

MUNICIPAL DISASTER RISK REDUCTION PROJECT

PROCUREMENT AND INSTALLATION OF THE
EQUIPMENT FOR EARLY WARNING SYSTEM IN
CITY OF UŽICE

TENDER DOCUMENTS

VOLUME I,
VOLUME II
&
VOLUME III

City of Užice
February 2020

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VOLUME I

THE TENDER

SECTION 1: INVITATION FOR TENDER

1. Preamble

Within the framework of its co-operation between Switzerland and Serbia, the Swiss Government represented by the State Secretariat for Economic Affairs (hereinafter referred to as SECO), provides financial assistance on a grant basis for the **Municipal Disaster Risk Reduction Project (MDRRP) – Procurement and Installation of the Equipment for Early Warning System in City of Užice**, (hereinafter referred to as the Project).

Early warning system consist of hydrological stations, automatic meteorological, climatological and precipitation stations that are foreseen to be installed based on priority list, which includes Priority 1 and Priority 2. Installation of the Stations listed in the Priority 1 is required while installation of the Stations listed in the Priority 2 is optional and will be decided after evaluation of the Offers.

The project was formally approved by the Swiss authorities. A Bilateral Project Agreement between the Authorities of Switzerland and Serbia has been in force since 28th of March 2017.

City of Užice, hereinafter referred to as the Principal, is responsible to ensure proper implementation of the project by carrying out all the procurement, coordination and supervising the execution of the services by the Contractor and overall managing the project in a harmonized manner.

Within the MDRRP Consortium Stucky Ltd, Rue du Lac 33, P.O. Box, CH-1020 Renens VD 1, Switzerland and Stucky Balkans, Boulevard Mihaila Pupina 115E, 11070 Belgrade, Serbia (hereinafter referred to as Consultant) are entrusted by the SECO with the consultancy services related to the Project.

2. Invitation

This Invitation follows the publication of the Tender documents for this Project on the Swiss website for public procurement (SIMAP) www.simap.ch, web site of City of Užice www.uzice.rs, official PIMO web site www.obnova.gov.rs and in local newspapers "Politika".

In case an inconsistency between the present Tender Documents and the publication is noted, the information contained here shall prevail. In case of an inconsistency within the Tender Document, Section II, read together with Section III, of Volume I shall prevail over all other sections.

Firms having requested the Tender Documents in writing are now entitled to submit sealed Tenders for Municipal Disaster Risk Reduction Project (MDRRP) – Procurement and Installation of the Equipment for Early Warning System in City of Užice.

Tendering will be conducted according to SECO procurement guidelines.

Tenders must be delivered to the address below to the City of Užice at or before 27th April 2020 at 11:00 AM. Late Tenders will be rejected. Tenders will be opened in the presence of Tenderers' representatives who wish to attend at the address stated below on 27th April 2020 at 12:00 PM (Noon).

Address:

Gradska uprava za infrastrukturu i razvoj

Komisija za javnu nabavku

ul. Dimitrija Tucovića br. 52, 31000 Užice

Serbia

email: aleksandar.tasic@uzice.rs

Closing date: 27th April 2020 at 11:00 AM

Opening at 12:00 PM (Noon)

SECTION II: INSTRUCTION TO TENDERERS

A. General

1. Scope

The Principal, as defined in the Tender Data, invites Tenders for the procurement and installation of the equipment and accompanying services for Early Warning System in City of Užice outlined in the Tender Data as well as in the Technical part in accordance with the procedures, conditions and contract terms prescribed in these Tender Documents.

2. Source of Funds

The procurement of equipment and services is financed by a grant of the Swiss government to the unit defined in the Tender Data. The payments for equipment and services to the Contractor will be made by SECO, on behalf of the Principal, based on invoices approved by the Principal and the Consultant.

3. Eligibility and qualification

- 3.1. This invitation for Tenders is open to firms from any country.
- 3.2. No minimum Swiss Added Value (SAV) is required for the present Tender.
- 3.3. No affiliate of the Principal shall be eligible to Tender or participate in a Tender in any capacity whatsoever unless it can be demonstrated that there is not a significant degree of common ownership, influence or control between the Principal and the affiliate.
- 3.4. A firm, its affiliates or parent company which provides consulting services for a project cannot be a supplier of equipment and services for such project, unless it can be demonstrated that there is not a significant degree of common ownership, influence or control between the firm providing consulting services and the firm Tendering for the supply of equipment or services.

- 3.5. A Tenderer may submit or participate, in any capacity whatsoever, in only one Tender for each contract. Submission or participation by a Tenderer in more than one Tender for a contract (other than alternatives which have been permitted or requested) will result in the rejection of all Tenders for that contract in which the party is involved. However, the same subcontractor may be included in more than one Tender.
- 3.6. A Tenderer shall not be eligible if it has been barred from participating in SECO-financed projects. Furthermore, a Tenderer shall not propose any subcontractors barred from participating in SECO-financed projects.
- 3.7. To qualify for award of the Contract, the Tenderer shall meet the qualification criteria referred to in the Tender Data.
- 3.8. In line with SECO's policy of zero tolerance on corruption, Consultants or any of their affiliates shall not be hired for any assignment in case of substantiated corruption allegations in that regard. The Tenderer has the obligation to inform SECO on any of such allegations when submitting a Proposal. A supplier that does not meet this obligation, may be excluded from the tender.
- 3.9. SECO has adopted a zero-tolerance policy on corrupt practices with regard to non-discrimination and harassment, particularly sexual harassment. None of the staff members of SECO and none of the partner organizations, partner governments, implementing partners and contractors shall in any manner discriminate against or intimidate any person involved in any activity required under the SECO activities and projects on account of gender, race, creed or color. All incidents and allegations with regard of sexual harassment will be seriously and promptly investigated. Any person contracted by SECO or engaged in its activities and projects found to have sexually harassed another will be dismissed. The supplier has the obligation to inform SECO on any such allegations when submitting a Proposal. A supplier that does not meet this obligation, may be excluded from the tender.

4. Cost of Tendering

The Tenderer shall bear all costs associated with the preparation and submission of its Tender, and the Principal will in no case be responsible or liable for these costs.

5. Pre-Tender meeting and site visit

- 5.1. The Tenderer is given the opportunity to attend the pre-Tender meeting with site visit scheduled in the Tender Data. The costs of visiting the site shall be at the Tenderer's own expense.

The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. The Tenderer is requested, as far as possible, to submit any question in writing, to reach the Principal not later than one week before the meeting. It may not be practicable at the meeting to answer questions received late, but questions and responses will be transmitted as indicated hereafter. Minutes of the meeting, including the text of the questions

raised and the responses given, together with any responses prepared after the meeting will be transmitted without delay to all firms having requested the Tender Documents. Any modification of the Tender Documents listed in Instructions to Tenderers (ITB) Sub-Clause 6.1, which may become necessary as a result of the pre-Tender meeting, shall be made by the Principal exclusively through the issue of an Addendum pursuant to ITB Clause 8 and not through the minutes of the pre-Tender meeting.

B. Tender Documents

6. Contents of Tender Documents

- 6.1. The Tender Documents comprise the documents listed below, other documentation or drawings specified in the Tender Data and addenda issued in accordance with paragraph 8.

Vol. I Tender

Section I: Invitation for Tenders

Section II: Instructions to Tenderers

Section III: Tender Data

Section IV: Sample Forms for Tender

A. Tender Form

B. Tender Security Form [mention if not required for a specific project]

C. Manufacturer's Authorization Form

D. Letter of Acceptance

E. Price Schedules

F. Confirmation of Compliance with Swiss Labor Legislation

G. Reference Projects of Firms

H. Litigation History Form

I. Information about Involved Firms and Quality Management

J. Financial Form

K. List of Key Staff and Task Assignments

L. List of Key Materials, Equipment and Suppliers

M. Template for Curriculum Vitae

N. Prevention of Irregularities

Vol. II Contract

Section I: General Conditions of Contract

Section II: Special Conditions of Contract

Section III: Contract Agreement Form and Appendices

Section IV: Sample Forms

- A. Performance Security Form
- B. Bank Guarantee Form for Advanced Payment
- C. Form of Completion Certificate
- D. Form of Operational Acceptance Certificate
- E. Change Order Procedure
- (Annexes)

Vol. III Technical Part

- Summary of study
- Technical specifications of equipment
- Detailed technical specifications and standards
- Drawings
- Inspections and tests
- Locations of Stations to be installed
- Price schedules

- 6.2. The Tenderer is expected to examine all instructions, forms, terms, specifications and other information in the Tender Documents. Failure to furnish all information required by the Tender Documents or submission of a Tender not substantially responsive to the Tender Documents in every respect will be at the Tenderer's risk and may result in rejection of its Tender.

7. Clarification of Tender Documents

A prospective Tenderer requiring any clarification on any aspect of the Tender Documents may notify the Principal in writing, by fax or e-mail at the Principal's mailing address indicated in the Tender Data. A copy shall be sent at the Consultant's address indicated in the Tender Data. All requests for clarification must be received by the Principal no later than twenty-one (21) days prior to the deadline for the submission of Tenders. The Principal will respond in writing to such requests for clarification of the Tender Documents which it receives. Copies of the Principal's response (including a description of the enquiry but without identifying its source) will be sent to all prospective Tenderers that have requested the Tender Documents.

8. Amendment of Tender Documents

- 8.1. At any time prior to the deadline for submission of Tenders, the Principal may amend the Tender Documents by issuing addenda.

- 8.2. Any addendum thus issued shall be part of the Tender Documents and shall be communicated in writing, by fax or by e-mail to all prospective Tenderers having requested the Tender Documents. Prospective Tenderers shall immediately acknowledge receipt of any addendum by fax or by email to the Principal and it will be assumed that the information contained therein will have been taken into account by the Tenderer in its Tender.
- 8.3. To give prospective Tenderers reasonable time in which to take the amendment into account in preparing their Tender, the Principal may, at its discretion, extend the deadline for the submission of Tenders, as provided for in paragraph 17.2.

C. Preparation of Tender

9. Language of Tender

The Tender and all documents and correspondence relating to the Tender shall be in the language of the Tender specified in the Tender Data. Any printed literature furnished by the Tenderer may be written in another language so long as such literature is accompanied by an accurate translation of its pertinent passages in the language of the Tender, in which case, for purposes of interpretation of the Tender, the translation shall govern.

10. Documents comprising the Tender

- 10.1. A Tender submitted in accordance with these Instructions to Tenderers shall comprise the following:
- (a) Tender Form (in the format indicated in section IV, A) duly completed in the manner and detail indicated therein and signed by the Tenderer;
 - (b) Attachment 1. Price Schedules (in the format indicated in section IV, E) duly completed by the Tenderer in the manner and detail indicated therein and following the requirements of paragraphs 11 and 12;
 - (c) Attachment 2. Tender Security, furnished in accordance with paragraph 14;
 - (d) Attachment 3. Eligibility and qualification of Tenderer – documentary evidence that the Tenderer satisfies the requirements referred to in paragraph 3. Details of the documentation required are specified in the Tender Data;
 - (e) Attachment 4. Conformity of the Stations - documentary evidence establishing that the Stations to be supplied by the Tenderer in its Tender or in any alternative Tender (if permitted) conform to the Tender Documents. Details of the documents required are specified in the Tender Data;
 - (f) Attachment 5. Subcontractors proposed by the Tenderer - the Tenderer shall include details of all major items of supply or services that it proposes to purchase or subcontract, giving details of the proposed subcontractors for each of these items. The Tenderer shall have been duly authorized by the manufacturer or

producer of all subcontracted Plant, Equipment or components (in the format indicated in Section IV, C) to supply and/or install the relevant items in framework of the Project. The Tenderer shall be responsible for ensuring that any plant, equipment or services to be provided by the subcontractor comply with the Tender Documents.

- (g) Attachment 6. Deviations - pursuant to paragraph 11.2, any deviations to the Tender Document requirements shall be listed only in Attach. 6. The Tenderer shall also furnish the additional price or saving associated with each such deviation. The attention of the Tenderer is drawn to the provisions of paragraph 23.1 regarding the rejection of Tenders that are not substantially responsive to the requirements of the Tender Documents. The Principal reserves the right to accept or reject any deviations.
- (h) Attachment 7. Alternative Tenders - if permitted pursuant to paragraph 10.3 below, Tenderers may, in addition to a fully conforming Tender, submit an alternative Tender. In such cases, Tenderers shall submit full details and justifications, etc. for any alternatives submitted, as indicated in paragraph 10.3.
- (i) Attachment 8. Other documentation and information which may be specified in the Tender Data.

10.2. In addition to paragraph 10.1 above, Tenders submitted by a joint venture or consortium of two or more firms shall comply with the following requirements:

- (i) the Tender shall include all the relevant information as described in paragraph 10.1(e) above for the joint venture or consortium;
- (ii) the Tender shall be signed so as to be legally binding on all member firms of the joint venture or consortium;
- (iii) one of the member firms of the joint venture or consortium, responsible for performing a key component of the contract, shall be nominated as being in charge; this authorization shall be evidenced by submitting with the Tender a power of attorney signed by legally authorized signatories of all member firms of the joint venture or consortium;
- (iv) the member firm of the joint venture or consortium in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all member firms of the joint venture or consortium, and the entire execution of the contract, including payment, shall be done exclusively with the member firm in charge;
- (v) all member firms of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms;
- (vi) a copy of the agreement entered into by the member firms of the joint venture or consortium shall be submitted with the Tender.

In order for a joint venture or consortium to qualify, at least one of its member firms or combination of member firms must meet the minimum criteria listed for an individual Tenderer for the component of the contract they are designated to perform.

Pursuant to paragraph. 3.5, a firm can be a member in only one joint venture or consortium; Tenders submitted by joint ventures or consortia including the same member firm will be rejected.

- 10.3. Unless specified otherwise in the Tender Data, Tenderers are permitted to propose alternatives with their Tender. Requirements for submission of alternatives and consideration of such alternatives by the Principal are prescribed in the Tender Data.

The Principal will not make undue use of alternative Tenders submitted by the Tenderers.

11. Tender prices

- 11.1. Unless specified otherwise in the Tender Data and/or the Technical Specifications, Tenderers shall quote for the entire Stations on a “single responsibility” basis such that the total Tender price covers all obligations of the Contractor pursuant to or to be reasonably inferred from the Tender Documents in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction, installation and completion of the Stations. This includes all responsibilities of the Contractor for testing, pre-commissioning and commissioning of the Stations and, where so required by the Tender Documents, the obtaining of all permits, approvals and licenses, etc., operation, maintenance and training services and such other items and services as may be specified in the Tender Documents, all in accordance with the requirements of the Conditions of Contract.
- 11.2. Tenderers are required to submit a Tender fully compliant with the commercial, contractual and technical requirements specified in the Tender Documents and to quote the price covering all commercial, contractual and technical obligations outlined in the Tender Documents. If a Tenderer wishes to offer a deviation to the Tender Document requirements, such deviation shall be listed in Attach. 7 of its Tender. The Tenderer shall also provide the additional price or saving associated with such deviation. The Principal reserves the right to accept or reject any deviations.
- 11.3. Tenderers shall give a breakdown of the prices in the manner and detail called for in the Price Schedules in the format indicated in section IV E.
- 11.4. In the Schedules, Tenderers shall provide the required details and prices as follows unless otherwise indicated in the Tender Data:
- (a) Equipment to be supplied from abroad (all other countries than Principal's country) shall be quoted on a CIP (Carriage and Insurance Paid) basis according to Incoterms, as specified in the Tender Data.
 - (b) Equipment manufactured or fabricated within the Principal's country shall be quoted on a DDU basis and shall be inclusive of all costs as well as duties and sales and other taxes paid or payable on components and raw materials incorporated or to be incorporated in the Equipment.

- (c) Customs duties or other similar import taxes, if any, paid or payable on directly imported components incorporated or to be incorporated in the Equipment manufactured or fabricated within the Principal's country shall be included.
 - (d) Local transportation, insurance and other local costs incidental to delivery of the Equipment to the site shall be included.
 - (e) Installation and other services shall be included and shall provide for all labor, Contractor's equipment, temporary works, materials, consumables and all matters and things of whatsoever nature, including operations and maintenance services, the provision of operations and maintenance manuals, training, etc., where identified in the Tender Documents as necessary for the proper execution of the installation and other services.
 - (f) Mandatory and recommended spare parts shall be quoted separately, showing detailed prices for each item, as specified in either subparagraph (a) or (b) above in accordance with the origin of the spare parts.
 - (g) Additional items to be quoted separately are indicated in the Tender Data.
- 11.5. The term CIP, etc., shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce, Paris.
- 11.6. The prices shall be in accordance with one of the following alternatives, as specified in the Tender Data:
- (a) Fixed Price. Prices quoted by the Tenderer shall be fixed during the Tender validity period and during the Contractor's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as nonresponsive and rejected.
- or
- (b) Adjustable Price. Prices quoted by the Tenderer shall be subject to adjustment during performance of the contract to reflect changes in the cost elements such as labor, material, transport and Contractor's equipment in accordance with the procedures specified in the corresponding Appendix to the Contract Agreement. A bid submitted with a fixed price quotation will not be rejected, but the price adjustment will be treated as zero. The price adjustment provision will not be taken into consideration in bid evaluation. Tenderers are required to indicate the source of labor and material indexes in the said corresponding Appendix.
- 11.7. Unless otherwise specified in the Tender Data, where Tenders are being invited simultaneously for a number of lots, Tenderers offering to supply more than one lot may offer discounts for an award of contract for more than one lot, any such discounts shall be considered in the evaluation of Tenders.

12. Tender currencies

All prices shall be quoted in the currency indicated in the Tender Data.

13. Tender validity period

- 13.1. Tenders shall remain valid for the period specified in the Tender Data after the closing date for the receipt of Tenders, pursuant to paragraph 17.1. A Tender valid for a shorter period shall be rejected by the Principal as being non-responsive.
- 13.2. In exceptional circumstances, the Principal may solicit the Tenderer's consent to an extension of the Tender validity period. The request and responses thereto shall be made in writing or by fax. A Tenderer may refuse the request without forfeiting the Tender security. A Tenderer agreeing to the request will not be required or permitted to modify its Tender, except as provided in paragraph 13.3 below. The Tender Security provided under paragraph 14 below shall also be suitably extended.
- 13.3. Where the Tender is for a fixed price contract (not subject to price adjustment), if the Tender validity period is extended, the amounts payable to the Tenderer selected for award shall be increased by applying the factors specified in the Tender Data of the payments, respectively, for the period of delay beyond the expiration of the initial Tender validity up to the time of notification of award. Tender evaluation will be based on the Tender prices without considering the above adjustment.

14. Tender Security

- 14.1. The Tenderer shall furnish, as part of its Tender, a Tender security, if required, as specified in the Tender Data.
- 14.2. The Tender security shall, at the Tenderer's option, be in the form of a certified cheque, letter of credit or a bank guarantee from a reputable commercial bank acceptable to SECO. The format of the bank guarantee shall be in accordance with the forms included in the Tender Documents (Vol. I, Section IV B); other formats may be permitted, subject to the prior approval of SECO. The Tender security shall remain valid for a period of thirty (30) days beyond the original Tender validity period, and beyond any extension subsequently requested under paragraph 13.2.
- 14.3. Any Tender not accompanied by an acceptable Tender security, shall be rejected by the Principal as being non-responsive. The Tender security of a joint venture must be in the name of all the partners in the joint venture submitting the Tender.
- 14.4. The Tender securities of unsuccessful Tenderers will be returned as promptly as possible, but not later than thirty (30) days after the expiration of the Tender validity period.
- 14.5. The Tender security of the successful Tenderer will be returned when the Tenderer has signed the Contract Agreement and has furnished the required performance security.
- 14.6. The Tender security may be forfeited and executed
 - (a) if the Tenderer

- (i) withdraws its Tender during the period of Tender validity specified by the Tenderer in the Tender Form
 - (ii) invalidates its Tender pursuant to paragraph 21
- (b) in the case of a successful Tenderer, if the Tenderer fails or refuses within the specified time limit
 - (i) to sign the Contract Agreement, in accordance with paragraph 29, or
 - (ii) to furnish the required performance security.

15. Format and signing of Tender

- 15.1. The Tenderer shall prepare an original and the number of copies/sets of the Tender specified in the Tender Data, clearly marking each one as “ORIGINAL TENDER”, “COPY NO. 1”, “COPY NO. 2”, etc., as appropriate. In the event of any discrepancy between the original and any copy, the original shall govern.
- 15.2. The original and all copies of the Tender, each consisting of the documents listed in paragraph 10.1, shall be typed or written in indelible ink and shall be signed by the Tenderer or person(s) duly authorized to act on behalf of the Tenderer.
- 15.3. Any interlineations, erasures or overwriting shall only be valid if they are initialed by the person or persons signing the Tender.

D. Submission of Tenders

16. Sealing and marking of Tenders

- 16.1. The Tenderer shall place the original and each copy of the Tender in separate envelopes, duly marking the envelopes as “ORIGINAL TENDER” and “COPY NO. x”. These envelopes shall then be sealed in an outer envelope.
- 16.2. The inner and outer envelopes shall be sealed and:
 - (a) addressed to the Principal with the address set forth in the Tender Data; and
 - (b) bear the identification specified in the Tender Data.
- 16.3. The inner envelopes shall also indicate the name and address of the Tenderer so that the Tender can be returned unopened in case it is withdrawn or declared “late”.
- 16.4. If the outer envelope is not sealed and marked as required by paragraph 16.2 above, the Principal will assume no responsibility for the misplacement or premature opening of the Tender. If the outer envelope discloses the Tenderer's identity, the Principal will not

guarantee the anonymity of the Tender submission, but this disclosure will not constitute grounds for rejection of the Tender.

17. Deadline for submission of Tenders

- 17.1. Tenderers shall ensure that their Tenders are received by the Principal at the address specified in paragraph 16.2(a), no later than the time and date stated in the Tender Data.
- 17.2. The Principal may extend this deadline for submission of Tenders by amending the Tender Documents, in which case all rights and obligations of the Principal and Tenderers previously subject to the deadline will thereafter be subject to the deadline as extended.

18. Late Tenders

- 18.1. Any Tender received by the Principal after the Tender submission deadline will be rejected and returned unopened to the Tenderer.

19. Modification and withdrawal of Tenders

- 19.1. The Tenderer may modify or withdraw its Tender after submission, provided that written notice of the modification or withdrawal is received by the Principal prior to the Tender submission deadline.
- 19.2. Modifications of a Tender shall be prepared, sealed, marked and dispatched as follows:
 - (a) The Tenderer shall provide an original and the number of copies specified in paragraph 15.1 of any modifications to its Tender, clearly identified as such, in two inner envelopes, duly marking the envelopes as "TENDER MODIFICATIONS - ORIGINAL" and "TENDER MODIFICATIONS - COPIES". The inner envelopes shall be sealed in an outer envelope, which shall be duly marked as "TENDER MODIFICATIONS".
 - (b) Other provisions concerning the numbers, marking and dispatch of Tender modifications shall be in accordance with paragraph 15, 16 and 17.
- 19.3. No Tender may be modified or withdrawn in the interval between the deadline for submission of Tenders and the expiration of the Tender validity period specified in paragraph 13.1.

E. Tender Opening and Evaluation

20. Opening of Tenders by Principal

- 20.1. The Principal will open all Tenders in the presence of the Consultant as well as of Tenderers' representatives who choose to attend the opening at the time, on the date and at the location specified in the Tender Data. The Tenderers' representatives who are present shall sign a register evidencing their attendance.
- 20.2. The Tenderers' names, Tender modifications or withdrawals, Tender prices, discounts, alternative Tender (if any) and other such details as the Principal, at its discretion, may consider appropriate, will be announced at Tender opening. No Tender will be rejected at Tender opening except for late Tenders, which will be returned unopened to the Tenderer, pursuant to paragraph 18.
- 20.3. Tender discounts or modifications furnished pursuant to paragraph 19 that are not opened, read out and recorded at Tender opening will not be considered for Tender evaluation. Withdrawn Tenders will be returned unopened to the Tenderers.
- 20.4. The Principal will prepare minutes of the Tender opening, including the information disclosed to those present in accordance with paragraph 20.2.

21. Process to be confidential

- 21.1. The Tender evaluation process up to the award of a contract is confidential.
- 21.2. Information relating to the evaluation of Tenders will not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced.
- 21.3. Any effort by a Tenderer or its agents to influence the Principal's evaluation of Tenders or award decisions, including the offering or giving of bribes, gifts or other inducement, may result in the invalidation of its Tender and the forfeiture of its Tender security, pursuant to paragraph 14.6.

22. Clarification of Tenders

To assist in the qualification, examination, evaluation and comparison of the Tenders, the Principal may ask any Tenderer for clarification of its Tender. Such clarification may be requested at any stage up to award of the contract. Requests for clarification and the responses thereto shall be in writing, by fax or by e-mail, and no change in the price or substance of the Tender shall be sought, offered or permitted except as required to confirm the correction of computational errors discovered by Principal in the examination of the Tenders in accordance with paragraph 24.1.

The Principal furthermore reserves the right to conduct written negotiations with Tenderers should it not be possible to determine an economically most suitable bid in accordance with paragraph 27.1.

23. Preliminary examination of Tenders

- 23.1. Prior to the detailed evaluation pursuant to paragraph 25, the Principal will determine whether each Tender (a) meets the eligibility and qualification criteria defined in paragraph 3; (b) has been properly signed; (c) is accompanied by the required securities and (d) is complete and substantially responsive to the Tender Documents. If a Tender does not comply with any of these conditions, it will be rejected by the Principal for non-responsiveness and may not subsequently be made responsive by correction of the non-conforming deviation, objection or reservation.
- 23.2. For purposes of this determination, a substantially responsive Tender is one that conforms to all terms, conditions and specifications of the Tender Documents without material deviations, objections or reservations. A material deviation, objection or reservation is one (i) that affects in any substantial way the scope, the quality or performance of the contract; (ii) that limits in any substantial way, inconsistent with the Tender Documents, the Principal's rights or the successful Tenderer's obligations under the contract; or (iii) whose rectification would unfairly affect the competitive position of other Tenderers who are presenting substantially responsive Tenders.
- 23.3. In particular, deviations from, objections to or reservations about critical provisions, such as those concerning Governing Law, Taxes and Duties, Defect Liability, Functional Guarantees, Patent and Indemnity, Limitation of Liability, will be treated as non-responsive. The Principal's determination of the responsiveness of a Tender is to be based on the contents of the Tender itself without recourse to extrinsic evidence.
- 23.4. The Principal may waive any minor informality, non-conformity or irregularity in a Tender that does not constitute a material deviation, and that does not provide an unfair advantage to the Tenderer.

24. Correction of computational errors and conversion to single currency

- 24.1. Computational errors in those Tenders not previously rejected in accordance with paragraph 23 will be rectified on the following basis: If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, or between subtotals and the total price, the unit or subtotal price shall prevail, and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words shall prevail. If the Tenderer does not accept the correction of errors, its Tender will be rejected.
- 24.2. To facilitate comparison and evaluation, the Principal will convert all prices to the currency indicated in the Tender Data in accordance with the method stated in the Tender Data.

25. Evaluation

- 25.1. For those Tenders not previously rejected according to paragraph 23, the Principal will carry out a detailed evaluation of the Tenders based on the requirements set forth in the Tender Documents (award criteria). In carrying out such evaluation, the Principal will examine and compare the aspects of the Tenders based on the information supplied by

the Tenderers. Only the award criteria listed in the Tender Data shall be evaluated. Prices are based on the amounts given in the schedules 2 to 5. The goal of the evaluation is the determination of the economically most suitable bid. A Tender that does not meet minimum acceptable technical standards of completeness, consistency and detail can be rejected for non-responsiveness in accordance with paragraph 23.2.

- 25.2. Where alternative technical solutions have been permitted and offered by the Tenderer, the Principal will equally evaluate the alternatives. Where alternatives have not been permitted but have been offered, they shall be ignored.
- 25.3. Any adjustments in price which result from any obvious omissions, deviations or variations which are not considered to be material, and which can be quantified shall be added for purposes of comparative evaluation only, to arrive at the "Adjusted Tender Price". Tender prices quoted by Tenderers shall remain unaltered.
- 25.4. The Principal's evaluation of the tender prices may require further adjustments of the tender price due to other factors, which may be e.g. related to the characteristics or performance of the offered equipment and related services. The factors selected, if any, shall be expressed in monetary terms to facilitate the comparison of the tender prices in accordance with the method specified in the Tender Data.

26. Abatement of Tender process

The Principal reserves the right to annul the Tender process if

- a project is not realized,
- no Tender fulfils the criteria and the technical specifications as required in the Tender Documents,
- economically more suitable Tenders can be expected due to the change of technical conditions or the elimination of distortions to competition.

F. Award of Contract

27. Preparation of award

- 27.1. The Principal will award the contract to the Tenderer whose Tender has been determined to be the most economically suitable Tender.
- 27.2. Prior to the award the outcome of the evaluation is summarized in a report to be signed by the Principal and the Consultant. SECO decides (non-objection) whether it can agree to the award recommendation contained in the report.

28. Notification to the first-ranked Tenderer

- 28.1. After SECO's written approval (non-objection) to the recommendation, the Principal will notify the first-ranked Tenderer in writing, that its Tender has been ranked first.
- 28.2. The notification may lead to discussions with the first-ranked Tenderer to adapt the conditions of the Contract to the latest conditions of the project.
- 28.3. The Principal reserves the right to accept any of the deviations submitted in accordance with paragraph 10.1(h) by the winning Tenderer, at the price shown for the deviation in the Tender.
- 28.4. The Principal reserves the right to increase or decrease the quantity of equipment and services specified in the schedule of requirements up to the percentage specified in the Tender Data, without any change in unit prices for such equipment and services, or other terms and conditions.
- 28.5. Should the Contract be adapted due to the discussions between the first ranked Tenderer and the Principal, the contract documents shall be submitted to SECO for non-objection.

29. Notification of award and signing of Contract

- 29.1. Following the notification to the first-ranked Tenderer that it has been ranked first and after SECO has approved of possible contract amendments, the Principal will send the Tenderer notification of award (Letter of Acceptance; Section IV, D) together with the Contract Agreement provided in the Tender Documents, incorporating all terms and conditions agreed between the parties.
- 29.2. Within twenty-eight (28) days of receipt of the Contract, the first-ranked Tenderer shall sign and date the Contract Agreement and return it to the Principal. The Contract will come into force by both parties' signatures only after SECO has approved of the contract (non objection).
- 29.3. As soon as the first-ranked Tenderer has furnished the Performance Security pursuant to paragraph 30, the Principal will promptly notify each unsuccessful Tenderer.

30. Performance and Advance Payment Security

- 30.1. Unless otherwise indicated in the Tender Data the successful Tenderer shall furnish within twenty-eight (28) days after receipt of the notification of award the performance and advance payment security in the amounts given in the Tender Data and in the form provided in Volume II of the Tender Documents or in another form acceptable to SECO.
- 30.2. Failure of the successful Tenderer to comply with the requirements of Instructions to Tenderer Clause 29 or Clause 30.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender security (contractual penalty), in which event the Principal may make the award to the second most economic Tenderer or call for new Tenders.

31. Corrupt or Fraudulent Practices

- 31.1. It is required that Tenderers, suppliers, Contractors, concessionaires and consultants observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, SECO:
- (a) requires that the Principal and the consultants take all necessary measures to avoid corruption, in particular that no payments, gifts or other advantage will be offered or accepted.
 - (b) will reject a proposal for award if it determines that a Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
 - (c) will cancel the portion of the grant allocated to the firm's contract if it at any time determines that corrupt or fraudulent practices were engaged in by representatives of the Tenderer or of a beneficiary of the grant during the selection process or the execution of that contract, without the Principal having taken timely and appropriate action satisfactory to SECO to remedy the situation;
 - (d) will have the right to inspect the successful Tenderer's accounts and records relating to the performance of the contract and to have them audited by auditors appointed by SECO or the Principal.
 - (e) reserves the right to declare a firm ineligible indefinitely or for a stated period of time, to participate in SECO-financed projects if it at any time determines that:
 - (i) the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a SECO-financed contract; or
 - (ii) the firm has been found by a judicial process or other official inquiry to have engaged in corrupt or fraudulent practices.
- 31.2. A Tenderer under a declaration of ineligibility for corrupt and fraudulent practices issued by SECO shall not be eligible.
- 31.3. Furthermore, Tenderers shall be aware of the provisions stated in Sub-Clauses 44 of the General Conditions of Contract.

SECTION III: TENDER DATA

The following Tender-specific data for the equipment and services to be procured shall amend and/or supplement the provisions in the Instructions to Tenderers. Whenever there is a conflict, the provisions herein shall prevail over those in the Instructions to Tenderers.

Instructions to Tenderers

In the following table, the time schedule for Tendering is summarized:

Milestone	Deadline
Tender Announcement on web sites www.uzice.rs www.obnova.gov.rs. and in local newspapers "Politika"	27.02.2020
Publication of Tender / Invitation for Tenders with complete documentation on web sites www.simap.ch and www.obnova.gov.rs	27.02.2020.
Required Pre-Tender Meeting with Site Visits	N/A
Requests for Clarification	06.04.2020.
Submission of Tenders	27.04.2020. at 11:00 AM
Opening of Tenders	27.04.2020. at 12:00 PM (Noon)
Contract Signing*	May 2020
Issuing of Advance Payment Security*	May 2020

* subject to changes

Table 1: Time Schedule for Tendering

para. ref.

para. 1: Name of Principal and	City of Užice
Name of project	Municipal Disaster Risk Reduction Project (MDRRP) – Procurement and Installation of the Equipment for Early Warning System in City of Užice
Scope	<p>The detailed scope is given in Vol. III Technical Part.</p> <p>The Tenderers are obliged to submit one tender for both Priority 1 and Priority 2 as given in Volume III.</p> <p>SECO explicitly reserves the right to renounce from financing of the Priority 2 package prior signing of the Contract.</p>
para 2: Name of unit	City of Užice
para. 3.1: Eligibility	This invitation for Tenders is open to firms from any country.
para. 3.2: Swiss Added Value	No minimum Swiss Added Value (SAV) required for the present Tender.
para. 3.5: Participation in Tenders	<p>Tenderers (incl. all joint venture / consortium partners) may submit or participate, in any capacity whatsoever, in only one tender.</p> <p>The same sub-contractor may be included in more than one Tender, if their individual part to the overall Contract does not exceed 30%.</p> <p>The Tenderer must ensure that he has all licenses in his team that are required for the implementation of the project.</p>
para. 3.6: Suitability Criterion Prevention of Irregularities	Suitability Criterion Evidence Confirmation from provider (use form N, section IV)

para. 3.7:

Qualification criteria

To be qualified for award of contract according to paragraph 3.7, Tenderers must satisfy the following minimum criteria in addition to the eligibility and qualification criteria in Vol. I, Section II (see also para. 10.1(d), etc. for required documentation):

- a) Lead company has proven average annual turnover for the past 3 years of EUR 500'000
- b) Confirmation of compliance with Swiss labor legislation or ILO Core conventions
- c) The Tenderer has suitably qualified and professional key personnel:
 - Construction Manager (Engineer) with minimum 15 years of professional experience
 - Responsible licensed engineers (structural engineer with license No.410, mechanical engineer with license No.432 and electrical engineer with license No. 450 or 453) with minimum 5 years of professional experience
 - Construction Manager has to be employed full time in a company which acts as a Tenderer, i.e. at Consortium Leader, while other Team members do not have to be employed full time.
- d) Proven satisfactory experience from at least 3 comparable projects with a contract value not less than 100,000 EUR implemented on a general contractor basis within the last 10 years. Comparable means that the projects must include at least:
 - Installation or reconstruction of meteorological stations, climatological stations, precipitation stations and hydrological station (radar)

Tenderers not submitting documentary evidence of each of the above requirements will be considered not responsive and will be rejected.

Tenderers that have certification ISO 9001, ISO 14001 and OHSAS 18001 may submit the certificates. The certificates are not mandatory but shall be considered as an advantage.

Joint Ventures:

Joint ventures between different firms will be accepted provided one firm assumes clear overall leadership. Any Tender shall be signed to legally bind all Joint venture partners with the joint and several liability of the firms involved.

Joint ventures must satisfy the following minimum qualification requirements:

- The lead partner must contribute minimum 2 reference projects to qualification criterion e)
- The partners of a joint venture / consortium must jointly satisfy the minimum qualification criteria a), b), d) and e).
- The criteria c) must be met by all parties individually

para. 5.1: Pre-Tender meeting and site visit	N/A
para. 6.1:	see Volume III Technical Part
para. 7: Clarification of Tender Documents	Requests for clarifications of the Tender Documents can be submitted in writing (fax) or e-mail by [06.04.2020.] to: <i>Grad Uzice</i> <i>Gradska uprava za infrastrukturu i razvoj</i>

	<p><i>Komisija za javnu nabavku</i> <i>ul. Dimitrija Tucovića br. 52, 31000Užice</i> <i>Serbia</i></p> <p><i>email : aleksandar.tasic@uzice.rs</i></p> <p>with copy to the Implementation Consultant Stucky Ltd Rue du Lac 33 P.O. Box, CH-1020 Renens VD 1 Switzerland Phone +41 21 637 15 13 Fax: +41 21 637 15 08 Email: cane.cekerevac@stucky.ch</p>
para. 9: Language of Tender	<p>English, i.e. any documents in another language, must be accompanied by an accurate English translation. English shall prevail in matters of interpretation.</p>
para. 10.1(d): Documentary evidence of Tenderer's qualification	<p>The documentary evidence of the Tenderer's eligibility and qualification referred to in paragraph 3.1 to 3.7, shall include:</p> <ul style="list-style-type: none"> a. audited accounts of the Tenderer and of major suppliers and sub-contractors for each of the last three financial years. (form J, section IV) b. Confirmation of compliance with Swiss labor legislation/or ILO Core Conventions (form F, section IV) c. Confirmation that the Tenderer has suitably qualified and professional key personnel for Construction Manager and Responsible Engineers (with requested license in line with scope of services). (form K, section IV) d. Technical Ability – Reference Projects, including detailed description of each project claimed in meeting the criteria 3.7 (g), description of the work performed by the Tenderer. (form G, section IV) e. in the case of Joint Ventures, a copy of Joint Venture / Consortium Agreement with Power of Attorneys for the signatories and providing for joint and

	<p>several liability with respect to the Contract as well as the offer for the insurance policy of the Joint Ventures / Consortium. (no formal requirements)</p> <p>f. Confirmation that the Tenderer is not the defendant in litigation in any court that, if found against the Tenderer, could have a detrimental effect on the Tenderer's ability to perform the contract. (form H and N, section IV)</p> <p>g. Excerpt from the commercial Register. (no formal requirements)</p>
<p>para 10.1(e):</p> <p>Documentary evidence of</p> <p>Conformity of Stations</p>	<p>The documentary evidence of the conformity of the Stations to be supplied by the Tenderer are specified in the Technical Specifications and must include form M, form N including the related documents (certificates, data sheets etc.) as described under para. 10.1(i) below.</p> <p>The Tenderer must provide statements confirming that all spare parts will be provided for 10 years after completion and that for main equipment an authorized representative is available in Serbia capable to provide regular maintenance during warranty period and for at least 2 years.</p>
<p>para. 10.1(i):</p> <p>Other documentation</p>	<p>Certificate of conformity to ISO 9001, ISO 14001 and OHSAS 18001 issued by a recognized inspection authority. (form I, section IV). Certificates are not mandatory but shall be considered as an advantage.</p> <p>Project implementation concept.</p> <p>The Tenderer shall elaborate a project implementation concept which – according to the pertinent Tenderers experience – represents the best solution to achieve the Project's objectives in compliance with all requirements.</p> <p>The project implementation concept shall include all information necessary for a complete installation of the equipment and services.</p> <p>In addition, the implementation concept shall discuss important aspects such as training,</p>

	<p>handover, commissioning, optimization and guarantee testing.</p> <p>Time schedule with guaranteed milestones and guaranteed completion date.</p> <p>The time schedule must include but not be limited to the critical milestones per locations of the Project including procurement, project interfaces, completion, testing and commissioning, optimization, training, guarantee period, project closure.</p> <p>Project organization and communication concept.</p> <p>The project organization and communication concept shall describe how the Tenderer intends to organize its team and to communicate with the Principal.</p> <p>The Tenderer shall also provide detailed and signed Curricula Vitae to evidence the qualification and expertise for key-personnel.</p> <p>Additional support personnel (non-key staff) have to be provided for installation and construction works and other related services. Non-key staff does not have to be listed in the Tender and is not considered in the Tender evaluation.</p> <p>References of key staff (use form K, section IV)</p> <p>List of Key Materials, Equipment and Suppliers (use form L, Section IV)</p> <p>The Tenderer must submit a list of all major materials and equipment to be used for Project implementation. Furthermore, the Tenderer must submit the corresponding test results, certification, technical data sheets, norms, classifications, etc.</p> <p>CVs for all key-staff (use form M, section IV)</p> <p>List of Deviations (no formal requirements)</p>
para. 10.2: Documentary evidence for joint ventures or consortiums	Joint ventures or consortiums must additionally comply with the instruction in paragraph 10.2 of Vol. I, Section II.
para. 10.3:	No alternative tenders are accepted.

Alternative Tenders	
<p>para. 11.1:</p> <p>Tender prices</p>	<p>The Tender prices must include all costs for equipment and services including spares and tools, the costs for testing, the provision of all required consumables until the handover of the Stations to the Principal, training, reimbursable and, additional costs from the contract signing to the handover of the Stations as well as the costs for provisions during the defect liability period.</p> <p>In addition, the costs for all equipment and services of third parties, including subcontractors, required for project implementation must be specified in the Price Schedules.</p> <p>The costs for land, expropriation and construction permits must not be included in the Tender price because these costs are covered by the Municipality.</p> <p>(form E, section IV)</p>
<p>para. 11.4:</p> <p>Basis for prices</p>	<p>It should be noted that the equipment and services financed by SECO under this project are exempted from customs, duties, levies, fiscal and any other present or future taxes imposed under the law of the Principal's country.</p> <p>The Tenderer shall make best efforts that import including custom clearance does not result in delays of the Project. All related cost (e.g. negotiation with authorities) must be accounted for in the Tender Price.</p> <p>The basis for prices is further specified in the Price Schedules (Vol. I, Section IV, Form E) and Volume III Technical Part.</p>
<p>para. 11.4a:</p> <p>CIP (Carriage and Insurance Paid)</p>	<p>CIP to place of destination (i.e. the construction site) specified in Volume III</p>

para. 11.4g: Items to quote separately	See Price Schedules in Volume III: Technical Part.
para. 11.6: Fixed or adjustable Tender price	The prices shall be fixed
para. 12: Tender currencies	All prices stated in the Tender have to be quoted in EURO.
para. 13.1: Period of Tender validity	The Tender shall remain valid for one hundred and eighty (180) days.
para. 13.3: Extension of Tender validity period	The Tender price will not be adjusted in case of an extension of the Tender validity period.
para. 15.1: Number of copies of Tender	<p>Hardcopies: One (1) "ORIGINAL" and one (1) "COPY OF TENDER".</p> <p>Electronic copies: Each hardcopy (original and copies of tender) must be accompanied with a complete electronic copy. The electronic copy must be stored on a CD / DVD or USB-Stick. The Price Schedules and other Tender Forms in Excel format must be submitted in Excel.</p>
para. 16.2(a): Address of Principal	<p>The original and copies shall be addressed and sent to:</p> <p>City of Užice</p> <p><i>Gradska uprava za infrastrukturu i razvoj</i></p> <p><i>Komisija za javnu nabavku</i></p> <p><i>ul. Dimitrija Tucovića br. 52, 31Užice</i></p> <p><i>Serbia</i></p> <p><i>email : aleksandar.tasic@uzice.rs</i></p> <p>with copy to the Implementation Consultant:</p> <p>Stucky Ltd</p> <p>Rue du Lac 33</p> <p>P.O. Box, CH-1020 Renens VD 1</p> <p>Switzerland</p> <p>Phone +41 21 637 15 13</p> <p>Fax: +41 21 637 15 08</p> <p>Email: cane.cekerevac@stucky.ch</p>
para. 16.2(b):	"Tender for MDRRP – EWS in City of Užice"

Tender identification	"DO NOT OPEN BEFORE April 27 th , 2020, 12:00 PM
para. 17.1: Deadline for submission of Tenders	April 27 th , 2020, 11:00 AM
para. 20.1: Opening of Tenders by Principal	The Tenderers may attend the opening of the Tenders at the following time and address: April 27 th , 2020, 12:00 PM (Noon) <i>Gradska uprava za infrastrukturu i razvoj Komisija za javnu nabavku ul. Dimitrija Tucovića br. 52, 31000Užice Serbia email: aleksandar.tasic@uzice.rs</i>
para. 24.2: Conversion to single currency	Not applicable, all prices to be given in EURO.

para. 25.1:
Award Criteria

The Consultant's evaluation of the Tenders will be based on a "most economically suitable Tender" procedure, taking into consideration the following weighted criteria, in order of priority.

Criteria for bids evaluation and Tenderers selection shall be as follows:

1. Quality of Tender and Organization	20 points
<ul style="list-style-type: none"> Completeness, conformity, appropriateness and quality of the project implementation concept (incl. training, commissioning, optimization and guarantee testing) and the time schedule with guaranteed milestones and the justification of proposed adaptations of the time schedule Quality of equipment, materials / supplier's guarantees / functional guarantees Organizational chart, project organization and communication concept; information about the firms, staff and their functions involved in the project; composition and organization of team, incl. tasks and responsibilities of team members and onsite presence Capacity of involved firms; number of staffs in relevant fields; financial capacity 	

<ul style="list-style-type: none"> • Plausibility of prices and guarantee values • Overall quality, clarity and completeness of the submitted tender documentation <p>Refer to para. 10(i), Sec. III (Tender Data) regarding the documentary evidence to be provided by the Tenderer-</p>	
<p>2. Reference Projects</p> <p>Relevant Tenderers' references in the previous 10 years - maximum 20 points (corresponds to 5 relevant references).</p> <p>Each reference shall contain all necessary information and data to prove the quality / relevance of the reference to this specific project.</p> <p>Each reference shall be evaluated with maximum 4 points, which corresponds to fully relevant reference to this project.</p> <p>For references which are only partially relevant to this project, the Tenderer will get 2 points and for non-relevant references 0 (zero) points.</p>	20 points
<p>3. Relevant professional experience of key staff: Construction manager, Structural, mechanical and electrical engineers (as per Para 3.7): Educational and professional background, training and language skills; Capacity to timely implementing the Project</p> <ul style="list-style-type: none"> • Experience and references of two (2) comparable projects finished in the past 5 years regarding size, relevance and complexity as well as other references in CVs; client's satisfaction (compliance regarding time, quality and cost as well as availability) • Experience in similar countries / environments; specific experience and expertise related to their task assignments <p>Refer to para. 10(i), Sec. III (Tender Data) regarding the documentary evidence to be provided by the Tenderer</p> <p>Construction Manager and three Proposed engineers - 20 points (one proposed engineer for each required field of work: structural, mechanical and electrical engineer can get a maximum of 4 points each, while Construction Manager can get a maximum of 8 points)</p>	20 points
<p>4. Price</p> <ul style="list-style-type: none"> • The Total Tender Price excl. VAT (acc. to Price Schedules form E, section IV). Total offered price - 40 points (Tenderer with the lowest price gets 40 points, while the number of points for the remaining Tenderers is proportionally reduced through comparison with the lowest price offered and the price of a specific Tender) 	40 points

para. 25.4: Further Adjustments	None
para. 30.1: Performance and Advance Payment Security	The securities required under the contract are specified in Vol. II, Section II, Clause 13 (Special Conditions of Contract).

SECTION IV: SAMPLE FORMS FOR TENDER

A. Tender Form

Date:

Name of Contract: [...]

To: [Name, address, location of Principal]

Dear Mr. [...],

Having examined the Tender Documents, including Addenda Nos. (insert numbers), receipt of which is hereby acknowledged, we, the undersigned, offer to design, supply, test, deliver, install, pre-commission and commission the Equipment under the above-named Contract in full conformity with the said Tender Documents for the sum of:

.....
.....

(currency and amount in words)

.....
(amount in figures)

or such other sums as may be determined in accordance with the terms and conditions of the Contract. The above amounts are in accordance with the price schedules attached herewith and are made part of this Tender.

We undertake, if our Tender is accepted, to commence the Stations and to achieve Completion within the respective times stated in the Tender Documents.

If our Tender is accepted, we undertake to provide an advance payment security in the form and amounts and within the times specified in the Tender Documents.

We agree to abide by this Tender for a period of 180 (one hundred and eighty) days from the date set for submission of Tenders as stipulated in the Tender Documents, and it shall remain binding upon us and may be accepted by you at any time prior to the expiration of that period.

We understand that you are not bound to accept the lowest, or any Tender you may receive.

We are aware that SECO reserves the right to declare a firm ineligible indefinitely or for a stated period of time, to participate in SECO-financed projects if it at any time determines that:

- (i) the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a SECO-financed contract; or
- (ii) the firm has been found by a judicial process or other official inquiry to have engaged in corrupt or fraudulent practices.

In line with SECO's policy on Integrity, Non-Discrimination and Non-Harassment, we confirm hereby that we are aware of the obligation to inform SECO on any such allegation or conviction and are aware of the respective consequences for this tender process and mandate in accordance with clause 1.8 and 1.9. We hereby confirm that the company itself, all persons involved in the tender process and/or implementation of the project, and commissioned subcontractors:

- (i) Have not been convicted of an offence relevant to fulfilment of the contract¹ in the last 5 years, either in Switzerland or abroad.
- (ii) Are not included in the sanction list of an international financial institution².
- (iii) Within the context of this tender document, have not behaved in a way which could endanger or challenge the competition-neutral and legally equal process of awarding the tender or fulfilling the contract in the most economically advantageous way.
- (iv) We confirm that we have taken suitable and proportional measures (Compliance Processes) for the prevention, early recognition and risk-reducing handling of the offences relevant for the contract.

Dated this day of

.....
[signature]

In the capacity of

.....
[position]

Duly authorized to sign this Tender for and on behalf of

.....
[name of Tenderer]

¹ Offences relevant to the fulfilment of the contract are specifically: offences against property (Art. 137 - 172 Criminal Code), offences against sexual integrity (Art. 187 – 212 Criminal Code), criminal organisation (Art. 260ter Criminal Code), financing of terrorism (Art. 260 quinquies Criminal Code), money laundering (Art. 305bis Criminal Code), bribery (Art. 322ter-322octies Criminal Code), dishonest and unlawful behaviour as per Unfair Competition legislation Criminal offense against capital assets (Art. 137-172 StGB), Criminal offense against sexual integrity (Art. 187 - 212 StGB), Criminal organization (Art. 260ter StGB), Financing of terrorism (article 260 quinquies StGB), money laundering (article 305bis StGB), bribery (article 322ter-322octies StGB), unfair and unlawful behaviour according to UWG.

² This includes the following financial institutions: African Development Group; Asian Development Bank; European Bank for Reconstruction and Development; Inter- American Development Bank; World Bank Group.

B. Tender Security Form

NOT REQUIRED

C. Manufacturer's Authorization Form

NOT REQUIRED

D. Letter of Acceptance

Date:

To: *[Name, address, location of Principal]*

[Address of successful Tender]

This is to notify you that your Tender dated [Tender date] for the execution of the [name of the contract and lots as given in the Tender Data] for the Contract Price of [amount in numbers and words, and name of currency/currencies] or equivalent thereof, as corrected and modified in accordance with the Instructions to Tenderers, is hereby accepted.

You are hereby required:

- a) to confirm receipt of this letter of acceptance
- b) to sign the attached Contract Agreement and return [specify as provided in the Tender Documents]; and
- c) to commence performance of the said contract in accordance with the Contract Documents. [possibly a mention of the requirements to submit an Advance Payment Guarantee within 28 days in terms of Clause 13.2.1. of the General Conditions].

Authorized Signature:

Name and Title of Signatory:

Name of Principal:

Attachment: Contract Document

E. Price Schedules

SEE VOLUME III: PRICE SCHEDULES

F. Confirmation of Compliance with Swiss Labor Legislation



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER

State Secretariat for Economic Affairs SECO
Economic Cooperation and Development
Infrastructure Financing

Compliance with working conditions, workplace health and safety regulations and requirement of equal pay for men and women: Declaration by the supplier/consultant

The undersigned herewith confirms, in his/her capacity as member of the management board, that his/her company:

Name and address: _____

and those subcontractors and sub-suppliers used by said company **for services in Switzerland** comply with the following conditions, workplace health and safety regulations and the requirement of equal pay for men and women:

ILO Core Conventions

Working conditions:

Health and safety regulations: Federal Act on Employment in Trade and Industry (Employment Act; SR 822.11) and Federal Act on Accident Insurance (Accident Insurance Act; SR 832.20).

Equal pay for men and women: Federal AUR-00705.10.12 on Gender Equality (Equality Act; SR 151.1).

Furthermore, the undersigned herewith confirms that, for services provided outside of Switzerland by his/her company or by subcontractors and/or sub-suppliers, he/she complies with the Core Conventions of the International Labour Organisation (ILO).

Please note: Knowingly entering false information on this form may result in criminal penalties for the undersigned.

Place and date: _____

Legally binding signature: _____

This document must be submitted to the authority issuing the call for tenders.

G. Reference Projects of Firms

The following form for project references of firms (Tenderer or Joint Venture / Consortium Partners or sub-contractors) has to fulfil the minimum requirements as stated in the Tender Data and provide all information required for the qualification criteria 3.7 as well as for evaluation of the award criteria no. 25.1. The form has to be filled in for each reference project separately.

Reference No. of <replace with name of firm>

Project Title	.....
Client Name	.....
Address	.....
Contact Person	.....
(phone # and e-mail)	.....
Date / Period (from / to)	.....
Current status	.....
Name / Function of Lead Firm	.....
Names / Functions of sub-contractors / other firms	.....
Contract Value in EUR (exchange rate / date)	.....
Share Lead Contractor/ Supplier	..... % of Contract Value
Share Sub-Contractors/ Sub-Suppliers	..... % of Contract Value

Names of key staff provided (incl. main responsibility / task)	
Project Objectives	
Description	
List of Tasks provided	
What were the analogies / similarities of the reference project to the present project?	

H. Litigation History Form

[fill in this page for the Tenderer and all partners of a joint venture / consortium, if applicable]

Date:

Name of Contract: [...]

To: [Name, address, location of Principal]

We herewith confirm that we are not involved in any current or past litigation or arbitration resulting from contracts completed or under execution within the last 5 years. An inconsistent history of award against the applicant may result in failure of the application.

Confirmation of Tenderer that the information provided is correct:

Date:

Authorized Signature (s):

Name(s) of Signatory(s):

I. Information about Involved Firms and Quality Management

[please fill in this page for each participating firm, incl. sub-contractors]

Legal name	:	
Legal form / date of establishment	:	
		<input checked="" type="checkbox"/> Copy of Articles of Incorporation or Registration of firm
Country of Constitution, Incorporation, or Registration	:	
Main activities / branches	:	
Relevant memberships	:	
Relevant Licenses and Certificates	:	[relevant documents to be listed here & attached e.g. License for construction work, License for architectural and urban design, Certificate of registered business, Certificate for paid taxes and contribution, Current status from the State trade register]
Staffing (number of staff)		
Management staff:		
University degree:		
Technicians:		
Draftspersons:		
Trainees:		
Administration staff:		
Other:		

Total Staff:

Quality Management Systems:

[for the lead company and all joint venture partners]

- ☒ valid certificate of quality management system such as ISO 9001 attached
- ☒ valid certificate of ISO 14001 attached
- ☒ valid certificate of OHSAS 18001 attached

J. Financial Form

[To be filled by the Tenderer (all partners in case of a joint venture / consortium)]

Date:

Name of Tenderer: [...]

To: [Name, address, location of Principal]

Financial Information	Historic information for previous three (3) years (EUR equivalent in 000s)				
	2016	2017	2018	Average	Average Ratio
Information from Balance Sheet					
Total Assets (TA)					
Total Liabilities (TL)					
Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Information from Income Statement					
Total Revenue (TR)					
Earnings before interest and taxes (EBIT)					

☒ Attached are copies of audited / confirmed financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following conditions:

- a) Must reflect the financial situation of the Tenderer and not sister companies
- b) Historic financial statements have to be audited by a certified accountant or confirmed by the State Tax Authority.
- c) Historic financial statements must be complete, including all notes to the financial statements
- d) Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted)

K. List of Key Staff and Task Assignments

Expatriate Staff			
Name	Position	Task	Workdays

Local Staff			
Name	Position	Task	Workdays

L. List of Key Materials, Equipment and Suppliers

N/A

M. Template for Curriculum Vitae

CURRICULUM VITAE

Proposed position in assignment:

1. **Family name:**

2. **First name(s):**

3. **Date of birth:**

4. **Nationality:**

5. **Education:**

Institution	
Date: from (month/year - to (month/year)	
Degree(s) or Diploma(s) obtained:	

Institution	
Date: from (month/year - to (month/year)	
Degree(s) or Diploma(s) obtained:	

6. **Language skills:** (Mark 1 to 5 for competence, 5 being the highest)

Language	Reading	Speaking	Writing
English			
Serbian			
German			

7. **Membership of professional bodies:**

8. **Other skills (e.g. computer literacy, etc.):**

9. **Present position:**

10. **Years within the firm:**

11. **Key qualifications (relevant to the programme):**

12. Specific experience in the region:

Country	Date: from (month / year) to (month / year)

13. Professional Experience Record:

Date: from (month/year) to (month/year)	
Location:	
Company & reference person:	
Position:	
Description:	

Date: from (month/year) to (month/year)	
Location:	
Company & reference person:	
Position:	
Description:	

Date: from (month/year) to (month/year)	
Location:	
Company & reference person:	
Position:	
Description:	

Selection of Assignments

14. Others:

15. Publications:

N. Prevention of Irregularities³

Suitability Criterion *Prevention of Irregularities*

No.	Suitability Criterion	Evidence	Confirmation from provider
EKxy	<p>The provider confirms that the company itself, all persons involved in the tender process and/or implementation of the project, and commissioned subcontractors:</p> <ul style="list-style-type: none"> a) Have not been convicted of an offence relevant to fulfilment of the contract in the last 5 years, either in Switzerland or abroad.⁴ b) Are not included in the sanction list of an international financial institution⁵. c) Within the context of this tender document, have not behaved in a way which could endanger or challenge the competition-neutral and legally equal process of awarding the tender or fulfilling the contract in the most economically advantageous way. 	<p>Named written confirmations.</p> <p>The contracting authority reserves the right to demand an extract from a Swiss judicial record or comparable foreign certification (incl. official translation).</p>	<p>Confirmation to a) <input type="checkbox"/></p> <p>Confirmation to b) <input type="checkbox"/></p> <p>Confirmation to c) <input type="checkbox"/></p>

³ To be signed by all consortium partners

⁴ Offences relevant to the fulfilment of the contract are specifically: offences against property (Art. 137 - 172 Criminal Code), offences against sexual integrity (Art. 187 - 212 Criminal Code), criminal organisation (Art. 260ter Criminal Code), financing of terrorism (Art. 260 quinquies Criminal Code), money laundering (Art. 305bis Criminal Code), bribery (Art. 322ter-322octies Criminal Code), dishonest and unlawful behaviour as per Unfair Competition legislation.

⁵ This includes the following financial institutions:

- [African Development Group](#)
- [Asian Development Bank](#)
- [European Bank for Reconstruction and Development](#)
- [Inter-American Development Bank](#)
- [World Bank Group](#)

	<p>The provider also confirms that he has taken suitable and proportional measures (Compliance Processes) for the prevention, early recognition and risk-reducing handling of the offences relevant for the contract.</p>	<p>Named written confirmation.</p> <p>The contracting authority reserves the right to demand a summary of the measures (Compliance Processes) taken by the provider for the recognition, prevention and risk-reducing handling of offences by its employees that are relevant for the contract.</p>	<p>Confirmation</p> <p><input type="checkbox"/></p>
--	--	--	--

The provider:

<<company name>>

<<first name>> <<name>>

<<function>>

VOLUME II

THE CONTRACT

SECTION I: GENERAL CONDITIONS OF CONTRACT

GENERAL CONDITIONS OF CONTRACT

NOTES ON THE GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract, read in conjunction with the Special Conditions of Contract and other documents listed therein, should be a complete document expressing all the rights and obligations of the parties.

Part I

Contract and Interpretation

1. Definitions

The following words and expressions shall have the meanings hereby assigned to them:

Contract	means the Contract Agreement entered into between the Principal and the Contractor, together with the Contract Documents referred to therein; they shall constitute the Contract, and the term “the Contract” shall in all such documents be construed accordingly.
Contract documents	means the documents listed in Article 1.1 (Contract Documents) of the contract agreement (including any amendments thereto).
GC	means the General Conditions hereof.
SCC	means the Special Conditions of Contract.
Days	mean calendar days of the Gregorian Calendar.
Month	means calendar month of the Gregorian Calendar.
Principal	is the sponsor of the procurement procedure and means the person named as such in the SCC and includes the legal successors or permitted assigns of the Principal.
Project Manager	means the person appointed by the Principle in the manner provided in GC 17.1 (Project Manager) hereof and named as such in the SCC to perform the duties delegated by the Principal.
Contractor(s)	is the successful Tenderer and means the person(s) named as such in the SCC and includes the legal successors or permitted assigns of the Contractor.
Contractor's Representative / Construction Manager	means any person nominated by the Contractor and named as such in the SCC and approved by the Principal in the manner provided in GC 17.2.1 (Contractor's Representative and Construction Manager) hereof to perform the duties delegated by the Contractor.

Subcontractor	including vendors, means any person to whom execution of any part of the Stations, including preparation of any design, civil works or supply of any Equipment is subcontracted directly or indirectly by the Contractor, and includes its legal successors or permitted assigns.
Adjudicator	means the person or persons named as such in the SCC appointed by agreement between the Principal and the Contractor to make a decision on or to settle any dispute or difference between the Principal and the Contractor referred to him or her by the parties pursuant to GC 6.1 (reference to Adjudicator) hereof.
SECO	means the State Secretariat for Economic Affairs, Berne, Switzerland, representing the Government of the Swiss Confederation.
Contract Price	means the sum specified in Article 2 (Contract Price) of the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom as may be made pursuant to the Contract.
Stations	means all Equipment to be supplied and installed in Meteorological, Climatological, Hydrological and Precipitation Stations, as well as all the installation services and civil works to be carried out for installation of Stations in Užice by the Contractor under the Contract.
Equipment	means permanent Equipment, materials, machinery, apparatus, articles and things of all kinds to be provided and incorporated in the Stations by the Contractor under the Contract (including the spare parts to be supplied by the Contractor under GC 7.3 hereof) but does not include Contractor's Equipment.
Installation Services	means all those services ancillary to the supply of the Equipment for the Stations to be provided by the Contractor under the Contract, e.g. civil works, transportation and provision of marine or other similar insurance, inspection, expediting, site preparation works (including the provision and use of Contractor's equipment and the supply of all construction materials required), installation, testing, pre-

	commissioning, commissioning, operations, maintenance, the provision of operations and maintenance manuals, training, etc.
Contractor's equipment	means all Plant, Stations, Equipment, machinery, tools, apparatus, appliances or things of every kind required in or for installation, Completion and maintenance of Stations and which are to be provided by the Contractor, but does not include Equipment, or other things intended to form or forming part of Stations.
Site	means the land and other places upon which the Stations are to be installed, and such other land or places as may be specified in the Contract as forming part of the Site.
Letter of Acceptance	is the notification of successful Tenderer by the Principal that its tender has been accepted
Effective Date	means the date of fulfilment of all conditions stated in Article 3 of the Contract Agreement.
Time for Completion	means the time within which Completion of the Stations as a whole (or of a part of the Stations where a separate Time for Completion of such part has been prescribed) is to be attained in accordance with the specifications in the SCC and the relevant provisions of the Contract.
Completion	means that the Stations (or a specific part thereof where specific parts are specified in the SCC) have been completed operationally and structurally and put in a tight and clean condition, and that all work in respect of Pre-commissioning of the Stations or such specific part thereof has been completed; in other words, that the Stations or specific part thereof are ready for Commissioning as provided in GC 24 (Completion) hereof.
Pre-commissioning	means the testing, checking and other requirements specified in the Technical Specifications which are to be carried out by the Contractor in preparation for Commissioning as provided in GC 24 (Completion) hereof.
Commissioning	means operation of the Stations or any part thereof by the Contractor following Completion, which operation is to be carried

	out by the Contractor as provided in GC 25.1.1 (Commissioning) hereof, for the purpose of carrying out Guarantee Test(s).
Guarantee Test(s)	means the test(s) specified in the Technical Specifications to be carried out to ascertain whether the Stations or a specified part thereof is able to attain the Functional Guarantees specified in the Technical Specifications in accordance with the provisions of GC 25.2.1 (Guarantee Test) hereof.
Operational Acceptance	means the acceptance by the Principal of the Stations (or any part of the Stations where the Contract provides for acceptance of the Stations in parts), which certifies the Contractor's fulfilment of the Contract in respect of Functional Guarantees of the Stations (or the relevant part thereof) in accordance with the provisions of GC 28 (Functional Guarantees) hereof and shall include deemed acceptance in accordance with GC 25 (Commissioning and Operational Acceptance) hereof.
Defect Liability Period	means the period of validity of the warranties given by the Contractor commencing at Completion of the Stations or a part thereof, during which the Contractor is responsible for defects with respect to the Stations (or the relevant part thereof) as provided in GC 27 (Defect Liability) hereof.

2. Contract Documents

Subject to Article 1.2 (Order of Precedence) of the Contract Agreement, all documents forming part of the Contract (and all parts thereof) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.

3. Interpretation

3.1. Language

3.1.1. All Contract Documents, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be written in English, and the Contract shall be construed and interpreted in accordance with that language.

3.1.2. If any of the Contract Documents, correspondence or communications are prepared in any language other than the governing language under GC 3.1.1 above, the English translation of such documents, correspondence or communications shall prevail in matters of interpretation.

3.2. Singular and Plural

The singular shall include the plural and the plural the singular, except where the context otherwise requires.

3.3. Headings

The headings and marginal notes in the General Conditions of Contract are included for ease of reference and shall neither constitute a part of the Contract nor affect its interpretation.

3.4. Persons

Words importing persons or parties shall include firms, corporations and government entities.

3.5. Incoterms

3.5.1. Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by "Incoterms."

3.5.2. "Incoterms" means international rules for interpreting trade terms published by the International Chamber of Commerce (latest edition), 38 Cours Albert 1er, 75008 Paris, France.

3.6. Entire Agreement

Subject to GC 16.4 hereof, the Contract constitutes the entire agreement between the Principal and Contractor with respect to the subject matter of Contract and supersedes all communications,

negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract.

3.7. Amendment

No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party hereto. Any such amendment will only come into force if SECO has given a written nonobjection declaration.

3.8. Independent Contractor

3.8.1. The Contractor shall be an independent Contractor performing the Contract. The Contract does not create any agency, partnership, joint venture or other joint relationship between the parties hereto.

3.8.2. Subject to the provisions of the Contract, the Contractor shall be solely responsible for the manner in which the Contract is performed. All employees, representatives or Subcontractors engaged by the Contractor in connection with the performance of the Contract shall be under the complete control of the Contractor and shall not be deemed to be employees of the Principal, and nothing contained in the Contract or in any subcontract awarded by the Contractor shall be construed to create any contractual relationship between any such employees, representatives or Subcontractors and the Principal.

3.9. Joint Venture

If the Contractor is a joint venture of two or more persons, all such firms shall be jointly and severally bound to the Principal for the fulfilment of the provisions of the Contract and shall designate one of such persons to act as a leader with authority to bind the joint venture. The composition or the constitution of the joint venture shall not be altered without the prior consent of the Principal and SECO.

3.10. Non-Waiver

3.10.1. Subject to GC 3.10.2 below, no relaxation, forbearance, delay or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect or restrict the rights of that party under the Contract, nor shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

3.10.2. Any waiver of a party's rights, powers or remedies under the Contract must be in writing, must be dated and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

3.11. Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

3.12. Swiss Added Value (SAV)

- 3.12.1. "Swiss Value Added" means the difference between the offered price and the price of raw materials, components and/or other Equipment and Services procured by the Contractor from outside Switzerland. This value is calculated on the basis of the Swiss SERV legislation (DEA Ordinance on Minimum content of Swiss Added Value for Export Risk Guarantees [SR 946.101]: ad valorem criterion) and not on the basis of customs legislation provisions on origin.
- 3.12.2. The Contractor agrees to pay a penalty of ten (10) percent of the Contract Price to SECO for any non-observance of the "Swiss Added Value", indicated in its Price Schedule. The payment of this penalty shall not limit the Principal's right to seek other remedies under this Contract or otherwise. In particular, the right to seek compensation for damages shall not be excluded.
- 3.12.3. Moreover, the Contractor is aware of the fact that the nonobservance of the "Swiss Added Value" indicated in the Price Schedule may constitute a fraudulent practice in terms of section 24.2.

4. Notices

- 4.1. Unless otherwise stated in the Contract, all notices to be given under the Contract shall be in writing, and shall be sent by personal delivery, airmail post, special courier, facsimile or e-mail to the address of the relevant party set out in the SCC, with the following provisions.
- 4.2. Any notice sent by airmail post or special courier shall be deemed (in the absence of evidence of earlier receipt) to have been delivered five (5) days after dispatch. In proving the fact of dispatch, it shall be sufficient to show that the envelope containing such notice was properly addressed, stamped and conveyed to the postal authorities or courier service for transmission by airmail or special courier.
- 4.3. Any notice delivered personally or sent by facsimile or e-mail shall be deemed to have been delivered on date of its dispatch.
- 4.4. Either party may change its postal, facsimile or e-mail-address or addressee for receipt of such notices by ten (10) days' notice to the other party in writing.
- 4.5. Notices shall be deemed to include any approvals, consents, instructions, orders and certificates to be given under the Contract.

5. Governing Law

- 5.1. The Contract shall be governed by and interpreted in accordance with the substantive laws of Switzerland. International purchase laws shall not apply. This shall, in particular, refer to the UN Convention (CISG) on the International Sale of Goods.

6. Settlement of Disputes

6.1. Adjudicator

- 6.1.1. If any dispute of any kind whatsoever shall arise between the Principal and the Contractor in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing any question regarding its existence, validity or termination, or the execution of the Stations, whether during the progress of the Stations or after their Completion and whether before or after the termination, abandonment or breach of the Contract, the parties shall seek to resolve any such dispute or difference amicable by mutual consultation (eg by mediation). If the parties fail to resolve such a dispute or difference by mutual consultation, then the dispute shall be referred to in writing by either party to the Adjudicator, with a copy of the other party.
- 6.1.2. The Adjudicator shall give its decision in writing to both parties within twenty-eight (28) days of being referred to a dispute. If neither party notifies the other of its disagreement with the Adjudicator's decision within twenty-eight (28) days of the decision, that decision shall be final and binding. If, within twenty-eight (28) days of the decision, either party notifies the other of its disagreement, the dispute shall be referred by either party to arbitration within twenty-eight (28) days.
- 6.1.3. The Adjudicator shall be paid an hourly fee at the rate specified in the SCC plus reasonable expenditures incurred in the execution of its duties as Adjudicator, and these costs shall be divided equally between the Principal and the Contractor.
- 6.1.4. Should the adjudicator resign or die or should be Principal and the Contractor agree that the Adjudicator is not fulfilling its function in accordance with the provisions of the Contract, a new Adjudicator shall be jointly appointed by the Principal and the Contractor. Failing agreement between the two within twenty-eight (28) days, the new Adjudicator shall be designated by the Appointing Authority specified in the SCC at the request of either party and thereupon shall be jointly appointed by the Principal and the Contractor.

6.2. Arbitration

- 6.2.1. If the Adjudicator does not give its decision within twenty-eight (28) days of a referred dispute, or if either the Principal or the Contractor notifies the other in accordance with Sub-Clause GC 6.1 that it disagrees with the Adjudicator's decision, then either the Principal or the Contractor may give written notice, within twenty-eight (28) days, to the other party of its intention to refer the dispute to arbitration.

- 6.2.2. Any dispute submitted by a party to arbitration shall be heard by a sole arbitrator, or by an arbitration panel composed of three arbitrators, in accordance with the provisions set forth below.
- 6.2.3. Where the Parties agree that the dispute concerns a technical matter, they may agree to appoint a sole arbitrator or, failing agreement on the identity of such sole arbitrator within twenty-eight (28) days after receipt by the other party of the proposal of a name for such an appointment by the party who initiated the proceedings, either Party may apply to Fédération Internationale des Ingénieurs-Conseils (FIDIC) of Geneva, Switzerland, for a list of not fewer than five nominees and, on receipt of such list, the parties shall alternately strike names therefrom, and the last remaining nominee on the list shall be the sole arbitrator for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) days of the date of the list FIDIC shall appoint, upon request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute.
- 6.2.4. Where the Parties do not agree that the dispute concerns a technical matter, the Principal and the Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the arbitrators named by the parties do not succeed in appointing a third arbitrator within twenty-eight (28) days after the latter of the two arbitrators named by the parties has been appointed, the third arbitrator shall, at the request of either party, be appointed by the International Chamber of Commerce, Paris.
- 6.2.5. If one party fails to appoint its arbitrator within twenty-eight (28) days after the other party has appointed its arbitrator, the party which has named an arbitrator may request the International Chamber of Commerce, Paris to appoint a sole arbitrator for the matter in dispute, and the arbitrator appointed pursuant to such application shall be the sole arbitrator for that dispute.
- 6.2.6. If for any reason an arbitrator is unable to perform its function, a substitute shall be appointed in the same manner as the original arbitrator.
- 6.2.7. Arbitration proceedings shall be conducted in accordance with the rules of procedure for arbitration of the United Nations Commission on International Trade Law (UNCITRAL) as in force on the date of this Contract and in the language in which this Contract has been executed.
- 6.2.8. The sole arbitrator or third arbitrator appointed pursuant to Clause 6.2.3 or 6.2.5 hereof shall be an internationally recognized legal or technical expert with extensive experience in relation to the matter in dispute and shall not be a national of the Contractors' home country or of the Principals'.
- 6.2.9. The decision of the sole arbitrator, or of a majority of the arbitrators (or of the third arbitrator if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction. The parties thereby waive any objections to or claims of immunity from such enforcement.

- 6.3. Notwithstanding any reference to the Adjudicator or arbitration herein
- a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
 - b) the Principal shall pay the Contractor any monies due the Contractor.

Part II

Subject Matter of Contract

7. Scope

- 7.1. Unless otherwise expressly limited in the Technical Part, the Contractor's obligations cover the provision of all Equipment and the performance of all Installation Services required for the design, the manufacture (including procurement, quality assurance, construction, installation, associated civil works, pre-commissioning and delivery) of the Equipment and the installation, Completion and commissioning of the Stations in accordance with the plans, procedures, specifications, drawings, codes and any other documents as specified in the Technical Part. Such specifications include, but are not limited to, the provision of supervision and engineering services; the supply of labor, materials, Equipment, spare parts (as specified in GC 7.3 below) and accessories; Contractor's equipment; construction utilities and supplies; temporary materials, structures; transportation (including, without limitation, unloading and hauling to, from and at the Site); and storage, except for those supplies, services which will be provided or performed by the Principal, as set forth in Appendix 6 (Scope of works and supply by the Principal) to the Contract agreement.
- 7.2. The Contractor shall, unless specifically excluded in the Contract, perform all such work and/or supply all such items and materials not specifically mentioned in the Contract but which can be reasonably inferred from the Contract as being required for attaining Completion of the Stations as if such work and/or items and materials were expressly mentioned in the Contract.
- 7.3. In addition to the supply of Equipment for the Stations included in the Contract, the Contractor agrees to supply spare parts required for the operation and maintenance of the Stations for the period specified in the SCC. However, the identity, specifications and quantities of such spare parts and the terms and conditions relating to the supply thereof are to be agreed between the Principal and the Contractor and the price of such spare parts shall be given and included in the Contract Price. The price of such spare parts shall include the purchase price therefore and other costs and expenses (including the Contractor's fees) relating to the supply of the same.

8. Time for Commencement and Completion

- 8.1. The Contractor shall commence work on the Stations within the period specified in the special conditions of contract, SCC and without prejudice to GC 26.2 hereof, the Contractor shall thereafter proceed with the Stations in accordance with the time schedule specified in Appendix 4 (Time Schedule) to the Contract agreement.
- 8.2. The Contractor shall attain Completion of the Stations (or of a part where a separate Time for Completion of such part is specified in the Contract) within the time

stated in the SCC or within such extended time to which the Contractor shall be entitled under GC 40 (Extension of Time for Completion) hereof.

9. Contractor's Responsibilities

- 9.1. The Contractor shall design, manufacture (including associated purchases and/or subcontracting), install and complete the Stations with due care and diligence in accordance with the Contract.
- 9.2. The Contractor confirms that it has entered into this Contract on the basis of a proper examination of the data relating to the Stations, and on the basis of information that it could have obtained from a visual inspection of the site (if access thereto was available), and other data readily available to it relating to the Stations. The Contractor acknowledges that any failure to acquaint itself with all such data and information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully installing the Stations.
- 9.3. The Contractor shall acquire all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located, which such authorities or undertakings require the Contractor to obtain in its name and which are necessary for the performance of the Contract, including, without limitation, visas for the Contractor's and Subcontractor's personnel and entry permits for all imported Contractor's equipment. The Contractor shall acquire all other permits, approvals and/or licenses which are not the responsibility of the Principal under GC 10.3 hereof and which are necessary for the performance of the Contract.
- 9.4. The Contractor shall comply with all laws in force in the country where the Stations are installed, and the Installation Services are carried out. The laws will include all national, provincial, municipal or other laws that affect the performance of the Contract and bind upon the Contractor. The Contractor shall indemnify and hold harmless the Principal from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from the violation of such laws by the Contractor or its personnel, including the Subcontractors and their personnel, but without prejudice to GC 10.1 hereof.
- 9.5. The Contractor shall permit the Principal and/or SECO to inspect the Contractor's accounts and records relating to the performance of the contract and to have them audited by auditors appointed by the Principal and/or SECO, if so required by the Principal and/or SECO.

10. Principal's Responsibilities

- 10.1. The Principal shall ensure the accuracy of all information and/or data to be supplied by the Principal as described in Appendix 6 (Scope of works and supply by the Principal) to the Contract, except when otherwise expressly stated in the Contract.

- 10.2. The Principal shall be responsible for acquiring and providing legal and physical possession of the Site and access thereto, and for providing possession of and access to all other areas reasonably required for the proper execution of the Contract, including all requisite rights of way, as specified in Appendix 6 (Scope of works and supply by the Principal) to the Contract agreement. The Principal shall give full possession of and accord all rights of access thereto on or before the date(s) specified in Appendix 6.
- 10.3. The Principal shall acquire and pay for all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the site is located. Such authorities or undertakings require the Principal to obtain them in the Principal's name, are necessary for the execution of the Contract (they include those required for the performance by both the Contractor and the Principal of their respective obligations under the Contract), and are specified in Appendix 6 (Scope of works and supply by the Principal) to the Contract agreement.
- 10.4. If requested by the Contractor, the Principal shall use its best endeavors to assist the Contractor in obtaining in a timely and expeditious manner all permits, approvals and/or licenses necessary for the execution of the Contract from all local, state or national government authorities or public service undertakings which such authorities or undertakings require the Contractor or Subcontractors or the personnel of the Contractor or Subcontractors, as the case may be, to obtain.
- 10.5. Unless otherwise specified in the Contract or agreed upon by the Principal and the Contractor, the Principal shall provide sufficient properly qualified operating and maintenance personnel and shall perform all work and services of whatsoever nature, including those required by the Contractor to properly carry out Pre-commissioning, Commissioning and Guarantee Tests, all in accordance with the provisions of Appendix 6 (Scope of works and supply by the Principal) to the Contract Agreement at or before the time specified in the program furnished by the Contractor under GC (Program of performance) hereof and in the manner thereupon specified or as otherwise agreed upon by the Principal and the Contractor.
- 10.6. The Principal shall be responsible for the continued operation of the Stations after Completion, in accordance with GC 24.8, and shall be responsible for facilitating the Guarantee Test(s) for the Stations, in accordance with GC 25.2.
- 10.7. All costs and expenses involved in the performance of the obligations under this GC 10 shall be the responsibility of the Principal, save those to be incurred by the Contractor with respect to the performance of Guarantee Tests, in accordance with GC. 25.2.

Part III

Payment

11. Contract Price

- 11.1. The Contract Price shall be as specified in Article 2 (Contract Price) of the Contract Agreement.
- 11.2. Unless indicated otherwise in the SCC, the Contract Price shall be a firm lump sum not subject to any alteration, except in the event of a Change in the Stations or as otherwise provided in the Contract.
- 11.3. Subject to GCs 9.2, 10.1 and 35 (Unforeseen Conditions) hereof, the Contractor shall be deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price, which shall, except as otherwise provided for in the Contract, cover all its obligations under the Contract.

12. Terms of Payment

- 12.1. The annual authorization of the disbursement credits by the Swiss Federal Parliament is reserved.
- 12.2. The Contract Price shall be paid as specified in Appendix 1 (Terms of Payment) to the Contract agreement. The procedures to be followed in making application for and processing payments shall be those outlined in the same Appendix 1.
- 12.3. No payment made by the Principal or by SECO herein shall be deemed to constitute acceptance by the Principal of the Stations or any part(s) thereof.
- 12.4. The currency or currencies in which payments are made to the Contractor under this Contract shall be specified in Appendix 1 (Terms of Payment) to the Contract agreement, subject to the general principle that payments will be made in the currency or currencies in which the Contract Price has been stated in the Contractor's Tender.

13. Securities

- 13.1. Issuance of Securities

The Contractor shall provide the securities specified below in favor of SECO at the times, and in the amount, manner and form specified below.

- 13.2. Advance Payment Security

- 13.2.1. Unless otherwise indicated in the SCC, the Contractor shall provide to SECO within twenty-eight (28) days of receipt, confirmed by the Contractor, of the Letter of Acceptance, an advance payment security in the amount and currency indicated in the SCC, with a validity period as indicated in the SCC.
- 13.2.2. The security shall be in the form provided in the Tender Documents or in another form acceptable to the SECO and shall be issued by a reputable commercial bank acceptable to SECO.
- 13.2.3. Unless otherwise indicated in the SCC, the amount of the security shall not be reduced during its validity period.

13.3. Performance Security

- 13.3.1. Unless otherwise indicated in the SCC, the Contractor shall provide to SECO within twenty-eight (28) days of receipt, confirmed by the Contractor, of the Letter of Acceptance, a Performance Security in the amount and currency indicated in the SCC.
- 13.3.2. The security shall be in the form provided in the Tender Documents or in another form acceptable to SECO and shall be issued by a reputable commercial bank acceptable to SECO.
- 13.3.3. The proceeds of the performance security shall be payable to SECO as compensation for any loss resulting from the Contractor's failure to complete its obligations under the Contract.
- 13.3.4. Unless otherwise specified in the SCC, the security shall be valid until twenty-four (24) months after Operational Acceptance of the Stations and shall cover the whole Defects Liability Period; provided, however, that if the Defects Liability Period has been extended on any part of the Stations pursuant to Sub-Clause GC 27.8 hereof, the Contractor shall issue an additional security in an amount proportionate to the Contract Price of that part. The security shall be returned to the Contractor immediately after its expiration.

13.4. Claims under Security

- 13.5. If SECO considers itself entitled to any claim under any security, it shall so notify the Contractor by registered post, specifying the default of the Contractor upon which it bases its claim, and it shall require the Contractor to remedy the same. If the Contractor fails to remedy or to take steps to remedy the same within fourteen (14) days of receipt of such notice, then SECO shall be entitled to call the Security.

14. Taxes and Duties

- 14.1. Except as otherwise specifically provided in the Contract, the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor, its Subcontractors or their employees by all municipal, state or national government

authorities in connection with the Stations in and outside of the country where the Site is located.

- 14.2. Notwithstanding GC 14.1 above, the Principal shall bear and promptly pay all customs and import duties imposed on the Equipment specified in Volume III - Price Schedules and to be incorporated into the Stations by the law of the country where the Site is located.
- 14.3. If any tax exemptions, reductions, allowances or privileges may be available to the Contractor in the country where the Site is located, the Principal shall use its best endeavors to enable the Contractor to benefit from any such tax savings to the maximum allowable extent.
- 14.4. For the purpose of the Contract, it is agreed that the Contract Price specified in Article 2 (Contract Price) of the Contract agreement is based on the taxes, duties, levies and charges prevailing at the date twenty-eight (28) days prior to the date of Tender submission in the country where the Site is located (hereinafter called "Tax" in this GC 14.4). If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any Change in interpretation or application of any tax occurs in the course of the performance of the Contract, which was or will be assessed on the Contractor, Subcontractors or their employees in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such Change by addition to the Contract Price or deduction therefrom, as the case may be, in accordance with GC 36 (Change in Laws and Regulations) hereof.

Part IV

Intellectual Property and Confidential Information

15. Intellectual Property and Royalties

- 15.1. The copyright and all other intellectual property rights (including, but not limited to, patent rights, [utility] model rights, design rights, trademark rights, trade secrets and secret know-how) in all drawings, documents and other materials containing data and information furnished to the Principal by the Contractor herein shall remain vested in the Contractor or, if they are furnished to the Principal directly or through the Contractor by any third party including suppliers of materials, the copyright and all other intellectual property rights in such materials shall remain vested in such third party.
- 15.2. Except where otherwise stated, the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials required for the Services.

16. Confidential Information

- 16.1. The Principal and the Contractor shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following termination of the Contract. Notwithstanding the above, the Contractor may furnish to its Subcontractor(s) such documents, data and other information it receives from the Principal to the extent required for the Subcontractor(s) to perform its services under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this GC 16.
- 16.2. The Principal shall not use such documents, data and other information received from the Contractor for any purpose other than the operation and maintenance of the Stations. Similarly, the Contractor shall not use such documents, data and other information received from the Principal for any purpose other than the design, procurement of Equipment, construction or such other work and services as are required for the performance of the Contract.
- 16.3. The obligation of a party under GCs 16.1 and 16.2 above, however, shall not apply to that information which:
- a) now or hereafter enters the public domain through no fault of that party; or
 - b) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party hereto; or

- c) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

16.4. The above provisions of this GC 16 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the Effective Date of the Contract in respect of the Stations or any part thereof.

16.5. The provisions of this GC 16 shall survive termination for whatever reason of the Contract.

Part V

Work Execution

17. Representatives

17.1. Project Manager (Principal`s Representative)

If the Project Manager is not named in the Contract, then within fourteen (14) days of the Effective Date, the Principal shall appoint and notify the Contractor in writing of the name of the Project Manager. The Principal may from time to time appoint some other person as the Project Manager in place of the person previously so appointed and shall give a notice of the name of such other person to the Contractor without delay. No such appointment shall be made at such a time or in such a manner as to impede the progress of work on the Stations. Such appointment shall only take effect upon receipt of such notice by the Contractor. The Project Manager shall represent and act for the Principal at all times during the duration of the Contract. However, he is not authorized to amend the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract shall be given by the Project Manager, except as herein otherwise provided.

All notices, instructions, information and other communications given by the Contractor to the Principal under the Contract shall be given to the Project Manager, except as herein otherwise provided.

17.2. Contractor`s Representative & Construction Manager

17.2.1. If the Contractor`s Representative is not named in the Contract, then within fourteen (14) days of the Effective Date, the Contractor shall appoint the Contractor`s Representative and shall request the Principal in writing to approve the person so appointed. If the Principal makes no objection to the appointment within fourteen (14) days, the Contractor`s Representative shall be deemed to have been approved. If the Principal objects to the appointment within fourteen (14) days giving the reason therefore, then the Contractor shall appoint a replacement within fourteen (14) days of such objection, and the foregoing provisions of this GC 17.2.1 shall apply thereto.

17.2.2. The Contractor`s Representative shall represent and act for the Contractor at all times during the duration of the Contract and shall give to the Project Manager all the Contractor`s notices, instructions, information and all other communications under the Contract.

All notices, instructions, information and all other communications given by the Principal or the Project Manager to the Contractor under the Contract shall be given to the Contractor`s Representative or, in its absence, its deputy, except as herein otherwise provided.

The Contractor shall not revoke the appointment of the Contractor`s Representative without the Principal`s prior written consent, which shall not be unreasonably withheld. If

the Principal consents thereto, the Contractor shall appoint some other person as the Contractor's Representative, pursuant to the procedure set out in GC 17.2.1 above.

- 17.2.3. The Contractor's Representative may, subject to the approval of the Principal (which shall not be unreasonably withheld), at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time. Any such delegation or revocation shall be subject to a prior notice signed by the Contractor's Representative, and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Principal and the Project Manager.

Any act or exercise by any person of powers, functions and authorities so delegated to him or her in accordance with this GC 17.2.3 shall be deemed to be an act or exercise by the Contractor's Representative.

- 17.2.4. From the commencement of installation of the Stations at the Site until Completion, the Contractor's Representative shall appoint a suitable person as the construction manager (hereinafter referred to as "the Construction Manager"). The Construction Manager shall supervise all work done at the Site by the Contractor and shall be present at the Site throughout normal working hours except when on leave, sick or absent for reasons connected with the proper performance of the Contract. Whenever the Construction Manager is absent from the Site, a suitable person shall be appointed to act as his or her deputy.
- 17.2.5. The Principal may by notice to the Contractor object to any representative or person employed by the Contractor in the execution of the Contract who, in the reasonable opinion of the Principal, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the Site regulations provided under GC 22.3 hereof. The Principal shall provide evidence of the same, whereupon the Contractor shall remove such person from the Site.
- 17.2.6. If any representative or person employed by the Contractor is removed in accordance with GC 17.2.5 above, the Contractor shall where required promptly appoint a replacement.

18. Work Program

18.1. Contractor's Organization

The Contractor shall supply to the Principal and the Project Manager a chart showing the proposed organization to be established by the Contractor for carrying out work on the Stations. The Contractor shall promptly inform the Principal and the Project Manager in writing of any revision or alteration of such organization chart.

18.2. Program of Performance

Within twenty-eight (28) days after the Effective Date, the Contractor shall prepare and submit to the Project Manager a detailed programme of performance of the Contract, made in the form specified in the SCC and showing the sequence in which it proposes to design, manufacture, transport, assemble, install and pre-commission the Stations, as well as the date by which the Contractor reasonably requires that the Principal shall have fulfilled its obligations under the Contract so as to enable the Contractor to execute the Contract in accordance with the programme and to achieve Completion, Commissioning and Acceptance of the Stations in accordance with the Contract. The programme so submitted by the Contractor shall accord with the Time Schedule included in Appendix 4 (Time Schedule) to the Contract agreement and any other dates and periods specified in the Contract. The Contractor shall update and revise the programme as and when appropriate or when required by the Project Manager, but without modification in the Times for Completion given in the SCC and any extension granted in accordance with GC 40, and shall submit all such revisions to the Project Manager.

18.3. Progress Report

18.3.1. The Contractor shall monitor progress of all the activities specified in the programme referred to in GC 18.2 (Program of Performance) above and supply a progress report to the Project Manager every month.

18.3.2. The progress report shall be in a form acceptable to the Project Manager and shall indicate: (a) percentage of completion achieved compared with the planned percentage completion for each activity; and (b) where any activity is behind the programme, giving comments and likely consequences and stating the corrective action being taken.

18.4. Progress of Performance

If at any time the Contractor's actual progress falls behind the programme referred to in GC 18.2 (Programme of Performance) above, or it becomes apparent that it will so fall behind, the Contractor shall, at the request of the Principal or the Project Manager, prepare and submit to the Project Manager a revised programme, taking into account the prevailing circumstances, and shall notify the Project Manager of the steps being taken to expedite progress so as to attain Completion of the Stations within the Time for Completion under GC 8.2 (Time for Completion) hereof, any extension thereof entitled under GC 40.1 hereof, or any extended period as may otherwise be agreed upon between the Principal and the Contractor.

18.5. Work Procedures

The Contract shall be executed in accordance with the Contract documents and the procedures given in the Contract Documents.

The Contractor may execute the Contract in accordance with its own standard project execution plans and procedures to the extent that they do not conflict with the provisions contained in the Contract.

19. Subcontracting

19.1. Appendix 5 (List of Subcontractors) to the Contract Agreement specifies major items of supply or services and a list of approved Subcontractors against each item, including vendors. Insofar as no Subcontractors are listed against any such item, the Contractor shall prepare a list of Subcontractors for such item for inclusion in such list. The Contractor may from time to time propose any addition to or deletion from any such list. The Contractor shall submit any such list or any modification thereto to the Principal for its approval in sufficient time so as not to impede the progress of work on the Stations. Such approval by the Principal for any of the Subcontractors shall not relieve the Contractor from any of its obligations, duties or responsibilities under the Contract.

19.2. The Contractor shall select and employ its Subcontractors for such major items from those listed in the lists referred to in GC Sub-Clause 19.1.

19.3. For items or parts of the Stations not specified in Appendix 5 (List of Subcontractors) to the Contract agreement, the Contractor may employ such Subcontractors as it may select, at its discretion.

20. Design and Engineering

20.1. Specifications and Drawings

20.1.1. The Contractor shall execute the basic and detailed design and the engineering work in compliance with the provisions of the Contract, or where not so specified, in accordance with good engineering practice.

The Contractor shall be responsible for any discrepancies, errors or omissions in the specifications, drawings and other technical documents that it has prepared, whether such specifications, drawings and other documents have been approved by the Project Manager or not, provided that such discrepancies, errors or omissions are not because of inaccurate information furnished in writing to the Contractor by or on behalf of the Principal.

20.1.2. The Contractor shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designated by or on behalf of the Principal, by giving a notice of such disclaimer to the Project Manager.

20.2. Codes and Standards

20.2.1. Wherever references are made in the Contract to codes and standards in accordance with which the Contract shall be executed, the edition or the revised version of such codes and standards current at the date twenty-eight (28) days prior to date of Tender submission shall apply unless otherwise specified. During Contract execution, any Changes in such codes and standards shall be applied after approval by the Principal and shall be treated in accordance with GC 39.

20.3. Approval/Review of Technical Documents by Project Manager

- 20.3.1. The Contractor shall prepare (or cause its Subcontractors to prepare) and furnish to the Project Manager the documents listed in Appendix 7 to the Contract Agreement for its approval or review as specified and as in accordance with the requirements of GC 18.2 (Program of Performance).

Any part of the Stations covered by or related to the documents to be approved by the Project Manager shall be executed only after the Project Manager's approval thereof.

The following GCs 20.3.2 to 20.3.7 (inclusive) shall apply to those documents requiring the Project Manager's approval, but not to those furnished to the Project Manager for its review only.

- 20.3.2. Within fourteen (14) days after receipt by the Project Manager of any document requiring the Project Manager's approval in accordance with GC 20.3.1 above, the Project Manager shall either return one copy thereof to the Contractor with its approval endorsed thereon or shall notify the Contractor in writing of its disapproval thereof and the reasons therefore and the modifications which the Project Manager proposes.

If the Project Manager fails to take such action within the said fourteen (14) days, then the said document shall be deemed to have been approved by the Project Manager.

- 20.3.3. The Project Manager shall not disapprove any document, except on the grounds that the document does not comply with some specified provision of the Contract or that it is contrary to good engineering practice.

- 20.3.4. If the Project Manager disapproves the document, the Contractor shall modify the document and re-submit it for the Project Manager's approval in accordance with GC 20.3.2 above. If the Project Manager approves the document subject to modification(s), the Contractor shall make the required modification(s), whereupon the document shall be deemed to have been approved.

- 20.3.5. If any dispute or difference occurs between the Principal and the Contractor in connection with or arising out of the disapproval by the Project Manager of any document and/or any modification(s) thereto which cannot be settled between the parties within a reasonable period, then such dispute or difference may be referred to an Adjudicator for determination in accordance with GC 6.1 (Reference to Adjudicator) hereof. If such dispute or difference is referred to an Adjudicator, the Project Manager shall give instructions as to whether and, if so, how performance of the Contract is to proceed. The Contractor shall proceed with the Contract in accordance with the Project Manager's instructions, provided that if the Adjudicator upholds the Contractor's view on the dispute and if the Principal has not given notice under GC 6.2.1 hereof, then the Contractor shall be reimbursed by the Principal for any additional costs incurred by reason of such instructions and shall be relieved of such responsibility or liability in connection with the dispute and the execution of the instructions as the Adjudicator shall decide, and the Time for Completion shall be extended accordingly.

- 20.3.6. The Project Manager's approval, with or without modification of the document furnished by the Contractor, shall not relieve the Contractor of any responsibility or liability imposed upon it by any provisions of the Contract except to the extent that any subsequent failure results from modifications required by the Project Manager.
- 20.3.7. The Contractor shall not depart from any approved document unless the Contractor has first submitted to the Project Manager an amended document and obtained the Project Manager's approval thereof, pursuant to the provisions of this GC 20.3

If the Project Manager requests any Change in any already approved document and/or in any document based thereon, the provisions of GC 39 (Change in the Stations) hereof shall apply to such request.

21. Procurement

21.1. Equipment

Subject to GC 14.2 hereof, the Contractor shall manufacture or procure and transport all the Equipment in an expeditious and orderly manner to the site.

21.2. Principal-supplied equipment and materials

- 21.2.1. If Appendix 6 (Scope of works and supply by the Principal) to the Contract Agreement provides that the Principal shall furnish any specific items of machinery, equipment or materials to the Contractor, the following provisions shall apply:
- 21.2.2. The Principal shall, at its own risk and expense, transport each item to the place on or near the site as agreed upon by the parties and make such item available to the Contractor at the time specified in the programme furnished by the Contractor, pursuant to GC 18.2 (Programme of Performance) hereof unless otherwise mutually agreed.
- 21.2.3. Upon receipt of such item, the Contractor shall inspect the same visually and notify the Project Manager of any detected shortage, defect or default. The Principal shall immediately remedy any shortage, defect or default, or the Contractor shall, if practicable and possible, at the request of the Principal, remedy such shortage, defect or default at the Principal's cost and expense. After inspection, such item shall fall under the care, custody and control of the Contractor.
- 21.2.4. The provision of this GC 21.2.3 shall apply to any item supplied to remedy any such shortage or default or to substitute for any defective item or shall apply to defective items which have been repaired.
- 21.2.5. The foregoing responsibilities of the Contractor and its obligations of care, custody and control shall not relieve the Principal of liability for any undetected shortage, defect or default, nor place the Contractor under any liability for any such shortage, defect or default whether under GC 27 (Defect Liability) hereof or any other provision of Contract.

21.3. Transportation

- 21.3.1. The Contractor shall at its own risk and expense transport all the Equipment for Stations and the Contractor's equipment to the Site by the mode of transport which the Contractor judges most suitable under all the circumstances.
- 21.3.2. Unless otherwise provided in the Contract, the Contractor shall be entitled to select any safe mode of transport operated by any person to carry the Equipment for Stations and the Contractor's equipment.
- 21.3.3. Upon dispatch of each shipment of the Equipment for Stations and the Contractor's equipment, the Contractor shall notify the Principal by facsimile or e-mail of the description of the Equipment for Stations and of the Contractor's equipment, the point and means of dispatch, and the estimated time and point of arrival in the country where the Site is located, if applicable, and at the Site. The Contractor shall furnish the Principal with relevant shipping documents to be agreed upon between the parties.
- 21.3.4. The Contractor shall be responsible for obtaining, if necessary, approvals from the authorities for transportation of the Equipment for Stations and the Contractor's equipment to the Site. The Principal shall use its best endeavors in a timely and expeditious manner to assist the Contractor in obtaining such approvals, if requested by the Contractor. The Contractor shall indemnify and hold harmless the Principal from and against any claim for damage to roads, bridges or any other traffic Stations that may be caused by the transport of the Equipment for Stations and the Contractor's equipment to the site.

21.4. Customs Clearance

The Contractor shall, at its own expense, handle all imported Equipment for Stations and Contractor's equipment at the point(s) of import and shall handle any formalities for customs clearance, subject to the Principal's obligations under GC 14.2 hereof, provided that if applicable laws or regulations require any application or act to be made by or in the name of the Principal, the Principal shall take all necessary steps to comply with such laws or regulations. In the event of delays in customs clearance that are not the fault of the Contractor, the Contractor shall be entitled to an extension in the Time for Completion, pursuant to Clause GC 40.

22. Installation

22.1. Setting Out/Supervision/Labor

Bench Mark

- 22.1.1. The Contractor shall be responsible for the true and proper setting-out of the Stations in relation to bench marks, reference marks and lines provided to it in writing by or on behalf of the Principal.

If, at any time during the progress of installation of the Stations, any error shall appear in the position, level or alignment of the Stations, the Contractor shall forthwith notify the

Project Manager of such error and, at its own expense, immediately rectify such error to the reasonable satisfaction of the Project Manager. If such error is based on incorrect data provided in writing by or on behalf of the Principal, the expense of rectifying the same shall be borne by the Principal.

Supervision

22.1.2. The Contractor shall give or provide all necessary superintendence during the installation of the Stations, and the Construction Manager or its deputy shall be constantly on the Site to provide full-time superintendence of the installation. The Contractor shall provide and employ only technical personnel who are skilled and experienced in their respective callings and supervisory staff who are competent to give adequate supervision to the work at hand.

Labor

22.1.3. The Contractor shall provide and employ on the Site in the installation of the Stations such skilled, semi-skilled and unskilled labor as is necessary for the proper and timely execution of the Contract. The Contractor is encouraged to use local labor that has the necessary skills.

22.1.4. Unless otherwise provided in the Contract, the Contractor shall be responsible for the recruitment, transportation, accommodation and catering of all labor, local or expatriate, required for the execution of the Contract and for all payments in connection therewith.

22.1.5. The Contractor shall be responsible for obtaining all necessary permit(s) and/or visa(s) from the appropriate authorities for the entry of all labor and personnel to be employed on the site into the country where the Site is located.

22.1.6. The Contractor shall at its own expense provide the means of repatriation to all of its and its Subcontractor's personnel employed on the Contract at the Site to their various home countries. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults in providing such means of transportation and temporary maintenance, the Principal may provide the same to such personnel and recover the cost of doing so from the Contractor.

22.1.7. The Contractor shall at all times during the progress of the Contract use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst its employees and the labor of its Subcontractors.

22.1.8. The Contractor shall, in all dealings with its labor and the labor of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor.

22.2. Contractor's equipment

- 22.2.1. All Contractor's equipment brought by the Contractor onto the Site shall be deemed to be intended to be used exclusively for the execution of the Contract. The Contractor shall not remove the same from the Site without the Project Manager's consent that such Contractor's equipment is no longer required for the execution of the Contract.
- 22.2.2. Unless otherwise specified in the Contract, upon Completion of the Stations, the Contractor shall remove from the Site all Equipment brought by the Contractor onto the Site and any surplus materials remaining thereon.
- 22.2.3. The Principal will, if requested, use its best endeavors to assist the Contractor in obtaining any local, state or national government permission required by the Contractor for the export of the Contractor's equipment imported by the Contractor for use in the execution of the Contract that is no longer required for the execution of the Contract.

22.3. Regulations and Safety

- 22.3.1. The Principal and the Contractor shall establish Site regulations setting out the rules to be observed in the execution of the Contract at the Site and shall comply therewith. The Contractor shall prepare and submit to the Principal, with a copy to the Project Manager, proposed Site regulations for the Principal's approval, which approval shall not be unreasonably withheld.

Such Site regulations shall include, but shall not be limited to, rules in respect of security, safety of the Stations.

22.4. Opportunities for Other Contractors

- 22.4.1. The Contractor shall, upon written request from the Principal or the Project Manager, give all reasonable opportunities for carrying out the work to any other Contractors employed by the Principal on or near the Site.
- 22.4.2. If the Contractor, upon written request from the Principal or the Project Manager, makes available to other Contractors any roads or ways the maintenance for which the Contractor is responsible, permits the use by such other Contractors of the Contractor's equipment, or provides any other service of whatsoever nature for such other Contractors, the Principal shall fully compensate the Contractor for any loss or damage caused or occasioned by such other Contractors in respect of any such use or service and shall pay to the Contractor reasonable remuneration for the use of such equipment or the provision of such services.
- 22.4.3. The Contractor shall also arrange to perform its work so as to minimize, to the extent possible, interference with the work of other Contractors. The Project Manager shall determine the resolution of any difference or conflict that may arise between the Contractor and other Contractors and the workers of the Principal in regard to their work.
- 22.4.4. The Contractor shall notify the Project Manager promptly of any defects in the other Contractors' work that could affect the Contractor's work. The Project Manager shall determine the corrective measures, if any, required to rectify the situation after inspection

of the Stations. Decisions made by the Project Manager shall be binding on the Contractor.

22.5. Emergency Work

If, by reason of an emergency arising in connection with and during the execution of the Contract, any protective or remedial work is necessary as a matter of urgency to prevent damage to the Stations, the Contractor shall immediately carry out such work.

If the Contractor is unable or unwilling to do such work immediately, the Principal may do or cause to be done such work as the Principal may determine is necessary in order to prevent damage to the Stations. In such event the Principal shall, as soon as practicable after the occurrence of any such emergency, notify the Contractor in writing of such emergency, the work done and the reasons therefore. If the work done or caused to be done by the Principal is work which the Contractor was liable to do at its own expense under the Contract, the reasonable costs incurred by the Principal in connection therewith shall be paid by the Contractor to the Principal. Otherwise, the cost of such remedial work shall be borne by the Principal.

22.6. Site Clearance

Site Clearance in Course of Performance

22.6.1. In the course of carrying out the Contract, the Contractor shall keep the Site reasonably free from all unnecessary obstruction, store or remove any surplus materials, clear away any wreckage, rubbish or temporary works from the Site, and remove any Contractor's equipment no longer required for execution of the Contract.

Clearance of Site after Completion

22.6.2. After Completion of all parts of the Stations, the Contractor shall clear away and remove all wreckage, rubbish and debris of any kind from the Site, and shall leave the site and Stations in a clean and safe condition.

22.7. Watching and Lighting

The Contractor shall provide and maintain at its own expense all lighting, fencing, and watching when and where necessary for the proper execution and the protection of the Stations, or for the safety of the owners and occupiers of adjacent property and for the safety of the public.

22.8. Work at Night and on Holidays

22.8.1. Unless otherwise provided in the Contract, no work shall be carried out during the night and on public holidays of the country where the Site is located without prior written consent of the Principal, except where work is necessary or required to ensure safety of the Stations or for the protection of life, or to prevent loss or damage to property, when the Contractor shall immediately advise the Project Manager, provided that provisions of this GC 22.8.1 shall not apply to any work which is customarily carried out by rotary or double-shifts.

22.8.2. Notwithstanding GC 22.8.1 or GC 22.1.3 above, if and when the Contractor considers it necessary to carry out work at night or on public holidays so as to meet the Time for Completion and requests the Principal's consent thereto, the Principal shall not unreasonably withhold such consent.

23. Test and Inspection

23.1. The Contractor shall at its own expense carry out at the place of manufacture and/or on the Site all such tests and/or inspections of the Equipment and any part of the Stations as are specified in the Contract.

23.2. The Principal and the Project Manager or their designated representatives shall be entitled to attend the aforesaid test and/or inspection, provided that the Principal shall bear all costs and expenses incurred in connection with such attendance including, but not limited to, all travelling and board and lodging expenses.

23.3. Whenever the Contractor is ready to carry out any such test and/or inspection, the Contractor shall give a reasonable advance notice of such test and/or inspection and of the place and time thereof to the Project Manager. The Contractor shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Principal and the Project Manager (or their designated representatives) to attend the test and/or inspection.

23.4. The Contractor shall provide the Project Manager with a certified report of the results of any such test and/or inspection.

If the Principal or Project Manager (or their designated representatives) fails to attend the test and/or inspection, or if it is agreed between the parties that such persons shall not do so, then the Contractor may proceed with the test and/or inspection in the absence of such persons, and may provide the Project Manager with a certified report of the results thereof.

23.5. The Project Manager may require the Contractor to carry out any test and/or inspection not required by the Contract, provided that the Contractor's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of work on the Stations and/or the Contractor's performance of its other obligations under the Contract, due allowance will be made in respect of the Time for Completion and the other obligations so affected.

23.6. If any Equipment or any part of the Stations fails to pass any test and/or inspection, the Contractor shall either rectify or replace such Equipment or part of the Stations and shall repeat the test and/or inspection upon giving a notice under GC 23.3 above.

23.7. If any dispute or difference of opinion shall arise between the parties in connection with or arising out of the test and/or inspection of the Equipment or part of the Stations

that cannot be settled between the parties within a reasonable period of time, it may be referred to an Adjudicator for determination in accordance with GC 6.1 (Reference to Adjudicator) hereof.

23.8. The Contractor shall afford the Principal and the Project Manager, at the Principal's expense, access at any reasonable time to any place where the Stations are being installed, in order to inspect the progress and the manner of installation, provided that the Project Manager shall give the Contractor reasonable prior notice.

23.9. The Contractor agrees that neither the execution of a test and/or inspection of Equipment or any part of the Stations, nor the attendance by the Principal or the Project Manager, nor the issue of any test certificate pursuant to GC 23.4 above, shall release the Contractor from any other responsibilities under the Contract.

23.10. No part of the Stations or foundations shall be covered up on the Site without carrying out any test and/or inspection required under the Contract. The Contractor shall give a reasonable notice to the Project Manager whenever any such part of the Stations or foundations are ready or about to be ready for test and/or inspection; such test and/or inspection and notice thereof shall be subject to the requirements of the Contract.

23.11. The Contractor shall uncover any part of the Stations or foundations or shall make openings in or through the same as the Project Manager may from time to time require at the site and shall reinstate and make good such part or parts.

23.12. If any part of the Stations or foundations have been covered up at the Site after compliance with the requirement of GC 23.10 above and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating, and making good the same shall be borne by the Principal, and the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been delayed or impeded in the performance of any of its obligations under the Contract.

24. Completion

24.1. As soon as the Stations or any part thereof have, in the opinion of the Contractor, been completed mechanically and structurally and put in a tight and clean condition as specified in the Technical Specifications, excluding minor items not materially affecting the operation or safety of the Stations, the Contractor shall so notify the Principal in writing.

24.2. Within seven (7) days of receipt of the notice from the Contractor under GC 24.1 above, the Principal shall supply the operating and maintenance personnel specified in Appendix 6 (Scope of works and supply by the Principal) to the Contract Agreement for pre-commissioning of the Stations or any part thereof.

Pursuant to Appendix 6 (Scope of works and supply by the Principal) to the Contract Agreement, the Principal shall also provide, within the said seven (7) day period services and other matters required for Precommissioning of the Stations or any part thereof.

- 24.3. As soon as reasonably practicable after the operating and maintenance personnel have been supplied by the Principal and the services and other matters have been provided by the Principal in accordance with GC 24.2 above, the Contractor shall commence Precommissioning of the Stations or the relevant part thereof in preparation for Commissioning.
- 24.4. As soon as all services in respect of Precommissioning are completed and, in the opinion of the Contractor, the Stations or any part thereof are ready for Commissioning, the Contractor shall so notify the Project Manager in writing.
- 24.5. The Project Manager shall, within fourteen (14) days of receipt of the Contractor's notice under GC 24.4 above, either issue a Completion Certificate in the form specified in Article 1.1 (7) of the Contract Agreement stating that the Stations or that part thereof have reached Completion as at the date of the Contractor's notice under GC 24.4 above, or notify the Contractor in writing of any defects and/or deficiencies.
- If the Project Manager notifies the Contractor of any defects and/or deficiencies, the Contractor shall then correct such defects and/or deficiencies and shall repeat the procedure described in GC 24.4 above.
- If the Project Manager is satisfied that the Stations or that part thereof have reached Completion, the Project Manager shall, within seven (7) days of receipt of the Contractor's repeated notice, issue a Completion Certificate stating that the Stations or that part thereof have reached Completion as at the date of the Contractor's repeated notice.
- If the Project Manager is not so satisfied, then it shall notify the Contractor in writing of any defects and/or deficiencies within seven (7) days of receipt of the Contractor's repeated notice, and the above procedure shall be repeated.
- 24.6. If the Project Manager fails to issue the Completion Certificate and fails to inform the Contractor of any defects and/or deficiencies within fourteen (14) days of receipt of the Contractor's notice under GC 24.4 above or within seven (7) days of receipt of the Contractor's repeated notice under GC 24.5 above, or if the Principal makes use of the Stations or part thereof, then the Stations or that part thereof shall be deemed to have reached Completion as at the date of the Contractor's notice or repeated notice, or the Principal's use of the Stations, as the case may be.
- 24.7. As soon as possible after Completion, the Contractor shall complete all outstanding minor items so that the Stations are fully in accordance with the requirements of the Contract, failing which the Principal will undertake such Completion and deduct the costs thereof from any monies owing to the Contractor.
- 24.8. Upon Completion, the Principal shall be responsible for the care and custody of the Stations or the relevant part thereof, together with the risk of loss or damage thereto, and shall thereafter take over the Stations or the relevant part thereof.

25. Commissioning and Operational Acceptance

25.1. Commissioning

- 25.1.1. Commissioning of the Stations or any part thereof shall be commenced by the Contractor immediately after issue of the Completion Certificate by the Project Manager, pursuant to GC 24.5 hereof, or immediately after issue of the deemed Completion, under GC 24.6 hereof.

The Principal shall supply the operating and maintenance personnel and services and other matters required for Commissioning.

- 25.1.2. In accordance with the requirements of the Contract, the Contractor's advisory personnel shall attend Commissioning and advise and assist the Principal.

25.2. Guarantee Test

- 25.2.1. The Guarantee Test (and repeats thereof) shall be conducted by the Contractor during Commissioning of the Stations or the relevant part thereof to ascertain whether the Stations or that part can attain the Functional Guarantees specified in the technical specifications. The Contractor's and Project Manager's advisory personnel shall attend the Guarantee Test and shall advise and assist the Principal. The Principal shall promptly provide to the Contractor such information as the Contractor may reasonably require in relation to the conduct and results of the Guarantee Test (and any repeats thereof).

- 25.2.2. If for reasons not attributable to the Contractor, the Guarantee Test of the Stations or the relevant part thereof cannot be successfully completed within the period from the date of Completion specified in the SCC or any other period agreed upon by the Principal and the Contractor, the Contractor shall be deemed to have fulfilled its obligations with respect to the Functional Guarantees, and GCs 28.2 and 28.3 hereof shall not apply.

25.3. Operational Acceptance

- 25.3.1. Subject to GC 25.4 (Partial Acceptance) below, Operational Acceptance shall occur in respect of the Stations or any part thereof when:

- a) the Guarantee Test has been successfully completed and the Functional Guarantees are met:

or

- b) the Guarantee Test has not been successfully completed or has not been carried out for reasons not attributable to the Contractor within the period from the date of Completion specified in the SCC or any other agreed upon period as specified in GC 25.2.2 above; or

- c) the Contractor has paid the liquidated damages specified in GC 28.3 hereof; and any minor items mentioned in GC 24.7 hereof relevant to the Stations or that part thereof have been completed.

25.3.2. At any time after any of the events set out in GC 25.3.1 above have occurred, the Contractor may give a notice to the Project Manager requesting the issue of an Operational Acceptance Certificate in the form provided in the Tender Documents or in another form acceptable to the Principal in respect of the Stations or the part thereof specified in such notice as at the date of such notice.

25.3.3. The Project Manager shall, after consultation with the Principal, and within seven (7) days of receipt of the Contractor's notice, issue an Operational Acceptance Certificate.

25.3.4. If within seven (7) days of receipt of the Contractor's notice, the Project Manager fails to issue the Operational Acceptance Certificate or fails to inform the Contractor in writing of the justifiable reasons why the Project Manager has not issued the Operational Acceptance Certificate, the Stations or the relevant part thereof shall be deemed to have been accepted as at the date of the Contractor's said notice.

25.4. Partial Acceptance

25.4.1. If the Contract specifies that Completion and Commissioning shall be carried out in respect of parts of the Stations, the provisions relating to Completion and Commissioning including the Guarantee Test shall apply to each such part of the Stations individually, and the Operational Acceptance Certificate shall be issued accordingly for each such part of the Stations.

PART VI

Guarantees and Liabilities

26. Completion Time Guarantee

26.1. The Contractor guarantees that it shall attain Completion of the Stations (or a part for which a separate Time for Completion is specified in the SCC within the Time for Completion specified in the SCC pursuant to GC 8.2, or within such extended time to which the Contractor shall be entitled under GC 40 (Extension of Time for Completion) hereof.

26.2. If the Contractor fails to attain Completion of the Stations or any part thereof within the Time for Completion or any extension thereof under GC 40 (Extension of Time for Completion) hereof, the Contractor shall pay to the Principal liquidated damages in the amount specified in the SCC as a percentage rate of the Contract Price. The aggregate amount of such liquidated damages shall in no event exceed the amount specified as "Maximum" in the SCC.

Such payment shall completely satisfy the Contractor's obligation to attain Completion of the Stations or the relevant part thereof within the Time for Completion or any extension thereof under GC 40 (Extension of Time for Completion) hereof. The Contractor shall have no further liability whatsoever to the Principal in respect thereof.

However, the payment of liquidated damages shall not in any way relieve the Contractor from any of its obligations to complete the Stations or from any other obligations and liabilities of the Contractor under the Contract.

Save for liquidated damages payable under this GC 26.2, the failure by the Contractor to attain any milestone or other act, matter or thing by any date specified in Appendix 4 (Time Schedule) to the Contract agreement and/or other programme of work prepared pursuant to GC 18 (Program of Performance) hereof shall not render the Contractor liable for any loss or damage thereby suffered by the Principal.

26.3. If the Contractor attains Completion of the Stations or any part thereof before the Time for Completion or any extension thereof under GC 40 (Extension of Time for Completion) hereof, the Principal shall pay to the Contractor a bonus in the amount specified in the SCC. The aggregate amount of such bonus shall in no event exceed the amount specified as "Maximum" in the SCC.

27. Defect Liability

27.1. The Contractor warrants that the Stations or any part thereof shall be free from defects in the design, engineering, materials and workmanship of the Equipment supplied and of the work executed.

27.2. The Defect Liability Period shall be eighteen (18) months from the date of Completion of the Stations (or any part thereof) or twelve (12) months from the date of Operational Acceptance of the Stations (or any part thereof), whichever first occurs, unless specified otherwise in the SCC.

If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Equipment supplied or of the work executed by the Contractor, the Contractor shall promptly, in consultation and agreement with the Principal regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Contractor shall, at its discretion, determine) such defect as well as any damage to the Stations caused by such defect. The Contractor shall not be responsible for the repair, replacement or making good of any defect or of any damage to the Stations arising out of or resulting from any of the following causes:

- a) improper operation or maintenance of the Stations by the Principal;
- b) operation of the Stations outside specifications provided in the Contract;

or

- c) normal wear and tear.

27.3. The Contractor's obligations under this GC 27 shall not apply to:

- a) any materials which are supplied by the Principal under GC 21.2 (Principal-supplied Plant, Equipment and Materials) hereof, are normally consumed in operation, or which have a normal life shorter than the Defect Liability Period stated herein.
- b) any designs, specifications or other data designed, supplied or specified by or on behalf of the Principal, or any matters for which the Contractor has disclaimed responsibility herein;

or

- c) any other materials supplied, or any other work executed by or on behalf of the Principal, except for the work executed by the Principal under GC 27.7 below.

27.4. The Principal shall give the Contractor a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Principal shall afford all reasonable opportunity for the Contractor to inspect any such defect.

27.5. The Principal shall afford the Contractor all necessary access to the Stations and the Site to enable the Contractor to perform its obligations under this GC 27.

The Contractor may, with the consent of the Principal, remove from the Site any Equipment or any part of the Stations which are defective if the nature of the defect, and/or any damage to the Stations caused by the defect, is such that repairs cannot be expeditiously carried out at the site.

- 27.6. If the repair, replacement or making good is of such a character that it may affect the efficiency of the Stations or any part thereof, the Principal may give to the Contractor a notice requiring that tests of the defective part of the Stations shall be made by the Contractor immediately upon Completion of such remedial work, whereupon the Contractor shall carry out such tests.

If such part fails the tests, the Contractor shall carry out further repair, replacement or making good (as the case may be) until that part of the Stations passes such tests. The tests shall be agreed upon by the Principal and the Contractor.

- 27.7. If the Contractor fails to commence the work necessary to remedy such defect or any damage to the Stations caused by such defect within a reasonable time (which shall in no event be considered to be less than fifteen [15] days), the Principal may, following notice to the Contractor, proceed to do such work, and the reasonable costs incurred by the Principal in connection therewith shall be paid to the Principal by the Contractor or may be deducted by the Principal from any monies due the Contractor or claimed under the Performance Security.

- 27.8. If the Stations or any part thereof cannot be used by reason of such defect and/or making good such defect, the Defect Liability Period of the Stations or such part, as the case may be, shall be extended by a period equal to the period during which the Stations or such part cannot be used by the Principal because of any of the aforesaid reasons.

- 27.9. Except as provided in this GC 27 and GC 33 (Loss or Damage to Property/Accident or Injury to Workers/Indemnification) hereof, the Contractor shall be under no liability whatsoever and howsoever arising, and whether under the Contract or at law, in respect of defects in the Stations or any part thereof, the Equipment, design or engineering or work executed which appear after Completion of the Stations or any part thereof, except where such defects are the result of the gross negligence, fraud, criminal or willful action of the Contractor.

28. Functional Guarantees

- 28.1. The Contractor guarantees that during the Guarantee Test, the Stations and all parts thereof shall attain the Functional Guarantees specified in the Contract subject to and upon the conditions therein specified.

- 28.2. If, for reasons attributable to the Contractor, the guaranteed level of the Functional Guarantees specified in the Contract are not met either in whole or in part, the Contractor shall at its cost and expense make such Changes, modifications and/or additions to the Plant or any part thereof as may be necessary to meet at least the guaranteed level of

such Guarantees. The Contractor shall notify the Principal upon Completion of the necessary Changes, modifications and/or additions, and shall request the Principal to repeat the Guarantee Test until the guaranteed level of the Guarantees has been met.

28.3. If, for reasons attributable to the Contractor, the Functional Guarantees specified in the Contract are not attained either in whole or in part, the Contractor shall, at the Principal's option, either

- a) make such Changes, modifications and/or additions to the Stations or any part thereof that are necessary to attain the Functional Guarantees at its cost and expense, and shall request the Principal to repeat the Guarantee Test; or
- b) pay liquidated damages to the Principal in respect of the failure to meet the Functional Guarantees in accordance with the provisions in the SCC or elsewhere in the Contract.

28.4. The payment of liquidated damages under GC 28.3 above up to the limitation of liability specified in the SCC shall completely satisfy the Contractor's guarantees under GC 28.1 above and any other corresponding or equivalent provision set out in the Contract, and the Contractor shall have no further liability whatsoever to the Principal in respect thereof. Upon the payment of such liquidated damages by the Contractor, the Project Manager shall issue the Operational Acceptance Certificate for the Stations or any part thereof in respect of which the liquidated damages have been so paid.

29. Indemnity for the infringement of third-party rights based on exploitation of Intellectual Property Rights

29.1. The Contractor shall, subject to the Principal's compliance with GC 29.2 below, indemnify and hold harmless the Principal and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Principal may suffer as a result of any infringement or alleged infringement of any patent, (utility) model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the Effective Date of the Contract by reason of: (a) the installation of the Stations by the Contractor or the use of the Stations in the country where the site is located; and (b) the sale of the products produced by the Stations in any country.

Such indemnity shall not cover any use of the Stations or any part thereof other than for the purpose indicated by, or reasonably to be inferred from, the Contract, any infringement resulting from the use of the Stations or any part thereof, or any products produced thereby in association or combination with any other Equipment or materials not supplied by the Contractor, pursuant to the Contract Agreement.

29.2. If any proceedings are brought or any claim is made against the Principal arising out of the matters referred to in GC 29.1 above, the Principal shall promptly give the

Contractor a notice thereof, and the Contractor may at its own expense and in the Principal's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

If the Contractor fails to notify the Principal within twenty-eight (28) days of receipt of such notice that it intends to conduct any such proceedings or claim, then the Principal shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Principal within the twenty-eight (28) day period, the Principal shall make no admission which may be prejudicial to the defense of any such proceedings or claim.

The Principal shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.

The Principal shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Contractor may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Principal.

30. Limitation of Liability

Except in cases of gross negligence or willful misconduct and except in cases of GC 33,

- a) the Contractor shall not be liable to the Principal, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Principal; and
- b) the aggregate liability of the Contractor to the Principal under the Contract shall not exceed the Contract Price, provided that this limitation shall not apply to any obligation of the Contractor to indemnify the Principal with respect to infringement of Intellectual Property Rights.

PART VII

Risk Distribution

31. Transfer of Ownership

- 31.1. Ownership of the Equipment (including spare parts) to be imported into the country where the Site is located shall be transferred to the Principal upon loading on to the mode of transport to be used to convey the Equipment from the country of origin to that country.
- 31.2. Ownership of the Equipment (including spare parts) procured in the country where the Site is located shall be transferred to the Principal when the Equipment are brought on to the Site.
- 31.3. Ownership of the Contractor's equipment used by the Contractor and its Subcontractors in connection with the Contract shall remain with the Contractor or its Subcontractors.
- 31.4. Ownership of any Equipment in excess of the requirements for the Stations shall revert to the Contractor upon Completion of the Stations or at such earlier time when the Principal and the Contractor agree that the Equipment in question are no longer required for the Stations.
- 31.5. Notwithstanding the transfer of ownership of the Equipment, the responsibility for care and custody thereof together with the risk of loss or damage thereto shall remain with the Contractor pursuant to GC 32 (Care of Stations) hereof until Completion of the Stations or the part thereof in which such Equipment are incorporated.

32. Care of Stations

- 32.1. The Contractor shall be responsible for the care and custody of the Stations or any part thereof until the date of Completion of the Stations pursuant to GC 24 (Completion) hereof or, where the Contract provides for Completion of the Stations in parts, until the date of Completion of the relevant part, and shall make good at its own cost any loss or damage that may occur to the Stations or the relevant part thereof from any cause whatsoever during such period. The Contractor shall also be responsible for any loss or damage to the Stations caused by the Contractor or its Subcontractors in the course of any work carried out, pursuant to GC 27 (Defect Liability) hereof. Notwithstanding the foregoing, the Contractor shall not be liable for any loss, or damage to the Stations or that part thereof caused by reason of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GC 32.2 below and GC 38.1 hereof.
- 32.2. If any loss or damage occurs to the Stations or any part thereof or to the Contractor's temporary facilities by reason of:

- a) (insofar as they relate to the country where the Site is located) nuclear reaction, nuclear radiation, radioactive contamination, pressure wave caused by aircraft or other aerial objects, or any other occurrences that an experienced Contractor could not reasonably foresee, or if reasonably foreseeable could not reasonably make provision for or insure against, insofar as such risks are not normally insurable on the insurance market and are mentioned in the general exclusions of the policy of insurance, including War Risks and Political Risks, taken out under GC 34 (Insurance) hereof; or
- b) any use or occupation by the Principal or any third party (other than a Subcontractor) authorized by the Principal of any part of the Stations; or
- c) any use of or reliance upon any design, data or specification provided or designated by or on behalf of the Principal, or any such matter for which the Contractor has disclaimed responsibility herein,

the Principal shall pay to the Contractor all sums payable in respect of the Stations executed, notwithstanding that the same be lost, destroyed or damaged, and will pay to the Contractor the replacement value of all temporary facilities and all parts thereof lost, destroyed or damaged. If the Principal requests the Contractor in writing to make good any loss or damage to the Stations thereby occasioned, the Contractor shall make good the same at the cost of the Principal in accordance with GC 39 (Change in the Stations) hereof.

32.3. The Contractor shall be liable for any loss of or damage to any Contractor's equipment, or any other property of the Contractor used or intended to be used for purposes of the Stations, except (i) as mentioned in GC 32.2 above (with respect to the Contractor's temporary facilities), and (ii) where such loss or damage arises by reason of any of the matters specified in GC 32.2(b) and (c) above and in GC 38.1 hereof.

32.4. With respect to any loss or damage caused to the Stations or any part thereof or to the Contractor's equipment by reason of any of the matters specified in GC 38.1 hereof, the provisions of GC 38.3 hereof shall apply.

33. Loss of or Damage to Property/Accident or Injury to Workers / Indemnification

33.1. Subject to GC 33.3 below, the Contractor shall indemnify and hold harmless the Principal and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property (other than the Stations whether accepted or not), arising in connection with the supply and installation of the Stations and by reason of the negligence of the Contractor or its Subcontractors, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the Principal, its Contractors, employees, officers or agents or damage to property which is the unavoidable result of the execution and completion of the Services, or the remedying of any defects therein, in accordance with the Contract.

- 33.2. If any proceedings are brought or any claim is made against the Principal that might subject the Contractor to liability under GC 33.1 above, the Principal shall promptly give the Contractor a notice thereof and the Contractor may at its own expense and in the Principal's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

If the Contractor fails to notify the Principal within twenty-eight (28) days of receipt of such notice that it intends to conduct any such proceedings or claim, then the Principal shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Principal within the twenty-eight (28) day period, the Principal shall make no admission which may be prejudicial to the defense of any such proceedings or claim.

The Principal shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.

- 33.3. The Principal shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from any liability for loss of or damage to property of the Principal, other than the Stations not yet taken over, that is caused by fire, explosion or any other perils, in excess of the amount recoverable from insurances procured under GC 34 (Insurances), provided that such fire, explosion or other perils were not caused by any act or failure of the Contractor.

- 33.4. The party entitled to the benefit of an indemnity under this GC 33 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the party fails to take such measures, the other party's liabilities shall be correspondingly reduced.

34. Insurance

- 34.1. To the extent specified in Appendix 3 (Insurance Requirements) to the Contract agreement, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified in the said Appendix. The identity of the insurers and the form of the policies shall be subject to the approval of the Principal and SECO, such approval not to be unreasonably withheld. Payments by the insurers in respect of claims shall be made payable to SECO, if nothing else is specified in the policies of the insurers.

a) Cargo Insurance During Transport

covering loss or damage occurring, while in transit from the supplier's or manufacturer's works or stores until arrival at the Site, to the Equipment (including spare parts therefore) and to the Contractor's equipment, to be provided by the Contractor or its Subcontractors.

b) Installation All Risks Insurance

covering physical loss or damage to the Stations at the Site, occurring prior to Completion of the Stations, with an extended maintenance coverage for the Contractor's liability in respect of any loss or damage occurring during the Defect Liability Period while the Contractor is on the Site for the purpose of performing its obligations during the Defect Liability Period.

c) Third Party Liability Insurance

covering bodily injury or death suffered by third parties (including the Principal's personnel) and loss of or damage to property occurring in connection with the supply and installation of the Stations.

d) Automobile Liability Insurance

covering use of all vehicles used by the Contractor or its Subcontractors (whether or not owned by them) in connection with the execution of the Contract.

e) Workers' Compensation

in accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed.

f) Principal's Liability

in accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed.

g) Other Insurances

Such other insurances as may be specifically agreed upon by the parties hereto as listed in the said Appendix 3.

34.2. The Principal shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GC 34.1 above, except for the Third Party Liability, Workers' Compensation and Principal's Liability Insurances, and the Contractor's Subcontractors shall be named as coinsured under all insurance policies taken out by the Contractor pursuant to GC 34.1 above except for the Cargo Insurance During Transport, Workers' Compensation and Principal's Liability Insurances. All insurer's rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.

34.3. The Contractor shall, in accordance with the provisions of Appendix 3 (Insurance Requirements) to the Contract Agreement, deliver to the Principal certificates of insurance

(or copies of the insurance policies) as evidence that the required policies are in full force and effect. The certificates shall provide that not less than twenty-one (21) days' notice shall be given to the Principal by insurers prior to cancellation or material modification of a policy.

34.4. The Contractor shall ensure that, where applicable, its Subcontractor(s) shall take out and maintain in effect adequate insurance policies for their personnel and vehicles and for work executed by them under the Contract, unless such Subcontractors are covered by the policies taken out by the Contractor.

34.5. The Principal shall at its expense take out and maintain in effect during the performance of the Contract those insurances specified in Appendix 3 (Insurance Requirements) to the Contract Agreement, in the sums and with the deductibles and other conditions specified in the said Appendix. The Contractor and the Contractor's Subcontractors shall be named as co-insured under all such policies. All insurers' rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies. The Principal shall deliver to the Contractor satisfactory evidence that the required insurances are in full force and effect. The policies shall provide that not less than twenty-one (21) days' notice shall be given to the Contractor by all insurers prior to any cancellation or material modification of the policies. If so requested by the Contractor, the Principal shall provide copies of the policies taken out by the Principal under this GC 34.5.

34.6. If the Contractor fails to take out and/or maintain in effect the insurances referred to in GC 34.1 above, the Principal may take out and maintain in effect any such insurances and may from time to time deduct from any amount due to the Contractor under the Contract any premium which the Principal shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Contractor.

If the Principal fails to take out and/or maintain in effect the insurances referred to in GC 34.5, above, the Contractor may take out and maintain in effect any such insurances and may from time to time deduct from any amount due to the Principal under the Contract any premium which the Contractor shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Principal. If the Contractor fails to or is unable to take out and maintain in effect any such insurances, the Contractor shall nevertheless have no liability or responsibility towards the Principal, and the Contractor shall have full recourse against the Principal for any and all liabilities of the Principal herein.

34.7. Unless otherwise provided in the Contract, the Contractor shall prepare and conduct all and any claims made under the policies effected by it pursuant to this GC 34, and all monies payable by any insurers shall be paid to the Contractor. The Principal shall give to the Contractor all such reasonable assistance as may be required by the Contractor. With respect to insurance claims in which the Principal's interest is involved, the Contractor shall not give any release or make any compromise with the insurer without the prior written consent of the Principal. With respect to insurance claims in which the

Contractor's interest is involved, the Principal shall not give any release or make any compromise with the insurer without the prior written consent of the Contractor.

35. Unforeseen Conditions

35.1. If, during the execution of the Contract, the Contractor shall encounter on the Site any physical conditions (other than climatic conditions) or artificial obstructions that could not have been reasonably foreseen prior to the date of the Contract Agreement by an experienced Contractor on the basis of reasonable examination of the data relating to the Stations (including any data as to boring tests) provided by the Principal, and on the basis of information that it could have obtained from a visual inspection of the Site (if access thereto was available) or other data readily available to it relating to the Stations, and if the Contractor determines that it will in consequence of such conditions or obstructions incur additional cost and expense or require additional time to perform its obligations under the Contract that would not have been required if such physical conditions or artificial obstructions had not been encountered, the Contractor shall promptly, and before performing additional work or using additional Equipment or Contractor's equipment, notify the Project Manager in writing of:

- a) the physical conditions or artificial obstructions on the Site that could not have been reasonably foreseen; and
- b) the additional work and/or Equipment and/or Contractor's equipment required, including the steps which the Contractor will or proposes to take to overcome such conditions or obstructions; and
- c) the extent of the anticipated delay; and
- d) the additional cost and expense which the Contractor is likely to incur.

On receiving any notice from the Contractor under this GC 35.1, the Project Manager shall promptly consult with the Principal and Contractor and decide upon the actions to be taken to overcome the physical conditions or artificial obstructions encountered. Following such consultations, the Project Manager shall instruct the Contractor, with a copy to the Principal, of the actions to be taken.

35.2. Any reasonable additional cost and expense incurred by the Contractor in following the instructions from the Project Manager to overcome such physical conditions or artificial obstructions referred to in GC 35.1 above shall be paid by the Principal to the Contractor as an addition to the Contract Price.

35.3. If the Contractor is delayed or impeded in the performance of the Contract because of any such physical conditions or artificial obstructions referred to in GC 35.1 above, the Time for Completion shall be extended in accordance with GC 40 (Extension of Time for Completion) hereof.

36. Change in Laws and Regulations

If, after the date twenty-eight (28) days prior to the date of Tender submission, in the country where the Site is located, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or Changed (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the costs and expenses of the Contractor and/or the Time for Completion, the Contract Price shall be correspondingly increased or decreased, and/or the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract.

Notwithstanding the foregoing, such additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with the SCC.

37. Force Majeure

37.1. "Force Majeure" shall mean any event beyond the reasonable control of the Principal or of the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected, and shall include, without limitation, the following:

- a) war, hostilities or warlike operations (whether a state of war be declared or not), invasion, act of foreign enemy, civil war;
- b) rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion, terrorist acts;
- c) confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act or failure to act of any local state or national government authority
- d) strike, sabotage, lock-out, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, quarantine, plague;
- e) earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves, or other natural or physical disaster;
- f) shortage of labor, materials or utilities where caused by circumstances that are themselves Force Majeure.

37.2. If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fourteen (14) days after the occurrence of such event.

- 37.3. The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GC 40 (Extension of Time for Completion) hereof.
- 37.4. The party or parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfil its or their obligations under the Contract, but without prejudice to either party's right to terminate the Contract under GC 37.6 below and GC 38.5 hereof.
- 37.5. No delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall:
- a) constitute a default or breach of the Contract; or
 - b) (subject to GCs 32.2, 38.3 and 38.4 hereof) give rise to any claim for damages or additional cost or expense occasioned thereby,
- if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.
- 37.6. If the performance of the Contract is substantially prevented, hindered or delayed for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of one or more events of Force Majeure during the currency of the Contract, the parties will attempt to develop a mutually satisfactory solution, failing which either party may terminate the Contract by giving a notice to the other, but without prejudice to either party's right to terminate the Contract under GC 38.5 hereof.
- 37.7. In the event of termination pursuant to GC 37.6 above, the rights and obligations of the Principal and the Contractor shall be as specified in GCs 42.1.3 and 42.1.4 hereof, except that the Contractor shall have no entitlement to profit under paragraph (e) of the said GC 42.1.4 in respect of any unexecuted Stations as at the date of termination.
- 37.8. Notwithstanding GC 37.5 above, Force Majeure shall not apply to any obligation of the Principal to make payments to the Contractor herein.

38. War Risks

- 38.1. "War Risks" shall mean any event specified in paragraphs (a) and (b) of GC 37.1 hereof and any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war, occurring or existing in or near the country (or countries) where the Site is located.
- 38.2. Notwithstanding anything contained in the Contract, the Contractor shall have no liability whatsoever for or with respect to:

- a) destruction of or damage to Stations, Equipment, or any part thereof;
- b) destruction of or damage to property of the Principal or any third party; or
- c) injury or loss of life,

if such destruction, damage, injury or loss of life is caused by any War Risks, and the Principal shall indemnify and hold the Contractor harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.

38.3. If the Stations or any Equipment or Contractor's equipment or any other property of the Contractor used or intended to be used for the purposes of the Stations shall sustain destruction or damage by reason of any War Risks, the Principal shall pay the Contractor for:

- a) any part of the Stations or the Equipment so destroyed or damaged (to the extent not already paid for by the Principal); and
- b) replacing or making good any Contractor's equipment or other property of the Contractor so destroyed or damaged;
so far as may be required by the Principal, and as may be necessary for completion of the Stations.
- c) replacing or making good any such destruction or damage to the Stations or the Equipment or any part thereof.

If the Principal does not require the Contractor to replace or make good any such destruction or damage to the Stations, the Principal shall either request a Change in accordance with GC 39 (Change in the Stations) hereof, excluding the performance of that part of the Stations thereby destroyed or damaged or, where the loss, destruction or damage affects a substantial part of the Stations, shall terminate the Contract pursuant to GC 42.1.1 hereof.

38.4. Notwithstanding anything contained in the Contract, the Principal shall pay the Contractor for any increased costs or incidentals to the execution of the Contract which are in any way attributable to, consequent on, resulting from, or in any way connected with, any War Risks, provided that the Contractor shall as soon as practicable notify the Principal in writing of any such increased cost.

38.5. If during the performance of the Contract any War Risks shall occur which financially or otherwise materially affect the execution of the Contract by the Contractor, the Contractor shall use its reasonable efforts to execute the Contract with due and proper consideration given to the safety of its and its Subcontractors' personnel engaged in the work on the Stations, provided, however, that if the execution of the work on the Stations becomes impossible or is substantially prevented for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of any War Risks, the parties will attempt to develop a mutually satisfactory solution, failing which either party may terminate the Contract by giving a notice to the other.

- 38.6. In the event of termination pursuant to GC 38.3 or GC 38.5 above, the rights and obligations of the Principal and the Contractor shall be specified in GCs 42.1.3 and 42.1.5 hereof, except that the Contractor shall have no entitlement to profit under paragraph (e) of the said GC 42.1.5 in respect of any unexecuted Stations as at the date of termination.

Part VIII

Change in Contract Elements

39. Change in the Stations

39.1. Introducing a Change

- 39.1.1. Subject to GCs 39.2.5 and 39.2.7 below, the Principal shall have the right to propose, and subsequently require, that the Project Manager order the Contractor from time to time during the performance of the Contract to make any change, modification, addition or deletion to, in or from the Stations (hereinafter called "Change"), provided that such Change falls within the general scope of the Stations and does not constitute unrelated work and that it is technically practicable, taking into account both the state of advancement of the Stations and the technical compatibility of the Change envisaged with the nature of the Stations as specified in the Contract.
- 39.1.2. The Contractor may from time to time during its performance of the Contract propose to the Principal (with a copy to the Project Manager) any Change, which the Contractor considers necessary or desirable to improve the quality, efficiency or safety of the Stations. The Principal may at its discretion approve or reject any Change proposed by the Contractor, provided that the Principal shall approve any Change proposed by the Contractor to ensure the safety of the Stations.
- 39.1.3. Notwithstanding GCs 39.1.1 and 39.1.2 above, no change made necessary because of any default of the Contractor in the performance of its obligations under the Contract shall be deemed to be a Change, and such Change shall not result in any adjustment of the Contract Price or the Time for Completion Manager.
- 39.1.4. The procedure on how to proceed with and execute Changes is specified in Article 1.1 (6) of the Contract Agreement and in GC 39.2 and 39.3 below.

39.2. Changes Originating from Principal

- 39.2.1. If the Principal proposes a Change pursuant to GC 39.1.1 above, it shall send to the Contractor a "Request for Change Proposal" requiring the Contractor to prepare and furnish to the Project Manager as soon as reasonably practicable a "Change Proposal," which shall include the following:
 - a) brief description of the Change
 - b) effect on the Time for Completion Manager
 - c) estimated cost of the Change
 - d) effect on Functional Guarantees, if any, and
 - e) effect on any other provisions of the Contract.

- 39.2.2. Prior to preparing and submitting the "Change Proposal," the Contractor shall submit to the Project Manager an "Estimate for Change Proposal," which shall be an estimate of the cost of preparing and submitting the Change Proposal.

Upon receipt of the Contractor's estimate for Change Proposal, the Principal shall either:

- a) accept the Contractor's estimate with instructions to the Contractor to proceed with the preparation of the Change Proposal, or
 - b) advise the Contractor of any part of its Estimate for Change Proposal that is unacceptable with a request for the Contractor to review its estimate, or
 - c) advise the Contractor that the Principal does not intend to proceed with the Change.
- 39.2.3. Upon receipt of the Principal's instruction to proceed under GC 39.2.2(a) above, the Contractor shall, with proper expedition, proceed with the preparation of the Change Proposal, in accordance with GC 39.2.1.
- 39.2.4. The pricing of any Change shall, as far as practicable, be calculated in accordance with the rates and prices included in the Contract. If such rates and prices are inequitable, the parties thereto shall agree on specific rates for the valuation of the Change.
- 39.2.5. If before or during the preparation of the Change Proposal it becomes apparent that the aggregate effect of compliance therewith and with all other Change Orders that have already become binding upon the Contractor under this GC 39 would be to increase or decrease the Contract Price as originally set forth in Article 2 (Contract Price) of the Contract Agreement by more than fifteen (15) percent, the Contractor may give a written notice of objection thereto prior to furnishing the Change Proposal as aforesaid. If the Principal accepts the Contractor's objection, the Principal shall withdraw the proposed Change and shall notify the Contractor in writing thereof.

The Contractor's failure to so object shall neither affect its right to object to any subsequent requested Changes or Change orders herein, nor affect its right to take into account, when making such subsequent objection, the percentage increase or decrease in the Contract Price that any Change not objected to by the Contractor represents.

- 39.2.6. Upon receipt of the Change Proposal, the Principal and the Contractor shall mutually agree upon all matters therein contained. Within fourteen (14) days of such agreement, the Principal shall, if it intends to proceed with the Change, issue the Contractor with a Change Order. Any such Change Order will only come into force if SECO has given a written non-objection declaration.

If the Principal is unable to reach a decision within fourteen (14) days, it shall notify the Contractor with details of when the Contractor can expect a decision.

If the Principal decides not to proceed with the Change for whatever reason, it shall, within the said period of fourteen (14) days, notify the Contractor accordingly. Under such circumstances, the Contractor shall be entitled to reimbursement of all costs reasonably incurred by it in the preparation of the Change Proposal, provided that these do not

exceed the amount given by the Contractor in its Estimate for Change Proposal submitted in accordance with GC 39.2.2 hereof.

- 39.2.7. If the Principal and the Contractor cannot reach agreement on the price for the Change, an equitable adjustment to the Time for Completion, or any other matters identified in the Change Proposal, the Principal may nevertheless instruct the Contractor to proceed with the Change by issue of a "Pending Agreement Change Order."

Upon receipt of a Pending Agreement Change Order, the Contractor shall immediately proceed with effecting the Changes covered by such Order. The parties shall thereafter attempt to reach agreement on the outstanding issues under the Change Proposal.

If the parties cannot reach agreement within sixty (60) days from the date of issue of the Pending Agreement Change Order, then the matter may be referred to an Adjudicator in accordance with the provisions of GC 6.1.

39.3. Changes Originating from Contractor

- 39.3.1. If the Contractor proposes a Change pursuant to GC 39.1.2, the Contractor shall submit to the Project Manager a written "Application for Change Proposal," giving reasons for the proposed Change and including the information specified in GC 39.2.1.
- 39.3.2. Upon receipt of the Application for Change Proposal, the parties shall follow the procedures outlined in GCs 39.2.6 and 39.2.7. However, should the Principal choose not to proceed, the Contractor shall not be entitled to recover the costs of preparing the Application for Change Proposal.

40. Extension of Time for Completion

- 40.1. The Time(s) for Completion specified in the Appendix 4 shall be extended if the Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:
- a) any Change in the Stations as provided in GC 39 (Change in the Stations) hereof; or
 - b) any occurrence of Force Majeure as provided in GC 37 (Force Majeure) hereof, unforeseen conditions as provided in GC 35 (Unforeseen Conditions) hereof, or other occurrence of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GC 32.2 hereof; or
 - c) any suspension order given by the Principal under GC 41 (Suspension) hereof or reduction in the rate of progress pursuant to GC 41.2 hereof; or
 - d) any changes in laws and regulations as provided in GC 36 (Changes in Laws and Regulations) hereof; or
 - e) any delay, impediment, prevention or default or breach of the Contract by the Principal, specifically including failure to supply the items listed in Appendix 6

(Scope of works and supply by the Principal) in the Contract Agreement, or any activity, act or omission of any other Contractors employed by the Principal; or

f) any other matter specifically mentioned in the Contract;

by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Contractor.

40.2. Except where otherwise specifically provided elsewhere in the Contract, the Contractor shall submit to the Project Manager a notice of a claim for an extension of the Time for Completion, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable after the commencement of such event or circumstance. As soon as reasonably practicable after receipt of such notice and supporting particulars of the claim, the Principal and the Contractor shall agree upon the period of such extension. In the event that the Contractor does not accept the Principal's estimate of a fair and reasonable time extension, the Contractor shall be entitled to refer the matter to an Adjudicator, pursuant to GC 6.1 (Reference to Adjudicator) hereof.

40.3. The Contractor shall at all times use its reasonable efforts to minimize any delay in the performance of its obligations under the Contract.

41. Suspension

41.1. The Principal may request the Project Manager, by notice to the Contractor, to order the Contractor to suspend performance of any or all of its obligations under the Contract. Such notice shall specify the obligation of which performance is to be suspended, the effective date of the suspension and the reasons therefore. The Contractor shall thereupon suspend performance of such obligation (except those obligations necessary for the care or preservation of the Stations) until ordered in writing to resume such performance by the Project Manager.

If, by virtue of a suspension order given by the Project Manager, other than by reason of the Contractor's default or breach of the Contract, the Contractor's performance of any of its obligations is suspended for an aggregate period of more than ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Project Manager requiring that the Principal shall, within twenty-eight (28) days of receipt of the notice, order the resumption of such performance or request and subsequently order a change in accordance with GC 39 (Change in the Stations) hereof, excluding the performance of the suspended obligations from the Contract.

If the Principal fails to do so within such period, the Contractor may, by a further notice to the Project Manager, elect to treat the suspension, where it affects a part only of the Stations, as a deletion of such part in accordance with GC 39 (Change in the Stations) hereof or, where it affects the whole of the Stations, as termination of the Contract under GC 42.1 (Termination for Principal's Convenience) hereof.

41.2. If

- a) the Principal has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms of Payment) of the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Principal that requires payment of such sum requires approval of such invoice or supporting documents, or specifies the breach and requires the Principal to remedy the same, as the case may be. If the Principal fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days of receipt of the Contractor's notice; or
- b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Principal, including but not limited to the Principal's failure to provide possession of or access to the Site or other areas in accordance with GC 10.2, or failure to obtain any governmental permit necessary for the execution and/or Completion of the Stations;

then the Contractor may by fourteen (14) days' notice to the Principal suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress, without prejudice to the Contractor's entitlement to terminate under GC 42.3.1.

41.3. If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GC 41, then the Time for Completion Manager shall be extended in accordance with GC 40.1 hereof, and any and all additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Principal to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract.

41.4. During the period of suspension, the Contractor shall not remove from the Site any Equipment, any part of the Stations or any Contractor's equipment, without the prior written consent of the Principal.

42. Termination

42.1. Termination for Contractor's Default

42.1.1. The Principal, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in the following circumstances by giving a notice of termination and its reasons therefore to the Contractor, referring to this GC 42.1:

- a) if the Contractor becomes bankrupt or insolvent, makes an arrangement with, or an assignment in favor of, his creditors, or, being a corporation, a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), an administrator, trustee or liquidator is appointed over any part of its undertaking or assets, or if the Contractor takes or suffers any other analogous action in consequence of debt; or

- b) if the Contractor assigns or transfers the Contract or any right or interest therein in violation of the provision of GC 43 (Assignment) hereof.

42.1.2. If the Contractor:

- a) has abandoned or repudiated the Contract; or
- b) has without valid reason failed to commence work on the Stations promptly or has suspended (other than pursuant to GC 41.2 hereof) the progress of Contract performance for more than twenty-eight (28) days of receiving a written instruction from the Principal to proceed; or
- c) persistently fails to execute the Contract in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just cause; or
- d) refuses or is unable to provide sufficient materials, services or labor to execute and complete the Stations in the manner specified in the programme furnished under GC 18 (Program of Performance) hereof at rates of progress that give reasonable assurance to the Principal that the Contractor can attain Completion of the Stations by the Time for Completion as extended;

then the Principal may, without prejudice to any other rights it may possess under the Contract, give a notice to the Contractor stating the nature of the default and requiring the Contractor to remedy the same. If the Contractor fails to remedy or to take steps to remedy the same within fourteen (14) days of its receipt of such notice, then the Principal may terminate the Contract forthwith by giving a notice of termination to the Contractor which refers to this GC. 42.1.

42.1.3. Upon receipt of the notice of termination under GC 42.1.1 or GC 42.1.2 above, the Contractor shall either immediately or upon such date as is specified in the notice of termination:

- a) cease all further work, except for such work as the Principal may specify in the notice of termination for the sole purpose of protecting that part of the Stations already executed, or any work required to leave the Site in a clean and safe condition; and
- b) terminate all subcontracts, except those to be assigned to the Principal pursuant to paragraph (d) below; and
- c) deliver to the Principal the parts of the Stations executed by the Contractor up to the date of termination; and
- d) to the extent legally possible, assign to the Principal all right, title and benefit of the Contractor to the Services and to the Equipment as at the date of termination, and, as may be required by the Principal, in any subcontracts concluded between the Contractor and its Subcontractors; and
- e) deliver to the Principal all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as at the date of termination in connection with the Stations.

- 42.1.4. The Principal may enter upon the Site, expel the Contractor, and complete the Stations itself or by employing any third party. The Principal may, to the exclusion of any right of the Contractor over the same, take over and use with the payment of a fair rental rate to the Contractor, with all maintenance costs to the account of the Principal and with an indemnification by the Principal for all liability including damage or injury to persons arising out of the Principal's use of such Equipment, any Contractor's equipment owned by the Contractor and on the Site in connection with the Stations for such reasonable period as the Principal considers expedient for the supply and installation of the Stations.

Upon Completion of the Stations or at such earlier date as the Principal thinks appropriate, the Principal shall give a notice to the Contractor that such Contractor's equipment will be returned to the Contractor at or near the Site and shall return such Contractor's equipment to the Contractor in accordance with such notice. The Contractor shall thereafter without delay and at its cost remove or arrange removal of the same from the Site.

- 42.1.5. Subject to GC 42.1.6 below, the Contractor shall be entitled to be paid the Contract Price attributable to the Stations executed as at the date of termination, the value of any unused or partially used Equipment on the Site, and the costs, if any, incurred in protecting the Stations and in leaving the Site in a clean and safe condition pursuant to paragraph (a) of GC 42.1.3 above. Any sums due to the Principal from the Contractor accruing prior to the date of termination shall be deducted from the amount to be paid to the Contractor under this Contract.

- 42.1.6. If the Principal completes the Stations, the cost of completing the Stations by the Principal shall be determined.

If the sum which the Contractor is entitled to be paid pursuant to GC 42.1.5 above, plus the reasonable costs incurred by the Principal in completing the Stations, exceeds the Contract Price, the Contractor shall be liable for such excess.

If such excess is greater than the sums due to the Contractor under GC 42.1.5 above, the Contractor shall pay the balance to the Principal, and if such excess is less than the sums due to the Contractor under the said GC 42.1.5, the Principal shall pay the balance to the Contractor.

The Principal and the Contractor shall agree, in writing, on the computation described above and the manner in which any sums shall be paid.

42.2. Termination by Contractor

42.2.1. If:

- a) the Principal has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms of Payment) of the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Principal that requires payment of such sum,

requires approval of such invoice or supporting documents, or specifies the breach and requires the Principal to remedy the same, as the case may be. If the Principal fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice; or

- b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Principal, including but not limited to the Principal's failure to provide possession of or access to the Site or other areas or failure to obtain any governmental permit necessary for the execution and/or Completion of the Stations;

then the Contractor may give a notice to the Principal thereof, and if the Principal has failed to pay the outstanding sum, to approve the invoice or supporting documents, to give its reasons for withholding such approval, or to remedy the breach within twenty-eight (28) days of such notice, or if the Contractor is still unable to carry out any of its obligations under the Contract for any reason attributable to the Principal within twenty-eight (28) days of the said notice, the Contractor may by a further notice to the Principal referring to this GC 42.2.1, forthwith terminate the Contract.

42.2.2. The Contractor may terminate the Contract forthwith by giving a notice to the Principal to that effect, referring to this GC 42.3.2, if the Principal becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, being a corporation, if a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Principal takes or suffers any other analogous action in consequence of debt.

42.2.3. If the Contract is terminated under GC 42.2.1 or GC 42.2.2 above, then the Contractor shall immediately:

- a) cease all further work, except for such work as may be necessary for the purpose of protecting that part of the Stations already executed, or any work required to leave the Site in a clean and safe condition; and
- b) terminate all subcontracts, except those to be assigned to the Principal pursuant to paragraph (d)(ii) below; and
- c) remove all Contractor's equipment from the Site and repatriate the Contractor's and its Subcontractor's personnel from the Site: and
- d) subject to the payment specified in GC 42.2.4 below:
 - i. deliver to the Principal the parts of the Stations executed by the Contractor up to the date of termination; and
 - ii. to the extent legally possible, assign to the Principal all right, title and benefit of the Contractor to the Stations and to the Equipment as at the date of termination, and, as may be required by the Principal, in any subcontracts concluded between the Contractor and its Subcontractors; and

- iii. deliver to the Principal all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as at the date of termination in connection with the Stations.

42.2.4. If the Contract is terminated under GC 42.2.1 or GC 42.2.2 above, the Principal shall pay to the Contractor a compensation for the labor already performed and reasonable compensation for all loss or damage sustained by the Contractor arising out of, in connection with or in consequence of such termination.

42.2.5. Termination by the Contractor pursuant to GC 42.3 is without prejudice to any other rights or remedies of the Contractor which may be exercised in lieu of or in addition to rights conferred by GC 42.2.1.

42.3. "Stations executed"

In this GC 42, the expression "Stations executed" shall include all work executed, Installation services provided, and all Equipment acquired (or subject to a legally binding obligation to purchase) by the Contractor and used or intended to be used for the purpose of the Stations, up to and including the date of termination.

42.4. Calculating monies

In this GC 42, in calculating any monies due from the Principal to the Contractor, account shall be taken of any sum previously paid by the Principal to the Contractor under the Contract, including any advance payment paid pursuant to Appendix 3 (Terms of payment) to the Contract Agreement.

43. Assignment

Neither the Principal nor the Contractor shall, without the express prior written consent of the other (which consent shall not be unreasonably withheld), assign to any third party the Contract or any part thereof, or any right, benefit, obligation or interest therein or thereunder, except that the Contractor shall be entitled to assign either absolutely or by way of charge any monies due and payable to it or which may become due and payable to it under the Contract.

44. Integrity Clause

44.1. If the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices in competing for or in executing the Contract the Principal succumbing to it has the possibility to annul the Contract by making a private declaration to that effect to the Contractor within one year from the date of discovery of the corrupt, fraudulent, collusive or coercive practice.

44.2. For the purpose of this Clause:

- "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in

contract execution in order to obtain or retain business or other improper advantage in the conduct of business;

- “fraudulent practice” means a statement of facts in order to influence the procurement process or the execution of a contract to the detriment of the Principal or to gain an unfair advantage;
- “collusive practices” means a scheme or arrangement between two or more Tenderers (prior to or after the Tender submission), with or without the knowledge of the Principal, designed to establish Tender prices at artificial, noncompetitive levels and to deprive the Principal of the benefits of free and open competition;
- “coercive practices” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a selection process or affect the execution of a contract.

44.3. The Principal will require the successful Contractor to disclose any commissions or fees that may have been paid or are to be paid to agents, representatives, or commission agents with respect to the selection process or execution of the contract. The information disclosed must include at least the name and address of the agent, representative, or commission agent, the amount and currency, and the purpose of the commission or fee

44.4. If it is determined at any time that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices Principal agrees to reserve to SECO the right to cancel the portion of grant allocated to the Contractor’s contract. Moreover, Principal agrees to reserve to SECO the right to declare the Contractor ineligible indefinitely or for a stated period of time, to participate in SECO-financed projects. These measures shall not limit the Principal's right to seek other remedies under this Contract or otherwise. In particular, the right to seek compensation for damages shall not be excluded.

SECTION II: SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GC). Whenever there is a conflict, the provisions herein shall prevail over those in the GC. The corresponding clause number of the GC is indicated in parentheses.

(Clause 1) Definitions

The **Principal** is:

City of Užice

[Name]

[Address], Serbia

Phone:

Email:

Fax:

The **Project Manager** is:

[Name]

[Address], Serbia

Phone:

Email:

Fax:

The **Contractor** is: _____

[name, address, and telephone, e-mail address and fax numbers]

The **Contractor's Representative** is: _____

[name, address, and telephone, e-mail address and fax numbers]

The **Adjudicator** is: _____
[name, address, and telephone, e-mail address and fax numbers]

Time for Completion:

Time for completion for all Stations in accordance with Special Conditions of the Contract Clause 8.

(Clause 4) Notices

GC 4.1 Principal's address for notice purposes:

[Name]

[Address], Serbia

Phone:

Email:

Fax:

Contractor's address for notice purposes: *[address, telephone, e-mail address and fax numbers]*

Consultant's address for notice purposes: *[address, telephone, e-mail address and fax numbers]*

(Clause 6) Settlement of Disputes

GC 6.1.3 Adjudicator's hourly fee [Specify fee in convertible currency]

GC 6.1.4 Appointing Authority for Adjudicator: FIDIC

GC 6.2.3 Appointing Authority for the third Arbitrator: FIDIC

(Clause 7) Scope of Services [Spare Parts]

GC 7.3 The Contractor agrees to supply spare parts for a period of ten (10) years.

(Clause 8) Time for Commencement and Completion

GC 8.1 The Contractor shall commence work on the Stations from the effective date for determining Time for Completion as specified in the Contract Agreement.

GC 8.2 The Completion of the Stations shall be attained within:

Priority 1 and Priority 2 (Optional): 20 weeks from the Effective Date (start date) in accordance with Article 3 of the Contract Agreement (see Volume II, Section III)

(Clause 11) Contract Price

GC 11.2 The Contract Price shall be a fixed sum.

(Clause 12) Terms of Payment

GC 12.2 Payment will be made by SECO as specified in Appendix 1 (Terms and Procedures of Payment) to the Contract.

(Clause 13) Securities

GC 13.2 Advance Payment Security

GC 13.2.1 The amount of the Advance Payment Security, as a percentage of the Contract Price, shall be 30% (corresponding to the advance payment indicated in Appendix 1 (Terms and Procedures of Payment)).

The currency of the Advance Payment Security shall be EUR.

The validity of the Advance Payment Security shall be until: the full amount has been invoiced with interim payments according to Contract Appendix 1.

GC 13.3 Performance Security

GC 13.3.1 The amount of Performance Security, as a percentage of the Contract Price, shall be: 10%.

The currency of the Performance Security shall be EUR.

The Performance Security has to be submitted to be submitted together with the final invoice in terms of Appendix 1 (Terms of Payment).

GC 13.3.4 The Performance Security shall be valid until the date of completion of the Contractor's performance obligations including warranty obligations, i.e. until the end of the Defect Liability Period.

(Clause 14) Taxes and Duties

GC 14.1 In terms of the agreement between the Government of the Principal and the Swiss Government on the Municipal Disaster Risk Reduction Project, equipment and services financed by SECO under this project are exempted from customs, duties,

levies, fiscal and any other present or future taxes imposed under the law of the Principal's country.

(Clause 18) Work Programme

- GC 18.2 The form of the programme of performance of the Contract shall be in adequate form, approved by the Principal.

(Clause 25) Commissioning and Operational Acceptance

- GC 25.2.2 The Guarantee Tests of the Stations shall be successfully completed within 30 days (thirty) from the date of Completion.

(Clause 26) Completion Time Guarantee

- GC 26.2 Applicable rate for liquidated damages: 0.3% of the Contract Price per week of delay.

Maximum deduction for liquidated damages: The maximum amount of liquidated damages is 10% of the total contract price.

The above rate and maximum apply to the price of the part of the Stations, as quoted in the Price Schedule, for that part for which the Contractor fails to achieve Completion within the particular Time for Completion.

- GC 26.3 No bonus will be given for earlier Completion of the Stations or part thereof.

(Clause 27) Defect Liability

- GC 27.2 The Defect Liability starting from the date of Operational Acceptance of the last Station is 24 months.

As needed, the Defect Liability Period may be extended, if functional guarantees are not met or defects not timely fixed.

The Defect Liability of replaced parts is twelve months and starts upon the installation and acceptance of the replaced parts. The Defect Liability for parts that have been replaced prior to 12 months before the end of the Defect Liability Period lasts until the end of the Defect Liability Period.

(Clause 28) Functional Guarantees

GC 28.3(b) The liquidated damages in respect of the failure to meet the functional guarantees are: up to the amount required to remedy the Stations in order that they meet the functional guarantees.

GC 28.4 The maximum amount of liquidated damages is: the total Contract Price.

(Clause 39) Change in the Stations

GC 39.3.1 Changes of the Stations, i.e. changes of the designs and price schedules, and corresponding Contract amendments will be handled most restrictively: The Contractor has to fulfil the functional guarantees and takes over full responsibility for implementation of the Project by signing the Contract. It is the Tenderer's / Contractor's responsibility to carefully assess and comment the available information in the Tender and to take uncertainties into account in the Tender Price. Changes in the Stations must be approved by the Principal.

SECTION III

CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT is made theday of, 20...

Between

(1) *[name of the Principal]* of

..... *[country of the Principal]*,

(hereinafter called "the Principal")

and

(2), a corporation incorporated

under the laws of and

having its Principal place of business at

(hereinafter called "the Contractor")

WHEREAS the Principal desires to engage the Contractor to design, manufacture, test, deliver, install, complete and commission certain Stations, viz.....
("the Stations") and the Contractor has agreed to such engagement upon and subject to the terms and conditions hereinafter appearing.

WHEREAS the Contract will be financed by the Government of the Swiss Confederation, represented through the State Secretariat for Economic Affairs (SECO) in the framework of Swiss Financial Assistance to *[country of the Principal]* based on the Agreement between the Government of the Swiss Confederation and the Government of the Republic of *[country of the Principal]* for *[name of the project]*.

NOW IT IS HEREBY AGREED as follows:

Article 1. Contract Documents

Contract Documents

(Reference GC2)

1.1 The following documents shall constitute the Contract between the Principal and the Contractor, and each shall be read and construed as an integral part of the Contract:

- 1) This Contract Agreement and the Appendices hereto
- 2) Special Conditions of Contract
- 3) General Conditions of Contract
- 4) Technical Part and Drawings
- 5) The Tender and Price Schedules submitted by the Contractor
- 6) Procedures:
 - Change orders in acc. with GC 39
 - Others
- 7) Any other documents shall be added here (e.g. Form of Completion Certificate or Form of Operational Acceptance Certificate)

Order of Precedence

(Reference GC2)

1.2 In the event of any ambiguity or conflict between the Contract Documents listed above, the order of precedence shall be the order in which the Contract

Documents are listed in Article 1.1 (Contract Documents) above.

Definitions

(Reference GC1)

- 1.3 Capitalized words and phrases used herein shall have the same meanings as are ascribed to them in the General Conditions of Contract.

Article 2. Contract Price and Terms of Payment

Contract Price

- 2.1 The Principal hereby agrees to pay to the Contractor the Contract Price in consideration of the performance by the Contractor of its obligations hereunder (Reference GC11). The Contract Price shall be the aggregate of:
.....
..... (amount in Euros in words)
(amount in figures)
or such other sums as may be determined in accordance with the terms and conditions of the Contract.

Terms of Payment

(Reference GC12)

- 2.2 The terms and procedures of payment according to which the Principal will reimburse the Contractor are given in Appendix 1 (Terms and Procedures of Payment) hereto.

Article 3. Effective Date

Effective Date

- 3.1 The Effective Date shall be the date when all of the (Reference GC1) following conditions have been fulfilled:
- 1) this Contract Agreement has been duly signed by the Principal and the Contractor;

- 2) SECO's written non-objection declaration to the Contract Documents;

Each party shall use its best efforts to fulfil the above conditions for which it is responsible as soon as practicable.

If the conditions listed under 3.1 are not fulfilled within two (2) months from the date of this Contract Agreement because of reasons not attributable to the Contractor, the parties shall discuss and agree on an equitable adjustment to the Contract Price and the Time for Completion and/or other relevant conditions of the Contract.

Article 4. Appendices

The Appendices listed in the attached List of Appendices shall be deemed to form an integral part of this Contract Agreement.

Reference in the Contract to any Appendix shall mean the Appendices attached hereto, and the Contract shall be read and construed accordingly.

IN WITNESS WHEREOF the Principal and the Contractor have caused this Agreement to be duly executed by their duly authorized representatives the day and year first above written.

Signed by for and on behalf
of the Principal

.....

Signature

.....

Title

Signed by for and
on behalf of the Contractor

.....

Signature

.....

Title

APPENDICES

Appendix 1 Terms and Procedures of Payment

Appendix 2 Price Adjustment

Appendix 3 Insurance Requirements

- Appendix 4** Time Schedule
- Appendix 5** List of Subcontractors
- Appendix 6** Scope of works and supply by the Principal
- Appendix 7** List of Documents for Approval or Review

Appendix 1. Terms and Procedures of Payment

In accordance with the provisions of GC 12 (Terms of Payment), the SECO shall pay the Contractor in the following manner and at the following times, based on the price breakdown given in the Price Schedules. Payments will be made in the currencies defined in the Contract unless otherwise agreed between the parties. Applications for payment in respect of part deliveries may be made by the Contractor as work proceeds.

Terms of Payment

The method and conditions of payment to be made to the Contractor under this Contract shall be as follows:

- a) Advance payment: Thirty (30) percent of the Contract Price shall be paid within forty-five (45) days after the non-objection declaration by SECO to the signed Contract, and the submission of the invoice and an advance payment security issued in favour of SECO in terms of GC clause 13.2. The advance payment shall be subtracted from the consecutive invoices and payments under points b) .
- b) Up to additionally sixty (60) percent (i.e. 90% of the contract price): shall be paid within forty-five (45) days upon submission of the invoices according to bimonthly progress reports. Every two months the Contractor shall submit the invoice with a statement in a form approved by SECO showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the relevant Progress Reports (monthly progress reports) and signed construction book with the detailed progress according to the items in the Price Schedules / Bill of Quantities. Delivered equipment, materials etc. may only be included in an interim payment after installation. The advance payment is subtracted proportionally from each payment.
- c) Ten (10) percent: shall be paid within sixty (60) days upon obtaining of the Operational Acceptance / Usage Permit and commissioning for all stations as well against the performance security. The performance security issued in favor of SECO in terms of GC clause 13.3 must be supported by the Operational Acceptance Certificate and the "Usage Permit", issued by the Project Manager after Consultation with the Principal (see GC and sec clause 25).

Payment Procedures

The procedures to be followed in applying for certification and making payments shall be as follows:

The Contractor shall forward:

- The original of the invoices and supporting documents to the Project Coordinator / Project Manager for approval.
- Via e-mail, copies of the documents specified above and a copy of the invoices to:

SECO
State Secretariat for Economic Affairs
Economic Dev. Cooperation
att Sibylle Haegler
Infrastructure Financing
Holzikofenweg 36
CH-3003 Bern

- Via e-mail, copies of the documents mentioned above with a copy of the invoice to the Consultant.

Stucky Ltd
Rue du Lac 33
P.O. Box, CH-1020 Renens VD 1
Switzerland
cane.cekerevac@stucky.ch

The Consultant shall verify and approve the documents and the invoices and forward them to the Principal. After approval (signing and stamping) by the Principal, the Principal shall forward them to SECO for non-objection and payment.

SECO reserves the right to consider payment of invoices 45 (forty-five) days after the submission of the invoices by the Contractor without Principal's approval, if no written objection has been given by the Principal.

SECO will make the payment directly to the account of the Contractor.

Appendix 2. Price Adjustment

The prices are to remain firm and fixed for the duration of the Contract.

Appendix 3. Insurance Requirements

Insurances to be taken out by the Contractor

In accordance with the provisions of GC 34, the Contractor shall at its expense take out and maintain in effect or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified. The identity of the insurers and the form of the policies shall be subject to the approval of the Principal, such approval not to be unreasonably withheld.

- a) **Cargo Insurance** covering loss or damage occurring, while in transit from the supplier's or manufacturer's works or stores until arrival at the Site (including spare parts therefore) to be provided by the Contractor or its Subcontractors.

Amount	Deductible limits	Parties insured	From	To
110% of Cargo Price	According to proposal of Contractor	Contractor / Sub-contractors	Place of supplier	Sites in Serbia

- b) **Installation All Risks Insurance** covering physical loss or damage to the Stations at the Site, occurring prior to Completion of the Stations, with an extended maintenance coverage for the Contractor's liability in respect of any loss or damage occurring during the defect liability period while the Contractor is on the Site for the purpose of performing its obligations during the defect liability period.

Amount	Deductible limits	Parties insured	From	To
EUR 200'000	EUR 45'000	Contractor / Sub-contractors		

- c) **Third Party Liability Insurance** covering bodily injury or death suffered by third parties (including the Principal's personnel) and loss of or damage to property (including the Principal's property and any parts of the Stations which have been accepted by the Principal) occurring in connection with the supply and installation of the Stations.

Amount	Deductible limits	Parties insured	From	To
100 % of Contract Price	30 % of Contract Price	Contractor / Sub-contractors		

- d) **Automobile Liability Insurance** covering use of all vehicles used by the Contractor or its Subcontractors (whether or not owned by them) in connection with the supply and

installation of the Stations. Comprehensive insurance in accordance with statutory requirements.

- e) **Workers' Compensation** in accordance with the statutory requirements applicable in any country where the Stations or any part thereof is executed.
- f) **Principal's Liability** in accordance with the statutory requirements applicable in any country where the Stations or any part thereof is executed.
- g) **Other Insurances.** The Contractor is also required to take out and maintain at its own cost the following insurances:

Details:

Amount	Deductible limits	Parties insured	From	To

Details:

The Principal shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GC 34.1 above, except for the Workers' Compensation and Principal's Liability Insurances, and the Contractor's Subcontractors shall be named as co-insureds under all insurance policies taken out by the Contractor pursuant to GC 34.1 above, except for the Marine Cargo, Workers' Compensation and Principal's Liability Insurances. All insurer's rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.

Insurances to be taken out by the Principal

The Principal will not take out and maintain in effect at his expense any insurance during the performance of the Contract.

Appendix 4. Time Schedule

The schedules that specify the deadlines in weeks from the Effective Date in accordance with Article 3 of the Contract Agreement (see Volume II, Section III) and with the table below.

	Weeks from start of assignment	1 st	2 nd	....	....	....	20 th
No.	Priority 1						
1.1.	Preparation works						
1.2.	Construction works						
1.3.	Purchase, Transport and Installation of Equipment						
1.4.	Server and Software						
1.5.	Training Course						
	Priority 2						
2.1.	Preparation works						
2.2.	Construction works						
2.3.	Purchase, Transport and Installation of Equipment						

Note: List of the Priority of Stations is provided in the Volume III – Price Schedules.

Appendix 5. List of Subcontractors

Part 1 Nominated Subcontractors

There are no subcontractors that are proposed by the Principal.

Part 2 Approved Subcontractors

Prior to award of Contract the following details shall be completed indicating those subcontractors, proposed by the Tenderer by attachment to its Tender, that are approved by the Principal for engagement by the Contractor during the performance of the Contract.

The following subcontractors are approved for carrying out the item of the Stations indicated. Where more than one subcontractor is listed, the Contractor is free to choose between them, but it must notify the Principal of its choice in good time prior to appointing any selected subcontractor. In accordance with GC 19.1, the Contractor is free to submit proposals for subcontractors for additional items from time to time. No subcontracts shall be placed with any such subcontractors for additional items until they have been approved in writing by the Principal and their names have been added to this list of approved subcontractors. Any changes to the list must be approved by the Principal before any subcontracts are placed with new / changed subcontractors.

Item of Stations	Approved Subcontractors	Nationality

Appendix 6. Scope of works and supply by the Principal

1. Scope of works and supply by the Principal

The following personnel, facilities, works and supplies will be provided/supplied by the Principal until the handover of the Stations to the Principal, and the provisions of GC 10, 14, 17.1, 20.3, 21, 22.1.1, 22.2.3, 23, 24, 25, 34.5 shall apply as appropriate.

All personnel, facilities, services, tasks, works and supplies will be provided by the Principal in good time so as not to delay the performance of the Contractor in accordance with the approved time schedule and programme of performance pursuant to GC 18.2.

Unless otherwise indicated, all personnel, facilities, services, tasks works and supplies will be provided free of charge to the Contractor.

All other aspects required for the implementation of the Project, that are not explicitly mentioned below, must be provided and supplied by the Contractor at his expenses and costs.

Personnel	Charge to Contractor (if any)
<p>Project Manager from City of Užice; Consultant Representative assisting to Project Manager; Supervision for all construction works provided by Principal and Consultant.</p> <p>Early assignment of adequate operation, maintenance and auxiliary staff to be trained and instructed for the operation and maintenance of the new Stations.</p>	

Stations	Charge to Contractor (if any)
<p>Access to all properties within the scope of work during project implementation.</p> <p>Adequate temporary and permanent storage facilities for spares (the Contractor is responsible for the safe storage of construction equipment and materials).</p>	

Services and tasks	Charge to Contractor (if any)
<p>Timely provision of all available and checked project related data upon Contractors' request</p> <p>Access rights to all the construction sites (rights of way).</p> <p>Support the revision and approval of project related technical, financial and institutional documents and reports.</p> <p>Review and approve minutes of meetings, e.g. construction meetings</p> <p>Timely issuing of orders and certificates (e.g. completion / acceptances certificates, by Consultant and Project Manager)</p> <p>Liaison and coordination with all relevant local, state and sector institutions, e.g. for the timely obtaining permits, e.g. operation and discharge permit</p>	

Services and tasks	Charge to Contractor (if any)
<p>Revision of the Contractor's As-built design before commissioning.</p> <p>Attend and support of the testing and commissioning.</p> <p>Support project implementation and supervision (by the Project Manager and Consultant).</p> <p>Attend the installation of the material and equipment (to ensure know-how transfer).</p> <p>Support project logistics (e.g. customs procedures) upon request.</p> <p>Participation in regular and extraordinary project meetings.</p> <p>Joint definition of needs for training and know-how transfer.</p> <p>Participation in trainings and workshops.</p> <p>Participation in the installation of the equipment and processes (to ensure know-how transfer).</p> <p>Operation of the Stations after the handover (during the optimization phase of jointly with the personnel of the Contractor).</p> <p>Coverage of operation and maintenance costs after handover (without costs for remaining Contractor personnel).</p>	

Services	Charge to Contractor (if any)
None.	All Stations defined in the contract according to set given priorities (Priority 1 and Priority 2).

Supplies	Charge to Contractor (if any)
None.	Supply of all equipment and materials defined in the Price Schedules and necessary for the scope of services defined with contract.

2. Project Support by the Consultant

The Consultant team (Consortium Stucky and Stucky Balkans) supports and accompanies the Project as follows and in the frame of the Consultant's Contract between Consultant's Consortium and SECO for Consultant's Services for the Implementation of the Project:

- Supervision of project implementation to e.g. inspection and quality checks, ensuring that applicable standards and Serbian regulation on construction are met, jointly with project supervision provided by Principal.
- Assist the Principal to monitor time schedules, work progress, quality of deliveries, proper installation, meeting of applicable standards, testing and commissioning on site
- Arrange regular project implementation meetings and onsite visits organized by the Contractor and Principal and conduct independent site visits when project supervision requires
- Participation in tests certification, pre-commissioning, commissioning, operational acceptance and taking over, compile and follow up of defects lists, supervise on-site training program
- Review of all Contractor documentation
- Review and approval of as-built documentation
- Review of and recommendation for project changes
- Maintenance of budget and cost control system assuring compliance with SECO financial management system
- Checking and revision of invoices of the Contractor prior to payment by SECO
- Evaluate, check and estimate proposed additional site works; evaluation and certification of Contractors' claims

Services that are not explicitly mentioned above have to be carried out by the Contractor.

Appendix 7. List of Documents for Approval or Review

The reporting must be done in English and Serbian (in case of dispute, the English version prevails). Selected documents may be in Serbian only (as specified in the list below).

Pursuant to GC 20.3.1, the Contractor shall prepare, or cause its Subcontractor to prepare, and present to the Project Manager in accordance with the requirements of GC 18.2 (programme of performance), the following documents for:

A. Approval

1. Project Time Schedule
2. Elaborate of the construction site arrangement (only in Serbian)
3. Changes to the Plan of Preventive Measures if the changes that affect the implementation of measures for safe and healthy work on the construction site happen (only in Serbian)
4. Quality Control Plan defining and assigning the tasks, defining the control intervals etc. during project implementation
5. Testing and commissioning protocols and material certificates
6. Pre-Commissioning, Commissioning, Optimization and Guarantee Testing Concept, incl. time schedule for the entire Defects Liability Period
7. Guarantee testing reports
8. Design changes and corresponding Contract forms
9. Itemized invoices and corresponding evidence (including structure /content of progress reports)
10. Training and Know-how Transfer Concept (after commissioning and during repeated trainings during the defect's liability period) to be elaborated according to prior discussion with the Principal and the Consultant
11. Minutes of all construction supervision meetings
12. As-built drawings (bi-lingual, 2 hardcopies and 1 CD)
13. User friendly project documentation in Serbian (2 hardcopies and 1 CD) and English (1 hardcopy and 1 CD) based on the documentation received by the suppliers and the training documents (incl. process and equipment plans and schemes, process description, electric and instrumentation schemes, performance

and capacity indications, detailed O&M manual and checklists, safety instruction and measures, test certificates and commissioning protocols, contact addresses etc.)

14. Final Report

B. Review

1. Implementation Planning after Construction Supervision review.
2. Standardized monthly Progress Reports and photo documentation also referring to project monitoring indicators after Construction Supervision review.
3. Construction Journals after Construction Supervision review (only in Serbian).
4. As-built drawings after Construction Supervision review.

SECTION IV: SAMPLE FORMS

A. Performance Security Form

To:

Date

(Name and address of SECO)

Loan/Credit No.

Contract

Dear Ladies and/or Gentlemen,

We refer to the Contract Agreement ("the Contract") signed on between ("the Principal") and ("the Contractor") concerning design, execution and Completion of (brief description of the Stations).

By this letter we, the undersigned,, a Bank (or company) organized under the laws of and having its registered/principal office at do hereby jointly and severally with the Contractor irrevocably guarantee payment to you up to the sum of equivalent to percent (..... %) of the Contract Price until the date of the operational acceptance certificate and thereafter up to a sum of equivalent to ten percent (10 %) of the Contract Price until the end of the defect liability (guarantee/warranty) period.

Where it is agreed between the Principal and the Contractor that the Stations are to be accepted in parts and thus where there are separate operational acceptance certificates for each part, this Letter of Guarantee shall be apportioned to the value of each such part and reduced upon the date of operational acceptance of each part and expire at the end of the defect liability (guarantee/warranty) period of each part.

We undertake to make payment under this Letter of Guarantee upon receipt by us of your first written demand signed by your duly authorized officer declaring the Contractor to be in default under the Contract and without cavil or argument any sum or sums within the above-named limits, without your need to prove or show grounds or reasons for your demand and without the right of the Contractor to dispute or question such demand.

Our liability under this Letter of Guarantee shall be to pay to you whichever is the lesser of the sum so requested or the amount then guaranteed hereunder in respect of any demand duly made

hereunder prior to expiry of this Letter of Guarantee, without being entitled to inquire whether or not this payment is lawfully demanded.

This Letter of Guarantee shall be valid from the date of issue until the end of the defect liability (guarantee/warranty) period or, where the Stations are to be accepted in parts, until the end of the defect liability (guarantee/warranty) period of each part.

Except for the documents herein specified, no other documents or other action shall be required, notwithstanding any applicable law or regulation.

If the defect liability period is extended with respect to any part of the Stations in accordance with the Contract, the validity of this Letter of Guarantee shall be extended with respect to percent (..... %) of the Contract Price of that part until expiry of such extended defect liability period.

Our liability under this Letter of Guarantee shall become null and void immediately upon its expiry, whether it is returned or not, and no claim may be made hereunder after such expiry or after the aggregate of the sums paid by us to you shall equal the sums guaranteed hereunder, whichever is the earlier.

All notices to be given hereunder shall be given by registered post to the addressee at the address herein set out or as otherwise advised by and between the parties hereto.

We hereby agree that any part of the Contract may be amended, renewed, extended, modified, compromised, released or discharged by mutual agreement between the Principal and the Contractor, and this security may be exchanged or surrendered without in any way impairing or affecting our liabilities hereunder, without notice to us and without the necessity for any additional endorsement, consent or guarantee by us, provided, however, that the sum guaranteed shall not be increased or decreased.

No action, event or condition which by any applicable law should operate to discharge us from liability hereunder shall have any effect and we hereby waive any right we may have to apply such law so that in all respects our liability hereunder shall be irrevocable and, except as stated herein, unconditional in all respects.

The issue of this indemnity is permitted under Swiss laws and regulations.

This indemnity is governed by Swiss substantive law. Place of jurisdiction is Berne/Switzerland.

Yours truly,

(name of the bank)

.....

(authorized signature)

B. Bank Guarantee Form for Advance Payment (optional)

To:

Date

(Name and address of SECO)

Loan/Credit No.

Contract

Dear Ladies and/or Gentlemen,

We refer to the Contract agreement ("the Contract") signed on between
..... ("the Principal") and
..... ("the Contractor") concerning design, execution and
Completion of *(brief description of the Stations)*.

Whereas, in accordance with the terms of the said Contract, SECO has agreed to pay or cause
to be paid to the Contractor an advance payment in the amount of (..... %) percent
of the total Contract Price due to the Contractor, namely a payment of:

.....

(Amount of Euross in words)

.....

(Amount in figures)

and

.....

(Amount of local currency in words)

.....

(Amount in figures)

By this letter we, the undersigned,, a Bank (or company)
organized under the laws of and having its registered/Principal
office at do hereby jointly and severally with the Contractor
irrevocably guarantee repayment of the said amounts upon the first demand of SECO without
cavil or argument in the event that the Contractor fails to commence or fulfil its obligations under
the terms of the said Contract and in the event of such failure, refuses to repay all or part (as the
case may be) of the said advance payment to the Principal.

Provided always that the Bank's obligation shall be limited to an amount equal to the outstanding
balance of the advance payment, taking into account such amounts which have been executed

and repaid by the Contractor from time to time in accordance with the terms of payment of the said Contract as evidenced by appropriate payment certificates.

This Guarantee shall remain in full force from the date upon which the said advance payment is received by the Contractor until the date upon which the Contractor has fully executed and repaid the amount so advanced to the Principal in accordance with the terms of the Contract. At the time at which the outstanding amount is NIL, this Guarantee shall become null and void, whether the original is returned to us or not.

Any claims to be made under this Guarantee must be received by the Bank during its period of validity.

The issue of this indemnity is permitted under Swiss laws and regulations.

This indemnity is governed by Swiss substantive law. Place of jurisdiction is Berne/Switzerland.

Yours truly,

(name of the bank)

.....

(authorized signature)

C. Form of Completion Certificate

To:

Date

(Name and address of SECO)

Loan/Credit No.

Contract

Dear Ladies and/or Gentlemen,

Pursuant to GC 24.5 (Completion) of the General Conditions of the Contract entered into between yourselves and the Principal dated relating to the, we hereby notify you that the following part(s) of the Stations was (were) complete on the date specified below, and that, in accordance with the terms of the Contract, the Principal hereby take over the said part(s) of the Stations, together with the responsibility for care and custody and the risk of loss thereof on the date mentioned below.

1. Description of the Stations or part thereof:

.....
.....

2. Date of Completion:

However, you are required to complete the outstanding items listed in the attachment hereto as soon as practicable. This letter does not relieve you of your obligation to complete the execution of the Stations in accordance with the Contract nor of your obligations during the defects liability period.

Truly yours,

.....

(title) (Project Manager)

D. Form of Operational Acceptance Certificate

To:

Date

(Name and address of SECO)

Loan/Credit No.

Contract

Dear Ladies and/or Gentlemen,

Pursuant to GC 25.3 (Operational Acceptance) of the General Conditions of the Contract entered into between yourselves and the Principal dated relating to the, we hereby notify you that the functional guarantees of the following part(s) of the Stations was (were) satisfactorily attained on the date specified below.

1. Description of the Stations or part thereof:

.....

.....

2. Date of operational acceptance:

This letter does not relieve you of your obligation to complete the execution of the Stations in accordance with the Contract nor of your obligations during the defects liability period.

Truly yours,

(title)

(Project Manager)

VOLUME III

TECHNICAL PART

SUMMARY OF STUDY FOR EWS FOR THE CITY OF UŽICE

The Study for EWS for the City of Užice is prepared by the local Designer, The Jaroslav Černi Institute for the Development of Water Resources (JCI) in 2019 and is available in Serbian Language.



Study for EWS
Uzice.pdf

Here below is a summary and conclusions of the Study.

Introduction

The City of Užice experienced historical floods (1926, 1959, 1967, 1968, 1975, 1981), but in the last 10 years (2009, 2011, 2014, 2016, 2018) suffered great damage from torrential precipitation and floods. This Study has accurately demonstrated the extent of the floods (probability of occurrence) and the weaknesses in the flood defense system in the City area.

The study clearly identifies the basins that represent a direct threat to the City of Užice (Đetinje and Sušica basins and the Volujača stream basin) and the Lužnica river basin, which in some future development of the early warning system, will be necessary to be considered, considering the entire catchment area of the Skrapež and the flood defense of Požega and other cities downstream of the river Zapadna Morava.

Selection of locations for meteorological, climate and precipitation stations in the basin and hydrological stations in the watercourses

Detailed field observation and insight into the existing hydrological, meteorological and precipitation stations that are already in the field, and within the RHSS monitoring system, new stations are defined and those within the scope of the RHSS monitoring system which are located in the wider area of the City of Užice, will be replaced.

It is planned to install three types of stations:

1. Automatic meteorological station
2. Automatic climatological station
3. Automatic precipitation station

At the Buar location there is a radar center of the RHSS and within it a meteorological station, which operates according to the manual principle. It is planned to replace and set an automatic meteorological station, which would measure precipitation, temperature, humidity, pressure, wind speed and wind direction at a height of 10m and sunshine (solar radiation).

Automatic climatological stations would be located at the locations of Trnava, Kadinjača and Zlatiborska noć. The station would measure precipitation, air temperature, humidity, pressure and speed and wind direction at a height of 2m.

Automatic precipitation stations would be located at Jelova Gora, Skržuti and Čajetina. The precipitation station would measure precipitation, air temperature and humidity.

The location Sajinovina is abolished and instead of it, an automatic precipitation station Šljivovica, which is being set up within the project for the Drina will be used and financed by the World Bank, which is slightly less than kilometer away from Sajinovine.

This way, a circle of observation system would be made. Using this, the meteorological data necessary for flood protection, that contain data from which direction and which amount of precipitation would occur, would be given to the City of Užice.

Hydro-meteorological analyzes and calculations

During the preparation of the Study, meteorological and hydrological data were collected, available from the RHSS, from all surrounding stations located in the vicinity and in the wider area of the City of Užice (daily quantities of precipitation from stations for the period 1946-2013 - there are breaks in the measurements). Hourly data from the main meteorological stations Zlatibor and Požega were analyzed in detail and also, taken into analysis, are obtained data from the dam and accumulation "Vrutci".

Regarding the hydrological calculations, the representative flows were calculated for the probability of occurrence of Q1%, Q2%, Q5%, Q10% и Q20%. are calculated. Such a wide range of flows is calculated for the purpose of checking the river Đetinja and regulation of the river Đetinje through Užice.

During the making of this study, it was noted that the operational plan for flood protection for 2019 predicted a $Q_{1\%}=173 \text{ m}^3/\text{s}$ criterion for the Đetinja river, the swimming area -regulation profile. We suggest that this criterion (based on which flood protection measures are adopted) be reviewed through the development of dedicated expertise that would include the latest floods in the last 10 years, as well as the impact of the dam and accumulation Vrutci, because the calculated flow of the river Đetinja is $Q_{1\%}=241 \text{ m}^3/\text{s}$.

Determination of criteria for alarms for precipitations and flows

Based on hydro-meteorological calculations and analyzes, as well as on the basis of morphometric characteristics of the basins, the criteria for alarming on the system of precipitation stations and hydrological profiles are determined.

For rainfall gauging stations it has been accepted that the first alert criterion ("yellow" alarm) includes rain of 15 mm with duration up to 100 minutes, rain of 20 mm with duration of 300 minutes, i.e. 41 mm of rain that occurs in 24 hours.

It has been accepted that the second alarm criterion ("orange" alarm) includes a rain of 21 mm lasting up to 100 minutes, a rain of 29 mm duration of 300 minutes, i.e 67 mm of rain in 24 hours.

It has been accepted that the third alarm ("red" alarm) includes rain of 28 mm duration up to 80 minutes, rain of 40 mm duration of 300 minutes, a 95 mm rainfall that in 24 hours.

On the basis of historical floods and precipitation that followed these floods (1984, 1978), detailed analysis showed that the time of the peak of a flood wave, in 1978, on the Đetinja river, lasted for 5.5 hours from HS Stragari to Užice. As for the 1984 flood, the time of the peak of a flood wave from HS Stapari to Užice lasted 8.5 hours.

Using the hydrological methods, the values of the flows of high waters on the profiles that are processed in chapters 7.4, 7.5, 7.8 and 7.9 are defined for characteristic values of high-water flow ($p = 1\%$, $p = 2\%$, $p = 5\%$, $p = 10\%$ and $p = 20\%$). Based on such defined values of flows, the values of the criteria for alarming on the system of hydrological stations are defined. These criteria are shown in three colors: yellow ($p = 20\%$), orange ($p = 10\%$) and red ($p = 5\%$), on the profiles of HS Volujac, Karan, Stapari and the swimming area of the Đetinja river.

On the profile of HS Volujac

	p	T	Q _{max}	H*	Z*
	(%)	(Year)	(m ³ /s)	(cm)	(mm)
Red alarm	5	20	48,8	69.00	558.19
Orange alarm	10	10	35,6	55.00	558.05
Yellow alarm	20	5	23,2	39.00	557.89

On the profile of HS Karan

	p	T	Q _{max}	H*	Z*
	(%)	(Year)	(m ³ /s)	(cm)	(mm)
Red alarm	5	20	88,8	213	389.13
Orange alarm	10	10	63,6	169	388.69
Yellow alarm	20	5	42,0	125	388.25

On the profile of HS Volujac

	p	T	Q _{max}	H*	Z*
	(%)	(Year)	(m ³ /s)	(cm)	(mm)
Red alarm	5	20	104	159	515.09
Orange alarm	10	10	77	133	514.83
Yellow alarm	20	5	55	108	514.58

On the profile of the swimming area of the Đetinja river

	p	T	Q _{max}	H*	Z*
	(%)	(Year)	(m ³ /s)	(cm)	(mm)
Red alarm	5	20	133.3	72	407.22
Orange alarm	10	10	93.4	53	407.03
Yellow alarm	20	5	56.9	32	406.82

Stations selection

For the forecast and announcement of torrential waves, it is necessary to have data on the intensity and amount of precipitation as well as the data on the water level in the watercourses. It is necessary that all the examined data be sent to the observation center and the responsible people in the City of Užice. This requires equipment with performances that will satisfy the requirements of the Client.

The equipment installed must fulfill the following conditions:

- modern and functional;
- that stations and sensors meet the recommendations of the World Meteorological Organization (WMO) for meteorological instruments and observations (WMO - No 8 Guide to Meteorological Instruments and Methods of Observation);
- flexible structures that are resistant to external atmospheric influences;
- stable and easy to operate;
- It is necessary to carry out measuring using the electronic sensors, which register the observed phenomena at least once in 5 minutes and have a prepared method of recording and storing data as well as a system for wireless data transmission;
- The rain sensor must have a measurement accuracy of 0.1mm precipitation;
- The automatic water level measuring station must be without direct contact with the water (radar system). Measurement range: min 0.5m – max 35m. Accuracy: min 0.8 to 2 m: ± 10 mm; 2 to 30m: ± 3 mm;
- The devices for water level measuring in watercourses and the sensors for the intensity and amount of precipitation must have the foreseen possibility of programming the activation of the alarm for the specified conditions of the occurrence;
- Considering the fact that the City of Užice is located in the area of two basins (Drina and Zapadna Morava) all stations must be compatible with stations installed on the Drina river basin, within the project funded by the World Bank;
- For the City of Užice, it is important that the early warning system for flood waves is independent. This implies that it has client software and WEB display, which will be installed at the server station, in Užice and connected to all stations in the territory of the City of Užice (new ones installed and those in the RHSS system). By installing such software Užice will have priority over other municipalities and cities in the Zapadna Morava basin, that is, it will become the Regional Center for Flood Waves Monitoring for this basin. Other municipalities and cities will be able, in the future, to connect to this system;
- The warranty period for the complete station, all sensors and parts should be at least 2 years;

For the operation of the set monitoring, regular funding should be provided which must cover the costs of people's work on monitoring and permanent staff training.

Priorities when installing the Stations

According to a detailed analysis of the locations in which the installation of hydrological stations is planned, automatic meteorological, climatological and precipitation stations are foreseen. Hydrological stations on the Đetinja river and the Volujac stream, automatic climatological stations at the locations of Kadinjača and Zlatiborska noć and the automatic precipitation station Čajetina are given Priority 1.

The automatic climate station Kadinjača is planned to cover the Volujači stream and promptly announce torrential precipitation to the city of Užice.

Automatic climatological station Zlatiborska noć and automatic precipitation station Čajetina are located in the basin of Sušice, the main tributary of Đetinja, where timely announcement to the City of Užice will provide information about the intensity and amount of precipitation that will occur in the basin.

Priority 2 includes the installation of an automatic meteorological station at the location of Buar, automatic climate station Trnava and automatic precipitation station at the locations of Jelova gora and Skržuti, as well as the hydrological station on the river Lužnica, Karan location.

Calibration of Early Warning System

System calibration must be carried out after 2 years of installation of the equipment and commissioning of the system. Then a detailed analysis of the collected and observed data should be made and new criteria for alarms that announce high precipitation and flood waves are given.

Staff training

The equipment supplier is obliged to carry out training of people who will participate in the implementation of the early warning system for torrential floods for the City of Užice. In addition to presenting the hardware, the equipment supplier is also obliged to train the staff how to use the software and practical application and handling of the WEB portal and the alarm system.

Other

The equipment to be installed has its guaranteed service life and amortization, which must be provided by the budget, as well as costs of regular servicing and replacement of worn-out equipment. Also, the equipment and its parts can be damaged by natural forces or as a consequence of vandalism, especially the equipment which is not located near the houses.

Therefore, it is necessary to insure equipment in case of damage by natural forces (lightning strike, slipping and landslides, torrential floods, etc.), as well as from vandal destruction and theft.

The investor must obtain a permit, consent, ie, settle property-legal relations regarding the occupation of the areas on which the stations will be installed (school yard, hotel yard, bridges, RHSS-Buar location).

For the reliable functioning of the system, financial and technical maintenance must be provided, the investor must provide 220V power supply for each station, internet server and provider of GSM and GPRS services. This can be provided by direct individual contracting of the contracting authority with the providers of such services or simplified in the form of contracting the regular maintenance of the system with the supplier of measuring equipment and data transmission system.

TECHNICAL SPECIFICATIONS OF EQUIPMENT

Station and sensor		Pieces
AUTOMATIC METEOROLOGICAL STATION, pluviometer, air temperature and humidity, air temperature at 5cm above the ground, air pressure, wind direction and speed, solar radiation, snow depth		1
SENSORS-General requirements		
<i>All the sensors must be interchangeable. All sensors shall be independently operated by the electronics and data processing unit so that a possible failure of any of the sensors shall not affect the performance of the remaining sensors. The sensors must be tested to correctly operate in the system, and to <u>fulfil all requirements of WMO manuals</u>. All sensors must be able to operate in environmental conditions as specified and the required performance must be reached over the whole measurement and operational temperature range.</i>		
PLUVIOMETER, RAIN GAUGE / HEATED		1
General description	The precipitation shall be measured by a <u>weighing gauge type of sensor</u> . Compatible with WMO Guide to Meteorological Instruments and Methods of Observation (WMO-No.8). The rain gauge shall be fabricated of corrosion resistant and rugged material and be suitable for both solid and liquid precipitation. Pluviometer should be installed on separate galvanized mast, in a such a way that rim of the sensor is at 1.5 meters from the ground. Sensor's rim must be heated.	
	Rain gauge should be completely insulated, and the crown should be monitored by dedicated thermometers	
	The funnel, the crown and the weighting group will be equipped with thermal resistances which heat the rain-gauge	
Collection surface area	200 cm ²	
Measurement range - Amount (daily)	0 to 500 mm	
Resolution Amount	0,1 mm of rain, as minimum	
Accuracy Amount	±0.1 mm with temperature range -25°C to +45°C	
Required measurement uncertainty	0.1 mm for ≤ 5mm, and 2% for > 5mm	
Achievable measurement uncertainty	5% or 0.1 mm, as minimum	

Station and sensor		Pieces
Measurement range - Intensity	0.05 mm/h up to 1000 mm/h	
Resolution Intensity	0.01 mm/h, as minimum	
Accuracy Intensity	±0.1 mm/min with temperature range -25°C to +45°C	
Able to measure rain intensity at regular intervals	1 minute as minimum	
Bucket capacity	minimum 1400 mm	
Sampling interval	Configurable from 1 minute to 1 hour through data logger	
Operating temperature	-40°C to +60°C	
Protected class	minimum IP65	
AIR TEMPERATURE SENSOR AND AIR TEMPERATURE AT 5CM ABOVE THE GROUND		2
General description	Air temperature must be measured using standard Pt-100 1/5 DIN CLASS A. Sensor should be pre-calibrated and shall not require field re-setting. <u>Temperature and humidity measurement should be combined in one sensor unit,</u> with shield, natural ventilated.	
Measurement range	-40°C to +60°C	
Resolution	0.1 °C or less	
Accuracy	±0.2°C, or better	
Operating conditions	-40°C to +60 °C and 0 to 100 % R.H.	
RELATIVE HUMIDITY SENSOR		1
General description	Relative humidity shall be measured with a thin film type capacitance sensor. The sensor must be protected from pollution by an appropriate, exchangeable filter. Different technical solutions for both air temperature and relative humidity may be accepted. The sensor shall be easy detachable to allow quick replacement in the field, with shield, natural ventilated.	
Measurement range	0 to 100% R.H.(relative humidity)	
Accuracy	±2% from 0 to 100RH	
Response time	<15s	
Resolution 1 % RH	1.0% RH	

Station and sensor		Pieces
Long term stability	±2 % RH/year	
Operating range	-40°C to +60°C	
AIR PRESSURE (BAROMETRIC) SENSOR		1
General description	Fully electronic technology, or MEMS sensor - capacitive reliability and accuracy of measurement under any weather conditions and in presence of mechanical vibrations.	
Measuring range	600 to 1100 hPa	
Resolution.	0.0011% Full Scale (FS) or better of 0.1hPa	
Accuracy	±0.2 hPa or ±0.02% RH	
Long-term stability	±0.25 hPa/year	
Operating range	-40°C to +60°C	
WIND SENSOR		1
General description	The Wind Sensor shall use ultrasound measurement to determine horizontal speed and direction of the wind. Sensor heating is mandatory.	
–Wind speed:		
Measurement range	0 to 75m/s	
Resolution	0.1m/s	
Accuracy	±0.5 m/s below 5 m/s, 10% above 5 m/s	
Operating temperature	- 40°C to + 60°C	
- Wind direction		
Measurement range	0 to 360°	
Resolution	3° or better	
Accuracy	±5° or better	
Threshold value	0.3m/s or better	
Operating temperature	-40°C to + 60°C	
Protected class	IP66	
Watertight connectors;	Connecting cables sheltered in stainless steel support arms for total protection	

Station and sensor		Pieces
METEOROLOGICAL MAST		1
General description	10 meters high vertical tilting mast. The Mast shall be sufficient to securely mount the wind sensor(s) at 10 meters ± 0.1 meter in height, and all other sensors.	
	The mast shall include arms for sensors.	
	The mast shall include horizontal tube and arms for solar panel.	
	The mast shall include lightning protection (rod) and electrical grounding.	
	Galvanized steel protection (or other stainless material) , tilting mast, withstanding min. 75 m/s gusts.	
GLOBAL SOLAR RADIATION SENSOR (2nd class)		1
Spectral range	300 to 2800 nm	
Measurement range	0 to 24h	
Response time	Less than 30s	
Sensitivity	5-20 $\mu\text{V}/\text{Wm}^2$	
Maximum sola irradiance	2000 W/m^2	
Operating temperature	-40°C to +60°C	
SNOW DEPTH SENSOR		1
Measurement range	0...10 m	
Accuracy	0.1 % (FS)	
Resolution	1 mm	
Measurement principle	Ultrasonic	
Non-linearity	≤ 0.15 %	
Minimum distance to the maximum expected snow depth	1 m	
DATA LOGGER		1
General features	Data logger especially designed for hydrometeorology and environmental measurements; Well proven and widely used model, produced by a primary brand name and tested in a large number of installations; Well-documented and versatile	

Station and sensor		Pieces
	architecture allowing multiple third party extensions and sensors; Multi-tasking operating system capable to simultaneously log data and transmit data; Change of configuration should not affect stored logged data; Individual recording intervals for each channel; User configurable alarms (triggering); Must be compatible with all sensors which will be delivered and connected to the data logger to enable full operation of the system; Should be able to power up sensors, modem or other peripherals such as IP camera, at fixed arbitrary intervals defined by the user; Should be well documented to allow user to perform sensor installation, configuration and firmware update	
EMC standards	In accordance with IEC EN 61000-4-2,3,4,5,6,8 standards; The system must be compliant with all the applicable CE directives and standards or equivalent standards or directives in particular recipient country.	
Time synchronization	With GSM and GPRS (internet-based time servers)	
EMC standards	In accordance with IEC EN 61000-4-2,3,4,5,6,8 standards; The system must be compliant with all the applicable CE directives and standards or equivalent standards or directives in particular recipient country.	
Data Memory	RAM fifo memory 4Mb up to 1.100.000 values and the possibility to use hand flash memory on USB; capable to store at least 6 months of data on hourly basis (all sensors).	
Display and input unit	LCD display legible in direct sunlight; keypad or equivalent input unit	
Communication Ports	USB and/or RS-232	
Number of channels	16 logical, (digital, impulse and/or analog)	
Serial input	RS232; RS422/485, SDI-12	
SDI-12 ports	Min. 1	
RS485 ports	Min. 1	
Analog input/output	Configurable analog, digital input/output	
Data exchange protocols	TCP- IP, FTP, SMTP, HTTP, MODBUS, DHCP, DNS, SLIP, PPP.; -Should be able to push data via GSM/GPRS/3G via FTP protocol; -Should be able to send data in preselected well documented format or standard format: ASCII, ZRXP, CSV, ...Transmission of encrypted data: HTTPS (TLS 1.2)	
Housing	IP41	
Monitoring of battery voltage level	Yes	

Station and sensor		Pieces
Power supply	9.0 – 28 VDC	
Remote configuration	Possibility for offline remote configuration (server based;. i.e. logger can execute XMI-commands that are generated on a server. Every time it connects to a server, it checks whether a new command is available and executes it, e.g. for firmware update or configuration change). Integrated web browser	
Operating conditions	from -40 to +70 degrees °C and 0% to 95% R.H.	
System Clock	The station must have a Real Time Clock (RTC) protected against power losses	
	The system must be able to operate in UTC	
	In addition, it must be possible to adjust the RTC using at least the following methods: -Locally via terminal commands; -Remote commands over a network; -Automatically from a central data collections system or a server; -Automatically from a central data collections system or an NTP server.	
POWER SUPPLY UNIT		1
General description	Power control unit for power supply of data logger, modems and sensors. It must be possible to power the system from mains network, or with solar panels or with other renewable sources. In both cases the system should include rechargeable, sealed and maintenance free backup batteries sufficient for keeping the station running at least for 30 days without recharging. The backup batteries must have a charge regulator with protection against battery overcharge or deep discharge. The charger must have an indication of the battery condition and charging state. Power control unit for use with solar power cells. Including the auxiliary input from 12 DC with automatic battery charging and with all connecting cables. Power indicator connected to data logger as one of measured channels	
Solar panel power	Minimum 40W	
Lead-acid battery	Minimum 24Ah; with gel, hermetic closed	
	Lightning protection module for solar power supply	
	Overload and lightning protection module for sensor inputs	
	Deep discharge protection for battery	
Operating temperature	-40° to +60°C	
MOBILE NETWORK COMMUNICATION UNIT		1
General description	GPS/GPRS MODEM Quad Band EDGE Class 33, Quad Band GPRS Class 12	

Station and sensor		Pieces
	Programmable	
	Be able to concurrently use GSM and GPRS Service	
	Integrated TCP/IP stack	
Download speed	Up to 7,2 Mbit/s HSPA+	
Input-Output	Input-Output: RS232	
Operating range	-40 to +60°C	
Accessories	GSM high gain bar antenna for external mounting with cable min. 5 m	
Software	Accompanying communication and configuration software for the modem	
CABINET OR CASING, CARPENTRY		1
General description	Weather proof protection housing minimum IP66 for outdoor installation with door lock; with parts for assembly	
	Anti-vandalism cabinet protection;	
	Stainless steel arms and mounting carpentry;	
SOFTWARE		1
	The system shall be shipped with PC-based setup software to allow a user-friendly configuration and modification of all system parameters and operation	
	The software must be able to configure at least the following features and functions: -Sensors to be connected into the system; -Measurement intervals for each sensor; -Sensor powering; -Calculations; -Data logging; -Output and messages; -Communication; -Alarms; -Software must ensure the calculation, sending and archiving of gusts wind data;	
	Microsoft Windows software for system configuration, communication and automatic data acquisition;	
	English language version;	
	All required licenses included;	
	System integrity check procedures.	

Station and sensor		Pieces
DOCUMENTATION		
General description	User manual, installation, repair, maintenance and operation instructions for datalogger and sensors;	
	Certificates for Standard Compliance;	
	All sensors must have a certificate of calibration accredited laboratories	
	All documents must be provided in English language	
INSTALLATION		
General	Contractor will provide the installation of the Supplies. Contractor shall be responsible for the transport and unloading of the Supplies to the site locations.	
START UP, CALIBRATION AND TESTING		
Site Acceptance Test (SAT) and Operational Test (OT)	The supplies are considered to have been finally accepted when the supplier has successfully installed the appropriate equipment, and software, and when the Site Acceptance Test (SAT) and Operational Test (OT) where carried out.	
	The Site Acceptance Test (SAT) and Operational Test (OT) will be carried out by the supplier in accordance with Supplier's standard and acceptance test procedures. SAT and OT will be supervised by the Principal or the Buyer.	
TRAINING OF OPERATORS		
	The supplier will provide a minimum of 2-day user training at the user premises.	
WARRANTY		
General description	Minimum 24-months warranty on the Supplies, starting from the date of the acceptance of the Supplies by the Buyer.	
	The Principal will incur no costs during the warranty.	

Station and sensor		Pieces
AUTOMATIC CLIMATOLOGICAL STATION, pluviometer, air temperature and humidity, air pressure, wind direction and speed		3
<i>SENSORS-General requirements</i>		
<i>All the sensors must be interchangeable. All sensors shall be independently operated by the electronics and data processing unit so that a possible failure of any of the sensors shall not affect the performance of the remaining sensors. The sensors must be tested to correctly operate in the system, and to <u>fulfil all requirements of WMO manuals</u>. All sensors must be able to operate in environmental conditions as specified and the required performance must be reached over the whole measurement and operational temperature range.</i>		
PLUVIOMETER, RAIN GAUGE / HEATED		3
General description	The precipitation shall be measured by a <u>weighing</u> gauge type of sensor. Compatible with WMO Guide to Meteorological Instruments and Methods of Observation (WMO-No.8). The rain gauge shall be fabricated of corrosion resistant and rugged material and be suitable for both solid and liquid precipitation. Pluviometer should be installed on separate galvanized mast, in a such a way that rim of the sensor is at 1.5 meters from the ground. Sensor's rim must be heated.	
	Rain gauge should be completely insulated and the crown should be monitored by dedicated thermometers	
	The funnel, the crown and the <u>weighing</u> group will be equipped with thermal resistances which heat the rain-gauge	
Collection surface area	200 cm ²	
Measurement range - Amount (daily)	0 to 500 mm	
Resolution Amount	0.1 mm of rain, as minimum	
Accuracy Amount	±0.1 mm with temperature range -25°C to +45°C	
Required measurement uncertainty	0.1 mm for ≤ 5 mm, and 2% for >5 mm	
Achievable measurement uncertainty	5% or 0.1 mm, as minimum	
Measurement range -Intensity	0.05 mm/h up to 1000 mm/h	
Resolution Intensity	0,01 mm/h, as minimum	
Accuracy Intensity	±0.1 mm/min with temperature range -25°C to +45°C	

Station and sensor		Pieces
Able to measure rain intensity at regular intervals	1 minute as minimum	
Bucket capacity	minimum 1400 mm	
Sampling interval	Configurable from 1 minute to 1 hour through data logger	
Operating temperature	-40°C to +60°C	
Protected class	minimum IP65	
AIR TEMPERATURE SENSOR		3
General description	Air temperature must be measured using standard Pt-100 1/5 DIN CLASS A. Sensor should be pre-calibrated and shall not require field re-setting. <u>Temperature and humidity measurement should be combined in one sensor unit,</u> with shield, natural ventilated.	
Measurement range	-40°C to +60°C	
Resolution	0.1°C or less	
Accuracy	±0.2°C, or better	
Operating conditions	-40°C to +60°C and 0 to 100% R.H.	
RELATIVE HUMIDITY SENSOR		3
General description	Relative humidity shall be measured with a thin film type capacitance sensor. The sensor must be protected from pollution by an appropriate, exchangeable filter. Different technical solutions for both air temperature and relative humidity may be accepted. The sensor shall be easy detachable to allow quick replacement in the field, with shield, natural ventilated.	
Measurement range	0 to 100% R.H.(relative humidity)	
Accuracy	±2% from 0 to 100RH	
Response time	<15s	
Resolution 1 % RH	1.0% RH	
Long term stability	±2% RH/year	
Operating range	-40°C to +60°C	

Station and sensor		Pieces
AIR PRESSURE (BAROMETRIC) SENSOR		3
General description	Fully electronic technology, or MEMS sensor – capacity vereliability and accuracy of measurement under any weather conditions and in presence of mechanical vibrations.	
Measuring range	600 to 1100 hPa	
Resolution.	0.0011% Full Scale (FS) or better of 0.1 hPa	
Accuracy	±0.2 hPa or ±0.02% RH	
Long-term stability	±0.25 hPa/year	
Operating range	-40°C to +60°C	
WIND SENSOR		3
General description	The Wind Sensor shall use ultrasound measurement to determine horizontal speed and direction of the wind. Sensor heating is mandatory.	
–Wind speed:		
Measurement range	0 to 75m/s	
Resolution	0.1 m/s	
Accuracy	±0.5 m/s below 5 m/s, 10% above 5 m/s	
Operating temperature	-40°C to +60°C	
- Wind direction		
Measurement range	0 to 360°	
Resolution	3° or better	
Accuracy	±5° or better	
Threshold value	0.3 m/s or better	
Operating temperature	-40°C to +60°C	
Protected class	IP66	
Watertight connectors;	Connecting cables sheltered in stainless steel support arms for total protection	
METEOROLOGICAL MAST		3

Station and sensor		Pieces
General description	2.5 meters high vertical tilting mast. The Mast shall be sufficient to securely mount the wind sensor(s) at 2.2 meters ± 0.1 meter in height, and all other sensors.	
	The mast shall include arms for sensors.	
	The mast shall include horizontal tube and arms for solar panel.	
	The mast shall include lightning protection (rod) and electrical grounding.	
	Galvanized steel protection (or other stainless material) , tilting mast, withstanding min. 75 m/s gusts.	
DATA LOGGER		3
General features	Data logger especially designed for hydrometeorology and environmental measurements; Well proven and widely used model, produced by a primary brand name and tested in a large number of installations; Well-documented and versatile architecture allowing multiple third party extensions and sensors; Multi-tasking operating system capable to simultaneously log data and transmit data; Change of configuration should not affect stored logged data; Individual recording intervals for each channel; User configurable alarms (triggering); Must be compatible with all sensors which will be delivered and connected to the data logger to enable full operation of the system; Should be able to power up sensors, modem or other peripherals such as IP camera, at fixed arbitrary intervals defined by the user; Should be well documented to allow user to perform sensor installation, configuration and firmware update	
EMC standards	In accordance with IEC EN 61000-4-2,3,4,5,6,8 standards; The system must be compliant with all the applicable CE directives and standards or equivalent standards or directives in particular recipient country.	
Time synchronization	With GSM and GPRS (internet-based time servers)	
Data Memory	RAM fifo memory 4Mb up to 1.100.000 values and the possibility to use hand flash memory on USB; capable to store at least 6 months of data on hourly basis (all sensors).	
Display and input unit	LCD display legible in direct sunlight; keypad or equivalent input unit	
Communication Ports	USB and/or RS-232	
Number of channels	16 logical, (digital, impulse and/or analog)	
Serial input	RS232; RS422/485, SDI-12	
SDI-12 ports	Min. 1	

Station and sensor		Pieces
RS485 ports	Min. 1	
Analog input/output	Configurable analog, digital input/output	
Data exchange protocols	TCP- IP, FTP, SMTP, HTTP, MODBUS, DHCP, DNS, SLIP, PPP.; -Should be able to push data via GSM/GPRS/3G via FTP protocol; -Should be able to send data in preselected well documented format or standard format: ASCII, ZRXP, CSV, ...Transmission of encrypted data: HTTPS (TLS 1.2)	
Housing	IP41	
Monitoring of battery voltage level	Yes	
Power supply	9.0 – 28 VDC	
Remote configuration	Possibility for offline remote configuration (server based; i.e. logger can execute XML-commands that are generated on a server. Every time it connects to a server, it checks whether a new command is available and executes it, e.g. for firmware update or configuration change). Integrated web browser	
Operating conditions	from -40°C to +70°C and 0% to 95% R.H.	
System Clock	The station must have a Real Time Clock (RTC) protected against power losses	
	The system must be able to operate in UTC	
	In addition, it must be possible to adjust the RTC using at least the following methods: -Locally via terminal commands; -Remote commands over a network; -Automatically from a central data collections system or a server; -Automatically from a central data collections system or an NTP server.	
POWER SUPPLY UNIT		3
General description	Power control unit for power supply of data logger, modems and sensors. It must be possible to power the system from mains network, or with solar panels or with other renewable sources. In both cases the system should include rechargeable, sealed and maintenance free backup batteries sufficient for keeping the station running at least for 30 days without recharging. The backup batteries must have a charge regulator with protection against battery overcharge or deep discharge. The charger must have an indication of the battery condition and charging state. Power control unit for use with solar power cells. Including the auxiliary input from 12 DC with	

Station and sensor		Pieces
	automatic battery charging and with all connecting cables. Power indicator connected to data logger as one of measured channels	
Solar panel power	Minimum 40W	
Lead-acid battery	Minimum 24Ah; with gel, hermetic closed	
	Lightning protection module for solar power supply	
	Overload and lightning protection module for sensor inputs	
	Deep discharge protection for battery	
Operating temperature	-40°C to +60°C	
MOBILE NETWORK COMMUNICATION UNIT		3
General description	GPS/GPRS MODEM Quad Band EDGE Class 33, Quad Band GPRS Class 12	
	Programmable	
	Be able to concurrently use GSM and GPRS Service	
	Integrated TCP/IP stack	
Download speed	Up to 7,2 Mbit/s HSPA+	
Input-Output	Input-Output: RS232	
Operating range	-40°C to +60°C	
Accessories	GSM high gain bar antenna for external mounting with cable min. 5 m	
Software	Accompanying communication and configuration software for the modem	
CABINET OR CASING, CARPENTRY		3
General description	Weather proof protection housing minimum IP66 for outdoor installation with door lock; with parts for assembly	
	Anti-vandalism cabinet protection;	
	Stainless steel arms and mounting carpentry;	
SOFTWARE		
	The system shall be shipped with PC-based setup software to allow an user-friendly configuration and modification of all system parameters and operation	
	The software must be able to configure at least the following features and functions: -Sensors to be connected into the system; -Measurement intervals for each sensor;	

Station and sensor		Pieces
	-Sensor powering; -Calculations; -Data logging; -Output and messages; -Communication; -Alarms; -Software must ensure the calculation, sending and archiving of gusts wind data	
	Microsoft Windows software for system configuration, communication and automatic data acquisition;	
	English language version;	
	All required licenses included;	
	System integrity check procedures.	
DOCUMENTATION		
General description	User manual, installation, repair, maintenance and operation instructions for datalogger and sensors;	
	Certificates for Standard Compliance;	
	All sensors must have a certificate of calibration accredited laboratories	
	All documents must be provided in English language	
INSTALLATION		
General	Contractor will provide the installation of the Supplies. Contractor shall be responsible for the transport and unloading of the Supplies to the site locations.	
START UP, CALIBRATION AND TESTING		
Site Acceptance Test (SAT) and Operational Test (OT)	The supplies are considered to have been finally accepted when the supplier has successfully installed the appropriate equipment, and software, and when the Site Acceptance Test (SAT) and Operational Test (OT) where carried out.	
	The Site Acceptance Test (SAT) and Operational Test (OT) will be carried out by the supplier in accordance with supplier's standard and acceptance test procedures. SAT and OT will be supervised by the Principal or the Buyer.	
TRAINING OF OPERATORS		
	The supplier will provide a minimum of 2-day user training at the user premises.	

Station and sensor		Pieces
WARRANTY		
General description	Minimum 24-month warranty on the Supplies, starting from the date of the acceptance of the Supplies by the Buyer.	
	The Principal will incur no costs during the warranty.	

Station and sensor		Pieces
AUTOMATIC PRECIPITATION STATION, pluviometer, air temperature and humidity		3
<i>SENSORS-General requirements</i>		
<i>All the sensors must be interchangeable. All sensors shall be independently operated by the electronics and data processing unit so that a possible failure of any of the sensors shall not affect the performance of the remaining sensors. The sensors must be tested to correctly operate in the system, and to <u>fulfil all requirements of WMO manuals</u>. All sensors must be able to operate in environmental conditions as specified and the required performance must be reached over the whole measurement and operational temperature range.</i>		
PLUVIOMETER, RAIN GAUGE / HEATED		3
General description	The precipitation shall be measured by a <u>weighing gauge type of sensor</u> . Compatible with WMO Guide to Meteorological Instruments and Methods of Observation (WMO-No.8). The rain gauge shall be fabricated of corrosion resistant and rugged material and be suitable for both solid and liquid precipitation. Pluviometer should be install on separate galvanized mast, in a such a way that rim of the sensor is at 1.5 meters from the ground. Sensor's rim must be heated.	
	Rain gauge should be completely insulated and the crown should be monitored by dedicated thermometers	
	The funnel, the crown and the weighting group will be equipped with thermal resistances which heat the rain-gauge	
Collection surface area	200 cm ²	
Measurement range -Amount (daily)	0 to 500 mm	
Resolution Amount	0,1 mm of rain, as minimum	
Accuracy Amount	±0.1 mm with temperature range -25°C to +45°C	
Required measurement uncertainty	0.1mm for ≤ 5mm, and 2% for >5mm	

Station and sensor		Pieces
Achievable measurement uncertainty	5% or 0.1mm, as minimum	
Measurement range -Intensity	0.05 mm/h up to 1000mm/h	
Resolution Intensity	0.01 mm/h, as minimum	
Accuracy Intensity	±0.1 mm/min with temperature range -25°C to +45°C	
Able to measure rain intensity at regular intervals	1 minute as minimum	
Bucket capacity	minimum 1400 mm	
Sampling interval	Configurable from 1 minute to 1 hour through data logger	
Operating temperature	-40°C to +60°C	
Protected class	minimum IP65	
AIR TEMPERATURE SENSOR		3
General description	Air temperature must be measured using standard Pt-100 1/5 DIN CLASS A. Sensor should be pre-calibrated and shall not require field re-setting. <u>Temperature and humidity measurement should be combined in one sensor unit,</u> with shield, natural ventilated.	
Measurement range	-40°C to +60°C	
Resolution	0.1°C or less	
Accuracy	±0.2 °C, or better	
Operating conditions	-40°C to +60°C and 0 to 100 % R.H.	
RELATIVE HUMIDITY SENSOR		3
General description	Relative humidity shall be measured with a thin film type capacitance sensor. The sensor must be protected from pollution by an appropriate, exchangeable filter. Different technical solutions for both air temperature and relative humidity may be accepted. The sensor shall be easy detachable to allow quick replacement in the field, with shield, natural ventilated.	
Measurement range	0 to 100% R.H. (relative humidity)	

Station and sensor		Pieces
Accuracy	±2% from 0 to 100RH	
Response time	<15s	
Resolution 1 % RH	1.0% RH	
Long term stability	±2% RH/year	
Operating range	-40°C to +60°C	
METEOROLOGICAL MAST		3
General description	2.2 meters high vertical tilting mast. The Mast shall be sufficient to securely mount all other sensors.	
	The mast shall include arms for sensors.	
	The mast shall include horizontal tube and arms for solar panel.	
	The mast shall include lightning protection (rod) and electrical grounding.	
	Galvanized steel protection (or other stainless material) , tilting mast, withstanding min. 75 m/s gusts.	
DATA LOGGER		3
General features	Data logger especially designed for hydrometeorology and environmental measurements; Well proven and widely used model, produced by a primary brand name and tested in a large number of installations; Well-documented and versatile architecture allowing multiple third party extensions and sensors; Multi-tasking operating system capable to simultaneously log data and transmit data; Change of configuration should not affect stored logged data; Individual recording intervals for each channel; User configurable alarms (triggering); Must be compatible with all sensors which will be delivered and connected to the data logger to enable full operation of the system; Should be able to power up sensors, modem or other peripherals such as IP camera, at fixed arbitrary intervals defined by the user; Should be well documented to allow user to perform sensor installation, configuration and firmware update	
EMC standards	In accordance with IEC EN 61000-4-2,3,4,5,6,8 standards; The system must be compliant with all the applicable CE directives and standards or equivalent standards or directives in particular recipient country.	
Time synchronization	With GSM and GPRS (internet-based time servers)	
Data Memory	RAM fifo memory 4Mb up to 1.100.000 values and the possibility to use hand flash memory on USB; capable to store at least 6 months of data on hourly basis (all sensors).	

Station and sensor		Pieces
Display and input unit	LCD display legible in direct sunlight; keypad or equivalent input unit	
Communication Ports	USB and/or RS-232	
Number of channels	16 logical, (digital, impulse and/or analog)	
Serial input	RS232; RS422/485, SDI-12	
SDI-12 ports	Min. 1	
RS485 ports	Min. 1	
Analog input/output	Configurable analog, digital input/output	
Data exchange protocols	TCP- IP, FTP, SMTP, HTTP, MODBUS, DHCP, DNS, SLIP, PPP.; -Should be able to push data via GSM/GPRS/3G via FTP protocol; -Should be able to send data in preselected well documented format or standard format: ASCII, ZRXP, CSV, ...Transmission of encrypted data: HTTPS (TLS 1.2)	
Housing	IP41	
Monitoring of battery voltage level	Yes	
Power supply	9.0 – 28 VDC	
Remote configuration	Possibility for offline remote configuration (server based; i.e. logger can execute XML-commands that are generated on a server. Every time it connects to a server, it checks whether a new command is available and executes it, e.g. for firmware update or configuration change). Integrated web browser	
Operating conditions	from -40°C to +70°C and 0% to 95% R.H.	
System Clock	The station must have a Real Time Clock (RTC) protected against power losses	
	The system must be able to operate in UTC	
	In addition, it must be possible to adjust the RTC using at least the following methods: -Locally via terminal commands; -Remote commands over a network; -Automatically from a central data collections system or a server; -Automatically from a central data collections system or an NTP server.	
POWER SUPPLY UNIT		3
General description	Power control unit for power supply of data logger, modems and sensors. It must be possible to power the system from mains network, or with solar panels or with other renewable	

Station and sensor		Pieces
	sources. In both cases the system should include rechargeable, sealed and maintenance free backup batteries sufficient for keeping the station running at least for 30 days without recharging. The backup batteries must have a charge regulator with protection against battery overcharge or deep discharge. The charger must have an indication of the battery condition and charging state. Power control unit for use with solar power cells. Including the auxiliary input from 12 DC with automatic battery charging and with all connecting cables. Power indicator connected to data logger as one of measured channels	
Solar panel power	Minimum 40W	
Lead-acid battery	Minimum 24Ah; with gel, hermetic closed	
	Lightning protection module for solar power supply	
	Overload and lightning protection module for sensor inputs	
	Deep discharge protection for battery	
Operating temperature	-40°C to +60°C	
MOBILE NETWORK COMMUNICATION UNIT		3
General description	GPS/GPRS MODEM Quad Band EDGE Class 33, Quad Band GPRS Class 12	
	Programmable	
	Be able to concurrently use GSM and GPRS Service	
	Integrated TCP/IP stack	
Download speed	Up to 7,2 Mbit/s HSPA+	
Input-Output	Input-Output: RS232	
Operating range	-40°C to +60°C	
Accessories	GSM high gain bar antenna for external mounting with cable min. 5 m	
Software	Accompanying communication and configuration software for the modem	
CABINET OR CASING, CARPENTRY		3
General description	Weather proof protection housing minimum IP66 for outdoor installation with door lock; with parts for assembly	
	Anti-vandalism cabinet protection;	
	Stainless steel arms and mounting carpentry;	
SOFTWARE		

Station and sensor		Pieces
	The system shall be shipped with PC-based setup software to allow a user-friendly configuration and modification of all system parameters and operation	
	<p>The software must be able to configure at least the following features and functions:</p> <ul style="list-style-type: none"> -Sensors to be connected into the system; -Measurement intervals for each sensor; -Sensor powering; -Calculations; -Data logging; -Output and messages; -Communication; - Alarms 	
	Microsoft Windows software for system configuration, communication and automatic data acquisition;	
	English language version;	
	All required licenses included;	
	System integrity check procedures.	
DOCUMENTATION		
General description	User manual, installation, repair, maintenance and operation instructions for datalogger and sensors;	
	Certificates for Standard Compliance;	
	All sensors must have a certificate of calibration accredited laboratories	
	All documents must be provided in English language	
INSTALLATION		
General	Contractor will provide the installation of the Supplies. Contractor shall be responsible for the transport and unloading of the Supplies to the site locations.	
START UP, CALIBRATION AND TESTING		
Site Acceptance Test (SAT) and Operational Test (OT)	The supplies are considered to have been finally accepted when the supplier has successfully installed the appropriate equipment, and software, and when the Site Acceptance Test (SAT) and Operational Test (OT) where carried out.	

Station and sensor		Pieces
	The Site Acceptance Test (SAT) and Operational Test (OT) will be carried out by the supplier in accordance with supplier's standard and acceptance test procedures. SAT and OT will be supervised by the Principal or the Buyer.	
TRAINING OF OPERATORS		
	The supplier will provide a minimum of 2-day user training at the user premises.	
WARRANTY		
General description	Minimum 24-month warranty on the Supplies, starting from the date of the acceptance of the Supplies by the Buyer.	
	The Principal will incur no costs during the warranty.	

Station and sensor		Pieces
AUTOMATIC HYDROLOGICAL STATION (RADAR LEVEL SENSOR)		3
General description	<p>The RLS is a non-contact radar level sensor with pulse radar technology. The RLS offers a large measurement range with a small blanking distance and narrow beam width.</p> <p>Lockable control cabinet with power supply as well as with the IP data logger for saving and remotely transferring hydrological data</p>	
RADAR LEVEL SENSOR		3
Parameters measured	Water level / distance to water	
Measurement technology	Non-contact pulse radar	
Measurement range	min. 0.5 to 35 m	
Accuracy	min. 0.8 to 2 m: ± 10 mm; 2 to 30 m: ± 3 mm;	
Measuring time	max. 25 s	
Power supply	12/24 V DC;	
Interface	SDI-12, RS-485	
METEOROLOGICAL MAST		
General description	2.2 meters high vertical tilting mast. The Mast shall be sufficient to securely mount all other sensors.	

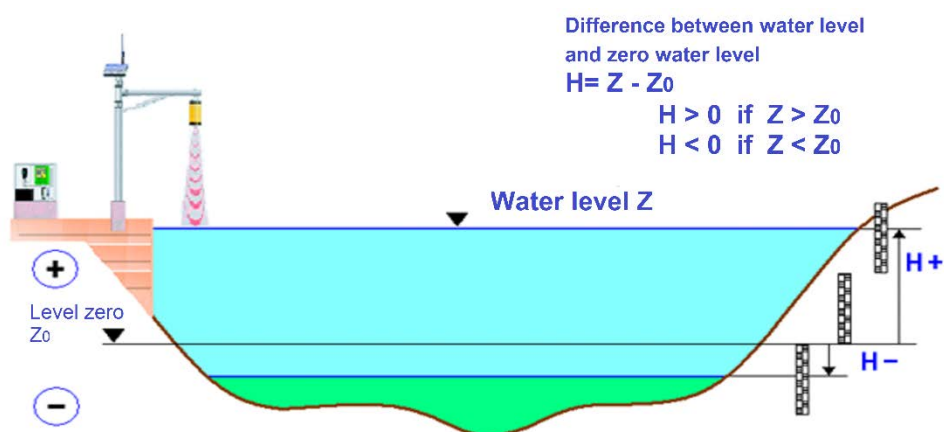
Station and sensor		Pieces
	The mast shall include arms for sensors.	
	The mast shall include horizontal tube and arms for solar panel.	
	The mast shall include lightning protection (rod) and electrical grounding.	
	Galvanized steel protection (or other stainless material) , tilting mast.	
DATA LOGGER		3
General features	Data logger especially designed for hydrometeorology and environmental measurements; Well proven and widely used model, produced by a primary brand name and tested in a large number of installations; Well-documented and versatile architecture allowing multiple third party extensions and sensors; Multi-tasking operating system capable to simultaneously log data and transmit data; Change of configuration should not affect stored logged data; Individual recording intervals for each channel; User configurable alarms (triggering); Must be compatible with all sensors which will be delivered and connected to the data logger to enable full operation of the system; Should be able to power up sensors, modem or other peripherals such as IP camera, at fixed arbitrary intervals defined by the user; Should be well documented to allow user to perform sensor installation, configuration and firmware update	
EMC standards	In accordance with IEC EN 61000-4-2,3,4,5,6,8 standards; The system must be compliant with all the applicable CE directives and standards or equivalent standards or directives in particular recipient country.	
Time synchronization	With GSM and GPRS (internet-based time servers)	
Data Memory	RAM fifo memory 4Mb up to 1.100.000 values and the possibility to use hand flash memory on USB; capable to store at least 6 months of data on hourly basis (all sensors).	
Display and input unit	LCD display legible in direct sunlight; keypad or equivalent input unit	
Communication Ports	USB and/or RS-232	
Number of channels	16 logical, (digital, impulse and/or analog)	
Serial input	RS232; RS422/485, SDI-12	
SDI-12 ports	Min. 1	
RS485 ports	Min. 1	
Analog input/output	Configurable analog, digital input/output	
Data exchange protocols	TCP- IP, FTP, SMTP, HTTP, MODBUS, DHCP, DNS, SLIP, PPP.; -Should	

Station and sensor		Pieces
	be able to push data via GSM/GPRS/3G via FTP protocol; -Should be able to send data in preselected well documented format or standard format: ASCII, ZRXP, CSV, ...Transmission of encrypted data: HTTPS (TLS 1.2)	
Housing	IP41	
Monitoring of battery voltage level	Yes	
Power supply	9.0 – 28 VDC	
Remote configuration	Possibility for offline remote configuration (server based;. i.e. logger can execute XML-commands that are generated on a server. Every time it connects to a server, it checks whether a new command is available and executes it, e.g. for firmware update or configuration change). Integrated web browser	
Operating conditions	from -40°C to +70°C and 0% to 95% R.H.	
System Clock	The station must have a Real Time Clock (RTC) protected against power losses	
	The system must be able to operate in UTC	
	In addition, it must be possible to adjust the RTC using at least the following methods: -Locally via terminal commands; -Remote commands over a network; -Automatically from a central data collections system or a server; -Automatically from a central data collections system or an NTP server.	
POWER SUPPLY UNIT		3
General description	Power control unit for power supply of data logger, modems and sensors. It must be possible to power the system from mains network, or with solar panels or with other renewable sources. In both cases the system should include rechargeable, sealed and maintenance free backup batteries sufficient for keeping the station running at least for 30 days without recharging. The backup batteries must have a charge regulator with protection against battery overcharge or deep discharge. The charger must have an indication of the battery condition and charging state. Power control unit for use with solar power cells. Including the auxiliary input from 12 DC with automatic battery charging and with all connecting cables. Power indicator connected to data logger as one of measured channels	
Solar panel power	Minimum 40W	
Lead-acid battery	Minimum 24Ah; with gel, hermetic closed	
	Lightning protection module for solar power supply	
	Overload and lightning protection module for sensor inputs	

Station and sensor		Pieces
	Deep discharge protection for battery	
Operating temperature	-40°C to +60°C	
MOBILE NETWORK COMMUNICATION UNIT		3
General description	GPS/GPRS MODEM Quad Band EDGE Class 33, Quad Band GPRS Class 12	
	Programmable	
	Be able to concurrently use GSM and GPRS Service	
	Integrated TCP/IP stack	
Download speed	Up to 7,2 Mbit/s HSPA+	
Input-Output	Input-Output: RS232	
Operating range	-40°C to +60°C	
Accessories	GSM high gain bar antenna for external mounting with cable min. 5 m	
Software	Accompanying communication and configuration software for the modem	
CABINET OR CASING, CARPENTRY		3
General description	Weather proof protection housing minimum IP66 for outdoor installation with door lock; with parts for assembly	
	Anti-vandalism cabinet protection;	
	Stainless steel arms and mounting carpentry;	
SOFTWARE		3
	The system shall be shipped with PC-based setup software to allow an user-friendly configuration and modification of all system parameters and operation	
	The software must be able to configure at least the following features and functions: -Sensors to be connected into the system; -Measurement intervals for each sensor; -Sensor powering; -Calculations; -Data logging; -Output and messages; -Communication; -Alarms;	

Station and sensor		Pieces
	Microsoft Windows software for system configuration, communication and automatic data acquisition;	
	English language version;	
	All required licenses included;	
	System integrity check procedures.	
DOCUMENTATION		
General description	User manual, installation, repair, maintenance and operation instructions for datalogger and sensors;	
	Certificates for Standard Compliance;	
	All sensors must have a certificate of calibration accredited laboratories	
	All documents must be provided in English language	
INSTALLATION		
General	Contractor will provide the installation of the Supplies. Contractor shall be responsible for the transport and unloading of the Supplies to the site locations.	
START UP, CALIBRATION AND TESTING		
Site Acceptance Test (SAT) and Operational Test (OT)	The Supplies are considered to have been finally accepted when the supplier has successfully installed the appropriate equipment, and software, and when the Site Acceptance Test (SAT) and Operational Test (OT) where carried out.	
	The Site Acceptance Test (SAT) and Operational Test (OT) will be carried out by the supplier in accordance with supplier's standard and acceptance test procedures. SAT and OT will be supervised by the Principal or the Buyer.	
TRAINING OF OPERATORS		
	The supplier will provide a minimum of 2 day user training at the user premises.	
WARRANTY		
General description	Minimum 24-month warranty on the Supplies, starting from the date of the acceptance of the Supplies by the Buyer.	
	The Principal will incur no costs during the warranty.	

	STAFF GAUGES	pieces
General description	<p>The water level represents the vertical difference between the water level and a fixed (zero) position. This fixed position is defined depending on the type of device by which measurements are made and cannot be changed during the measurement period.</p> <p>At the location where hydrological stations are planned, water meters (vertical) must be installed. The watertight strips must be impact-resistant and resistant to weather conditions, up to 1m in length, with a total width of min. 140 mm.- max. 180 mm. Type: standard, enameled.</p> <p>The staff gauges must be placed on the U-profile pillars or placed on the supporting columns of the bridge</p>	3



Picture: Measuring of water level



Picture: Water level gauge

	Client WEB application	pieces
General description	<p>The client WEB application should, after the correct login to the system, with the help of the user name and password, the user receives certain information that is allowed for viewing and analysis on the Server application page on the screen of his computer. The client application must have the ability to create various analyzes and reports that are required by various organizations for subsequent actions in removing deficiencies on the terrain.</p> <p>In order for the system to be accessible to all clients responsible for flood protection for the City of Užice (display of WEB portals and SMS messages), the server application must operate according to the TCP / IP principle and in case of Internet protocol drop, backup communication with the server is done SMS.</p> <p>Messages received by TCP / IP or SMS are processed and stored in the MySQL database. Each unit in the field has a unique ID in the base. On the server side of the application, detailed analyzes of incoming data and alarms, which have arrived from remote locations, are performed. In the case of alarm messages, the server application sends electronic messages to the specified e-mail addresses, but also sends SMS to pre-assigned phone numbers. The server application is made so that users connect and receive certain data in real time via the WEB interface.</p>	1
Technical specification	<ul style="list-style-type: none"> - for collecting data from measuring stations and meteorological server - for parsing input data and entering the database - for alarming - for web access to the system - Protecting access to users and rights - User settings - Selection of measuring point monitoring - Table display for the selected interval - Graphical representation of data for selected interval - Display alarm thresholds and editing - Display of generated alarms - Display intervals: daily and monthly - Software for the workstation - Access to the server and generate, and record SMS alerts 	

DETAILED TECHNICAL SPECIFICATIONS AND STANDARDS

Responsibilities

The Contractor shall provide equipment and services for MDRRP for Early warning system with accompanying services. The Contractor is responsible for supplying all equipment and its installing. The Contractor is obliged to prepare establishment of the foundations required for the installation of the equipment.

All requirements described below are mandatory unless otherwise noted. If the Tenderer is not able to fulfil all the mandatory requirements, the bid will be not be evaluated.

The Contractor shall, inter alia,

- Establishment of the foundations required for the installations.
- Supply, install (if ordered) and commission the equipment specified in the Tender document.
- Arrange tests during the delivery (factory acceptance test, site acceptance test, operational test).
- Provide a warranty for the system components for at least 2 years after a successful completion of the operational test (the final acceptance).
- Update all software procured during the warranty period.
- Provide a guarantee that all system components being delivered will have a maintenance support for at least 10 years after the final acceptance.
- Provide on field maintenance after the warranty, for an additional 3 years period.
- Supply detailed operation and maintenance manuals in English and Serbian language.
- Provide user training, including operation and maintenance procedures.
- Provide the country of origin for all major components and materials.
- Provide solutions for the electric supply and telecommunications, which are appropriate for the infrastructure in the Serbia.

The Principal will be responsible for:

- Land ownership issues.
- Obtaining self-government units approvals as required.
- Selection of the installation sites.

Equipment, materials, specifications and standards

All equipment and materials shall be new, unused, and of the most recent models, and they must incorporate all recent improvements in design and materials.

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the equipment and materials to be furnished or tested, the provisions of the latest current edition or revision of the relevant standards or codes in effect shall apply, unless otherwise agreed. Other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

Manufacturing, delivery, and installation

The Contractor shall provide such packing of the equipment as is required to prevent any damage or deterioration of equipment during the delivery to the final destination. The Contractor shall provide the required foundations and preparations to be done before the assembly is installed (mounting arrangements etc.) as soon as possible. The Contractor shall also provide detailed instructions regarding the power supply requirements. These details can be included in manuals. All equipment shall be surge protected as required. The Contractor shall ensure the availability of spares and maintenance services for a period at least 10 years after the Final Acceptance.

Documentation

The Contractor shall submit full documentation, including user manuals and guidelines for operation and maintenance in English and Serbian, for all equipment supplied. The manuals shall be provided both as a hardcopy (2 copies) and on an appropriate electronic media.

Environmental

All materials and equipment supplied under these specifications shall be suitable for being delivered, stored and operated under continental conditions with extreme changes of temperature between winter and summer and between day and night. It is the Contractor's responsibility that the offered equipment / configuration be appropriate for climatic conditions in the Balkans, in particular:

Outdoor equipment:

- Temperature range: -40°C...+50°C
- Humidity range: 0...100%
- UV exposure: UVI range up to 10
- Maximum wind speed: 60 m/s

Indoor equipment:

- Temperature range: 5°C to 40°C
- Humidity range: 0...90% non-condensing

Maintenance and after sale service

The Contractor shall provide on field maintenance and remote support on all hardware and software items during the warranty period. The Contractor shall specify the frequency of preventive maintenance. The Contractor shall offer a help desk function, which can be contacted by phone and/or electronic means during office hours.

The Contractor shall provide on field maintenance and remote support on all hardware and software items after the warranty period for additional three-year period as a separate service.

Technical support

The Contractor shall be able to organize training in Serbian language at the user premises, where basic user training regarding the offered components will be held.

Acceptance Procedure

The Principal has the right to inspect the supplies on the Contractor's premises before delivery. The inspection does not reduce the Contractor's responsibilities.

The Principal shall conduct the acceptance inspection within 10 days of receiving the supplies.

DRAWINGS

These Tender Documents includes no drawings.

INSPECTIONS AND TESTS

The following inspections and tests shall be performed by Contractor in presence of Principal:

- visual inspection of the delivered equipment prior to and during installation,
- inspection of potential damages that occurred during transportation or installation, as well as the type of installed components and their functionality.

The Principal will form an expert committee whose job will be to physically inspect equipment delivered and installed under the concerned procurement. This committee will carry out on-site random inspection of equipment at the Contractor's warehouse and determine if the equipment to be delivered comply with description provided in the Bid and Contract document both in quality and quantity.

Following inspection of the equipment, a record of inspection will be made and signed by the members of the committee and the Contractor's representative. Once the inspection record is signed and the committee has approved quality and quantity of the equipment, Contractor will be required to provide schedule of delivery of equipment for each site.

The following documents shall be supplied together with each unit:

- User Manual (English and Serbian language)
- Service Manual (English and Serbian language)
- List of spare parts (complete of manufacturer's part numbers), if applicable.

A basic Site Acceptance Test (SAT) and Operational Test (OT) shall be arranged after the completion of installation. The purpose of the SAT is to check that all required functions have been installed as specified in the contract, and that the workings are good enough to start the operation test. The OT, which ensures that the system and all its components are working properly, is arranged after this.

The SAT and OT will be signed by the Principal representative and Contractors representative.

LOCATIONS OF STATIONS TO BE INSTALLED

Priority	Stations Locations - Coordinates	Automatic meteorological station (pluviometer, air temp., humidity and pressure, solar radiation, wind at 10m)	Automatic climatological station (pluviometer, air temp., humidity and pressure, wind at 2m)	Automatic precipitation station (pluviometer, air temperature and humidity)	Automatic hydrological station (radar level sensor)	Staff gauges
Priority 1	Čajetina X = 7396865.1 Y = 4845892.9			✓		
	Kadinjača X = 7399246.2 Y = 4863817.9		✓			
	Zlatiborska noć X = 7404035.7 Y = 4853114.4		✓			
	HS Stapari X = 7400238 Y = 4856362.2				✓	✓
	HS Volujac X = 7402180 Y = 4860956.2				✓	✓
Priority 2 (Optional)	Buar X = 7407210.6 Y = 4860956.7	✓				
	Jelova gora X = 7405052 Y = 4863206.5			✓		
	Skržuti X = 7408722.8 Y = 4845848			✓		
	Trnava X = 7412821.2 Y = 4868530.2		✓			
	HS Karan X = 7413123.7 Y = 4864258.7				✓	✓

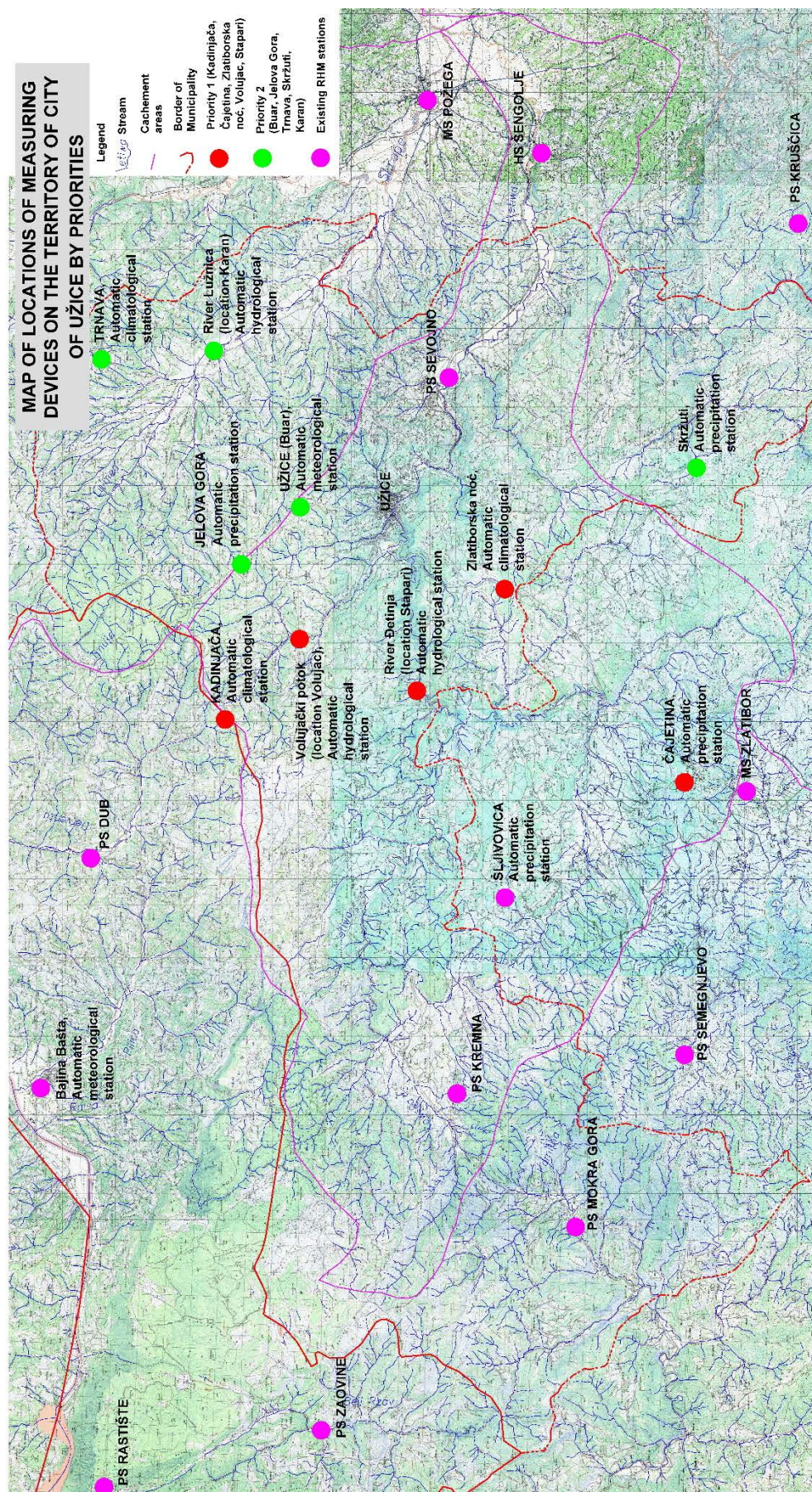


Figure: Locations of the stations to be installed

PRICE SCHEDULES

Equipment and Services for Priority 1

No.	POSITION	Unit of measure	pieces	Unit price (€)	Unit (€)
1	PREPARATION WORKS				
1.1	Preparation of technical documentation for construction works for installation of automatic climatological cells - automatic climatological station - Kadinjača, Zlatiborska noć, automatic precipitation station - Čajetina and radars, water meters for water level radar, Đetinja and Volujački potok, all according to technical conditions	piece	7		
	TOTAL 1.				
2	CONSTRUCTION WORKS				
2.1	Construction works for installation of automatic climatological station - automatic climatological station, Kadinjača, Zlatiborska noć (with mast 2,2m for wind measurement), all according to technical conditions	piece	2		
2.2	Construction works for installation of automatic precipitation station, Čajetina, according to the technical conditions	piece	1		
2.3	Construction works for installing radars for water level measurement, Đetinja and Volujački potok, all according to technical conditions	piece	2		
2.4	Construction works for installation of water meters for water level measurement, Đetinja and Volujački potok, all according to technical conditions	piece	2		
	TOTAL 2.				
3	PURCHASE, TRANSPORT AND INSTALLATION OF EQUIPMENT				
3.1	Purchase, transport and installation of automatic climatological station, Kadinjača, Zlatiborska noć, all according to the equipment specification and technical conditions	piece	2		

No.	POSITION	Unit of measure	pieces	Unit price (€)	Unit (€)
3.2	Purchase, transport and installation of automatic precipitation station, Čajetina, all according to the equipment specification and technical conditions	piece	1		
3.3	Purchase, transport and installation of radars for water level measurement, Đetinja and Volujački potok, all according to the equipment specification and technical conditions	piece	2		
3.4	Purchase, transport and installation of water meters for measuring the water level, Đetinja and Volujački potok, all according to the equipment specification and technical conditions	piece	2		
	TOTAL 3.				
4	SERVER AND SOFTWARE				
4.1	Server and Software Client, all to the specifications of the equipment and technical conditions	piece	1		
4.2	Creation of a software application for WEB display, all according to the equipment specification and technical conditions	piece	1		
	TOTAL 4.				
5	TRAINING COURSE				
5.1	Personnel training that will be in charge of system implementation	piece	1		
	TOTAL 5.				
	TOTAL 1+2+3+4+5				

Equipment and Services for Priority 2 (Optional)

No.	POSITION	Unit of measure	Pieces	Unit price (€)	Unit (€)
1	PREPARATION WORKS				
1.1	Preparation of technical documentation for construction works for installation of automatic meteorological station - Buar, automatic climatological stations - Trnava and automatic precipitation stations, Jelova gora and Skržuti, and radar and water meters for measuring the water level, the river Lužnica, all according to technical conditions	piece	6		
	TOTAL 1.				
2	CONSTRUCTION WORKS				
2.1	Construction works for installation of automatic meteorological station-Buar (with mast 10m for wind measurement), all according to technical conditions	piece	1		
2.2	Construction works for installation of automatic climatological station-Trnava (with mast 2,2m for wind measurement), all according to technical conditions	piece	1		
2.3	Construction works for installation of automatic precipitation station-Jelova Gora, Skržut according to technical conditions	piece	2		
2.4	Construction works for installing radar for water level measurement, Lužnica river, all according to technical conditions	piece	1		
2.5	Construction works for laying water level gauges, Lužnica river, all according to technical conditions	piece	1		
	TOTAL 2.				
3	PURCHASE, TRANSPORT AND INSTALLATION OF EQUIPMENT				
3.1	Purchase, transport and installation of automatic meteorological station-Buar, all according to equipment specification and technical conditions	piece	1		

No.	POSITION	Unit of measure	Pieces	Unit price (€)	Unit (€)
3.2	Purchase, transport and installation of automatic climatological station-Trnava, all according to the equipment specification and technical conditions	piece	1		
3.3	Purchase, transport and installation of precipitation station, automatic precipitation stations-Jelova gora, Skržuti, all according to the equipment specification and technical conditions	piece	2		
3.4	Purchase, transport and installation of water level radar, Lužnica river, all according to the equipment specification and technical conditions	piece	1		
3.5	Purchase, transport and installation of staff gauges, for Lužnica river, all according to the specification of equipment and technical conditions	piece	1		
	TOTAL 3.				
	TOTAL 1+2+3				