responses #174 – 183 (kindly see below after question 183).

### **Question 180**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **Short Circuiting Device** or whether it is mandatory to use hard-wired I/O signals.

### **Response 180**

See responses #174 – 183 (kindly see below after question 183).

### **Question 181**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **TCR system** or whether it is mandatory to use hard-wired I/O signals.

### **Response 181**

See responses #174 – 183 (kindly see below after question 183).

### **Question 182**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **Intertripping system** or whether it is mandatory to use hard-wired I/O signals.

### **Response 182**

See responses #174 – 183 (kindly see below after question 183).

## CLARIFICATIONS DOCUMENT

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### Question 183

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **General Release** or whether it is mandatory to use hard-wired I/O signals.

### Response 183

See responses #174 – 183 (kindly see below).

### Responses: 174 – 183

The response to questions #174-183 fall under the scope of the Detailed Final Design on the basis of the Specifications, in view of ensuring operability, reliability and availability (RAMS). As a general principle, it may be assumed that signals are transmitted to the RTUs via the Ethernet protocol. As regards the Power Quality Meter, the Ethernet Modbus protocol is used. For all remaining signal connections, the use of hardwired (hardwired I/O) signals is required.

For information reasons, the solutions followed in the Base Project are the following:

#### RS RTU

- Stray Current Cabinet : **Ethernet** communication
- 750V DC SWB (including GR, TCR, Intertripping) : **Ethernet** communication
- Short Circuit Device : **Ethernet** communication (through 750V DC SWB)
- Battery Charger RS : signals are hardwire connected to 750V DC SWB. Then these signals are delivered with **Ethernet** communication through 750V DC SWB to RTU RS
- Rectifier : signals are hardwire connected to 750V DC SWB. Then these signals are delivered with **Ethernet** communication through 750V DC SWB to RTU RS
- RS MV SWG (1): a part of the signals are Ethernet connected to 750V DC SWB. Then these signals are delivered with **Ethernet** communication through 750V DC SWB to RTU RS
- RS MV SWG(2): a part of the signals are **hardwired** connected to RS RTU
- RS MV SWG(3): Power Quality Meter measurements are **Ethernet** Modbus connected to RS RTU
- Rectifier Transformer : Signals are hardwire connected to MV SWG. Then these signals are **hardwire** connected to RS RTU
- Auxilliary Transformer : Signals are hardwire connected to MV SWG. Then these signals are **hardwire** connected to RS RTU
- RS LV SWB : Signals are **hardwire** connected to RS RTU.

#### LAS RTU

- MLVP : Signals are hardwire connected to LAS RTU
- LAS MV SWG: signals are hardwired connected to LAS RTU
- MVP (1): signals are hardwired connected to LAS RTU
- MVP (2): Power Quality Meter measurements are Ethernet Modbus connected to LAS RTU
- LAS T/Fs : Signals are hardwire connected to MV SWG. Then these signals are hardwire connected to LAS RTU

## CLARIFICATIONS DOCUMENT

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- Battery Charger LAS: signals are hardwired connected to LAS RTU

### **Question 184**

Kindly clarify whether communication via bus (TCP/IP) is permitted in order to receive signals from the **BACS** or whether it is mandatory to use hard-wired I/O signals.

### **Response 184**

There is not an interface between BACS and PRCS.

There is an interface between BACS and SMS.

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

### **Question 185**

In the document entitled “K LV DP015460”, chapter 21, it is stated that: “The Contractor shall ensure, in cooperation with the main contractor of the Kalamaria extension, the interface between the PRCS and the equipment to be installed in the Station Master Room (SMR), as regards the control points, signal transmission etc.”. Kindly indicate precisely the interface requirements concerning: 1) the interface points, 2) the independence of SMR-PRCS systems and 3) Control hierarchy

### **Response 185**

See response #142 as regards items (1) and (2).

As concerns the control hierarchy of the equipment that can be controlled locally or remotely, it shall be performed as follows (in descending order of priority):

- a) Through the controllers integrated locally into each switchboard of any Sub-station (RS / LAS / MVP);
- b) Through the controllers on the 750 Vdc switchboard, especially for the Rectifier Sub-station, wherever it exists;
- c) Through the controllers in the SMR, especially for the Rectifier Sub-station, wherever it exists;
- d) Control by the Power Controller in the OCC for any Sub-station (RS / LAS / MVP).

### **Question 186**

Technical Description, Paragraph 3.3, page 10 (Greek text): “With regard to the systems included in the Contractor’s scope, the addition of five (5) new stations and the completion of the respective central systems in the OCC and the ECR would be desirable not to result in additional operator consoles or screens, other than the existing ones for the Base Project. If this is not feasible, the Contractor shall submit his properly justified proposal for amendments / additions, which must be approved by AM”.

It is understood that the Contractor is allowed to install additional workstations.

Kindly confirm that our understanding is correct.

### **Response 186**

The requirement of ATTIKO METRO S.A. consists in the integration of the additional information/control icons, etc. related to the extension into the existing workstations of the

## **CLARIFICATIONS DOCUMENT**

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controllers. If it is proved, through the Detailed Final Design, that this is not feasible, then the installation of additional workstations by the Contractor of this tender shall be allowed, after thorough examination by ATTIKO METRO S.A.

### **Question 187**

9.3.2 “The Contactor shall incorporate the software of the system of the Kalamaria extension into the central unit (DMT) of the SMS and into the ICCS system central unit located at the OCC and the ECR of the Thessaloniki Base Project”.

Kindly provide a description of the SMS system of the Base Project.

### **Response 187**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender.

### **Question 188**

9.3.10 “ (...) the SMS system shall feature interfaces with the Building Automation Control System (BACS), the signaling subsystem (ATS), ...”.

Kindly communicate to us the architecture and the installation drawings of the aforementioned systems.

### **Response 188**

The SMS system features interfaces with the BACS system and limited interfaces (mainly for diagnostics) with the ATS signaling system. All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender during the phase of the Designs he will compile.

### **Question 189**

Kindly confirm whether we have understood correctly that the entire IT infrastructure of the station is provided by the Lead Contractor, including racks, switches and routers (made of copper and fiber optics), feeders etc., in accordance with the stipulations of paragraphs 1.1.3 – 1.1.5 of Part D of the document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS”. If this is not the case, kindly provide the relevant specifications. In all cases, kindly provide the relevant designs of the IT network, as already requested, indicating the foreseen locations of the local distributors-racks, in order to specify the length of the necessary cabling.

Further to the above, as regards CCTV, kindly clarify whether, according to the reference made in paragraph 8.3.1: “Connection ports with the LAN network” a) for the connection of peripherals of the (camera) system with the local transmission network of each Station, it is required to add only patch panels for the termination of the “horizontal network” cables at the foreseen racks of the data transmission system, not including patch cords, switches etc. Or b) to create a separate network and connection via “connection ports” with the data transmission network of the Station. Kindly also clarify in case a) whether the switches of the data transmission system are suitable for the operation of POE peripherals. Moreover, kindly clarify whether, in case it is necessary to install an additional local distributor in a rack, due to the maximum permissible length of the copper cable of the horizontal network, in accordance with the provisions of paragraphs 4.4 - 4.9, the works related to the supply and

## **CLARIFICATIONS DOCUMENT**

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installation of the required equipment must be executed by the Contractor of the data transmission system or the Contractor of the subject telecommunications project. In this case, kindly provide the relevant specifications (racks – switches etc.).

### **Response 189**

If further requirements are identified for the installation of structured cabling, active or passive equipment serving the Digital Transmission and the IT Infrastructure Systems, these should be fulfilled by the Contractor of this contract.

(See articles 2.4 and 5.3.1 of the Specifications Design, Performance, Materials and Workmanship Specification for Telecommunications and Low Voltage Systems).

### **Question 190**

Kindly provide the Technical Description of the **ATC** system of the main contractor. The relevant data is necessary for the costing of the ICCS system.

### **Response 190**

All information required for the compilation of the Detailed Final Designs shall be provided to the Contractor of this Tender during the phase of the Designs he will compile.

### **Question 191**

Kindly provide the Technical Description of the **DLT/TCR** system of the main contractor. The relevant data is necessary for the costing of the ICCS system.

### **Response 191**

The requested information is included in the CD enclosed herewith.

### **Question 192**

Kindly provide the Technical Description of the **PABX-Telephone system** of the main contractor. The relevant data is necessary for the costing of the ICCS system.

### **Response 192**

The requested information is included in the CD enclosed herewith.

### **Question 193**

Kindly provide the Technical Description of the **Clocks** system of the main contractor. The relevant data is necessary for the costing of the ICCS system.

### **Response 193**

The requested information is included in the CD enclosed herewith.

### **Question 194**

In the document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 8.4.5, it is stated that:

"The following types of cameras shall be installed, namely:

- Fixed IP CCTV indoor cameras in stations

## CLARIFICATIONS DOCUMENT

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- Panoramic rotating IP (PTZ IP) indoor CCTV cameras, ceiling mounted, in stations”. This means that provision is made for the installation of indoor cameras only. In paragraph 5.1.8, Part 5 in the same document, in the list of required spare parts reference is also made to << Outdoor fixed Camera housing pcs 2<< and <<Outdoor fixed Camera housing pcs 2>>.

Kindly clarify.

### **Response 194**

The Project at hand provides only for the installation of indoor cameras. The requirement in paragraph 5.1.8 of the Specifications for outdoor fixed cameras is deleted.

### **Question 195**

In the document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 8.2.3, it is stated that: “At entrances/exits of technical rooms or of other rooms of particular importance for the Metro operation, at the points where Automatic Ticket Issuing Machines (ATIM) and Ticket Validators are located, as well as at the gates, fixed cameras shall be mainly used for surveillance”. Moreover, in paragraph 8.2.12, it is stated that: “The design and the exact locations of cameras at the new station and at the remaining points of Kalamaria extension for sufficient surveillance of all critical areas shall be specified during the Contractor’s Detailed Final Design phase”. Please confirm that the aforementioned references to areas “of particular importance” or “critical” areas etc. refer exclusively to “public” areas, as stated in the Introduction of the chapter concerning CCTV (paragraph 8.1.1) and elsewhere, and not to other personnel areas.

Kindly also confirm that the word “surveillance” mentioned in paragraph 8.1.5: “The CCTV system also be also used for surveillance purposes and for protection against non-authorized entrance to all necessary areas of the new stations and extensions” refers to the entrance points in personnel areas from public areas and not to the entrances in individual personnel areas, e.g. technical rooms etc.

### **Response 195**

The Specification is valid as it stands.

### **Question 196**

In the document entitled “DESIGN, PERFORMANCE, MATERIALS AND WORKMANSHIP SPECIFICATION FOR THE TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS” of the Invitation, in paragraph 1.1.8, Part D, it is stated that: “All cables shall be resistant to corrosion, vermin (rodent) and insect attack”.

Please clarify whether the specific requirement for vermin-proofing concerns cables in tunnels and/or cables in a station, in combination with the stipulations of paragraph 1.4.3 of the same document: “All cables within tunnels, apart from those related to radio communication, shall be armoured”; please also clarify the relevant reference in paragraph 1.2.10: “For copper cables, a Main Distribution Frame (MDF) shall be used for FTP CAT6 copper cables, while for OF cables, an optical distribution frame (ODF) shall be used”.

### **Response 196**

The question is not clear. The Specification is valid as it stands.

## **CLARIFICATIONS DOCUMENT**

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### **Question 197**

Kindly inform us whether the software version of the CCTV system (BVMS by Bosch, in accordance with paragraph 4.10 of Part C' of the Specifications document) is rather recent (10.1 or newer), so that it is possible to integrate the technology of the CCTV systems of the stations of the extension into the central software. Otherwise, kindly provide analytical information about the existing CCTV system of the Base Project to enable the cost estimation for the upgrading of the existing system.

### **Response 197**

The available BVMS software version is version 7.

### **Question 198**

Kindly clarify that the Tetra system of the Base Project is fully compatible and provides all functions and interfaces in accordance with standards “EN 300 392-3-1 TETRA ISI General design” and “EN 300 392-3-5 TETRA Inter-system interface”.

### **Response 198**

See response #89.

### **Question 199**

As regards article 15.3 of the Conditions of Contract, kindly confirm that the “Manager” with at least 10 years of experience in Low Voltage/Telecommunications systems and the “Person Responsible for the Implementation of the Contract Works” with at least 5 years of experience in Low Voltage/Telecommunications systems could be also, alternatively, graduate Mechanical Engineers, Electrical/Mechanical Engineers or Telecommunications Engineers. These profiles would be more appropriate for the specific requirements of the Project and would be more useful in the interaction and cooperation with other Contractors involved in the Extension to Kalamaria Project.

### **Response 199**

The Manager must be a Graduate Electrical Engineer with at least ten (10) years of experience in Low Voltage/Telecommunications systems. The Person Responsible for the Implementation of the Contract Works, who must assume his duties prior to the commencement of the Contract Works, may be a Graduate Electrical Engineer or a Telecommunications Engineer with at least five (5) years in experience in Low Voltage / Telecommunications Systems.

### **Question 200**

RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS, §8.4.23:

Requirement: The digital image recording system shall consist of individual digital recorders of industrial type images to be installed in the CCTV cabinet in each station. The number of image recorders shall be such that it is deemed sufficient for the recording of optical signals of all cameras for each station.

Question / Clarification: The digital image recording units shall be installed in a cabinet located in the technical room under controlled environmental conditions. Can the supply of digital recorders which are not of industrial type be accepted?

### **Response 200**

The Specification is valid as it stands.

## CLARIFICATIONS DOCUMENT

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### **Question 201**

RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS, §10.4.1:

Requirement: Provide an intrusion detection alarm to prevent graffiti tagging of Metro facilities and trains and to detect threats which may lead to vandalisms, limit the operation of the metro, damage the interior of the train with dangerous materials and objects, such as explosive gas or weapons.

Question / Clarification: Kindly confirm that this requirement can apply only in the five stations included in the scope of this tender.

### **Response 201**

This requirement can apply to the five stations, Nomarchia Crossover and to the shafts.

### **Question 202**

RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS, §10.4.1:

Requirement: Provide an intrusion detection alarm to prevent graffiti tagging of Metro facilities and trains and to detect threats which may lead to vandalisms, limit the operation of the metro, damage the interior of the train with dangerous materials and objects, such as explosive gas or weapons.

Question / Clarification: Kindly confirm that the system that you specify is an Intrusion Detection system not requiring any special equipment / operability to detect the following:

- dangerous materials and objects
- explosive gas
- weapons
- Graffiti tagging.

### **Response 202**

It is confirmed.

### **Question 203**

RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS, §10.6.11:

Requirement: The management software shall be developed and shall be user friendly. For safety / security reasons and for developing the evacuation plan, the software shall list immediately the number of people inside a defined area, room or zone. This information shall be requested by the Station Master in case of evacuation.

Question / Clarification: Kindly confirm that this specific requirement shall apply only in the rooms where access is controlled.

### **Response 203**

It is confirmed.

### **Question 204**

RFP\_380\_20\_SPECIFICATION\_K\_LV\_DP270000\_TELECOMMUNICATIONS, 10.6.11:

Requirement: The management software shall be developed and shall be user friendly. For and for developing the evacuation plan, the software shall list immediately the number of people inside a defined area, room or zone. This information shall be requested by the Station Master in case of evacuation.



## CLARIFICATIONS DOCUMENT

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Question / Clarification: According to the requirement of §10.6.1 and especially due to the presence of exit buttons, the Intrusion Detection System can estimate only by approximation the number of people inside a room where access is controlled. Kindly confirm that the requirement of §10.6.11 is covered by such an estimation by approximation and does not imply that any additional equipment shall be provided.

### **Response 204**

Your understanding is confirmed. For reasons of adhering to the safety / security rules by the personnel, the precise estimate of the number of personnel in the rooms under examination shall be ensured through operation procedures.

### **Question 205**

PIS system screens - in the Technical Specifications document, in §11.4.20, reference is made to the following:

1. Max. operation temperature: 60° C
2. Displays with LED technology.

Kindly clarify whether equipment whose maximum operation temperature is 55° C is accepted or not, taking into account the area where it will be installed, and whether screens using other types of technology (e.g. TFT, LCD) can be proposed or not.

### **Response 205**

The Specification is valid as it stands.

### **Question 206**

DTS system – as regards the network equipment, the referenced operation temperatures ranging from -5° C up to 50° C. However, the operation limits of the existing equipment of the Base Project range from 0°C up to 45°C. Kindly clarify whether, for reasons of equipment uniformity, it is accepted to use the same equipment used in the Base Project.

### **Response 206**

The Specification is valid as it stands.

**CLARIFICATIONS DOCUMENT**

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**B. CDs WITH INFORMATION**

The interested economic operators may take delivery of the CDs at the address referred to in paragraph 1.3 of the Invitation, further to relevant communication with ATTIKO METRO S.A..

CD No. 1 : It concerns Question 158.

CD No. 2 : It concerns Questions 159, 160, 161, 162, 170, 171, 191, 192 and 193.

CD No. 3 : It includes a set of documents for the low voltage systems based on PANEPISTIMIO Station in the Thessaloniki Metro Base Project. This information is provided for the general and wider understanding of the scope of works, without this meaning that the solutions implemented for PANEPISTIMIO Station will be followed, since the Specifications for the Base Project are not the same as those for the Extension.