



**MADHYA BHOTEKOSHI
JALAVIDYUT COMPANY LIMITED**

**Middle Bhotekoshi
Hydroelectric Project
(102 MW)**

ADDENDUM NO 1

Lot 1: Civil and Hydro-Mechanical Works (EPC Contract)

Contract Identification No.: MBJCL/MBKHEP/068/69/EPC-1

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1 Introduction

It has become necessary to introduce a number of changes to the Bidding Documents and therefore this Addendum No. 1 has been issued.

The changes are both of contractual and technical natures and are detailed in the following sections.

2 Changes to the Volume 1 Invitation for Bids

The Submission Date has been changed and is now as stated below:

- On or before 12:00 hrs. on the 2nd July 2013

The bids shall be opened at 14:00 hrs. on the 2nd July 2013.

The existing texts of number 5 has been deleted in its entirety and replaced by the following texts:

“Interested Prequalified Bidders may obtain further information from the office of the Employer (address provided below) during office hours. A complete set of Bid Documents in English may be obtained free of cost from **8th April 2013** to **1st July 2013**, during office hours on submission of written application to the address given below.”

The place and other details of the bidding process remain as published in the Invitation for Submission of Bids and the Volume 1 Invitation for Bids in the Bidding Documents.

3 Changes to the Volume 1 Instructions to Bidders

Clause 14.7 is deleted in its entirety. Re-number Clause 14.8 and 14.9 as 14.7 and 14.8 respectively.

Clause 19.2 is deleted in its entirety. Replace with the following text:

“If a Bid Security is specified pursuant to ITB 19.1, the Bid security shall be an unconditional bank guarantee issued by an “A” class commercial bank of Nepal. The Bid Security shall be submitted using the Bid Security form included in the Bidding Forms. The form must include the complete name of the Bidder. The Bid Security shall be valid for minimum of 60 days beyond the original validity period of the Bid, or beyond any period of extension if requested under ITB 18.2.”

Clause 19.7 is deleted in its entirety. Replace with the following text:

“The Bid Security of a JV shall be in the name of the JV that submits the Bid.”

Clause 38.2 is deleted in its entirety. Replace with the following text:

“The Employer may invite the most favourable Tenderer to contract negotiations before finalising the award of the Contract. Technical issues and any price imbalances in the Tender shall be discussed and, if necessary, the corresponding adjustments to the submitted Tender made. An

invitation to participate in contract negotiations does not guarantee that the Contract shall be awarded to the invited Tenderer.”

Clause 39.1 is deleted in its entirety. Replace with the following text:

“Following successful completion of the bid evaluation and completion of any necessary tender negotiations, the Employer will award the contract to the bidder who has been determined to be substantially responsive to the requirements of the tender documents and has submitted the lowest evaluated tender price for the contract. Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that his Bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the “Letter of Acceptance”) shall specify the sum that the Employer will pay the Contractor in consideration of the execution and completion of the Works, plant and services (hereinafter and in the Conditions of Contract and Contract called “the Contract Price”).”

4 Changes to the Volume 1 Bid Data Sheets

The last date for submission of clarifications from the Bidders, in accordance with ITB 7.1, shall be changed from the 10th of May 2013 to the 10th of June 2013.

The last date for bid submission, in accordance with ITB 22.1, shall be changed from the 2nd of June 2013 to the 2nd of July 2013 at 12.00 hrs.

The opening of bids, in accordance with ITB 25.1, shall be changed from the 2nd of June 2013 to the 2nd of July 2013 at 14.00 hrs.

5 Changes to the Volume 1 Bid Price Schedule

The existing Bid Price Schedule in the Bidding Documents shall be deleted in its entirety and replaced by the new Bid Price Schedule enclosed in the Appendix 1 attached to this document.

The amount of Item 3, Provisional Sum on page 22 of this document is NRs. 70,000,000.00.

6 Changes to the Volume 1 Bidding Forms

The Bidders may offer either an inclined underground tunnel or a vertical tunnel and a horizontal tunnel from the Surge Tank to the Powerhouse, provided sufficient rock cover is maintained.

The Bidders shall clearly state which option they have offered in Volume 1, Bidding Forms, Form 1.10 Bidder’s Appreciation and Description of the Project, of their Bid.

7 Changes to the Volume 1 Particular Conditions of Contract

The following changes shall be made to the Particular Conditions of Contract:

Volume 1 Particular Conditions of Contract Sub-Clause 4.2

Delete the existing first paragraph in the Particular Conditions of Contract and replace them with the following new paragraph:

The Contractor shall provide security for his proper performance of the Contract to the Employer within 15 days after the receipt of the Letter of Acceptance. The Performance Security shall be in the form of a bank guarantee as stipulated by the Employer in the example in the Contract Forms. The amount of the Performance Security shall be 10% of the Contract Price as stated in the Letter of Acceptance and shall be denominated in the types and proportions of currencies in which the Contract Price is payable.

Volume 1 Particular Conditions of Contract Sub-Clause 4.19

Electricity, Water and Gas

Delete the GCC sub-Clause in its entirety and replace with the following:

The Contractor shall be responsible for the provision of all power, water and other services, the Contractor or any of his Subcontractors may require, for the performance of the Works.

The Contractor shall, at his own risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed, and shall make arrangements with the relevant authorities, organisations or companies for such supply and payment.

The Contractor shall not be entitled to any extension to any Time for Completion or any additional costs or other compensation whatsoever from the Employer in connection with the unavailability of sufficient supplies of electricity, water, gas and other services as may be required for the Works.

Volume 1 Particular Conditions of Contract Sub-Clause 8.7

Delete the existing paragraph in the Particular Conditions of Contract and replace them with the following new paragraphs:

The Delay Damages for the whole of the Works after the completion date (1215 days from the Contract signing date) is 0.1% of the Contract Price per day, in the currencies and proportions in which the Contract Price is payable.

If the Contractor fails to complete the parts of the Works for which Milestones (MS-1 to MS-60) are defined in the Bid Price Schedule, the Contractor shall also pay immediately, for each Milestone, to the Employer 0.05% of the amount quoted for that individual delayed Milestone in the Bid Price Schedule for each day delayed.

However, the aggregate maximum of the Delay Damages payable to the Employer from the Contractor under this Sub-Clause shall not exceed a maximum of 10% of the Contract Price.

Volume 1 Particular Conditions of Contract Sub-Clause 11.1

Add the following text to the end of the existing Sub-Clause 11.1 Completion of Outstanding Work and Remedying Defects

The Defects Notification Period shall not be extended to more than a total period of 1095 days.

Volume 1 Particular Conditions of Contract Sub-Clause 14.1

Add the following text to the end of the existing Sub-Clause 14.1 The Contract Price

"The Contractor shall familiarise himself with the rules and regulations with regard to income tax, customs, duties, other taxes as are applicable under the laws of Government of Nepal, and it will be necessary for him to follow the required procedures regardless of any assistance which may be provided by the Employer.

The Contractor shall pay all duties, taxes, fees and contributions levied in Nepal in Nepalese Rupees as directed by the relevant governmental department or office or any other authorised local statutory agency or body in accordance with the relevant rules and regulations.

- (A) The following special tax conditions shall apply to 'advance income tax' under this Contract:
- i. 'Advance Income Tax' at the rate of 1.5% of the amount due before the addition of VAT shall be deducted from each payment certificate under the Contract prior to payment to the Contractor. Each of such 'Advance Income Tax' deduction shall be deposited to the concerned tax authorities and copies of the deposit slip will be provided to the Contractor.
- (B) The following special tax conditions shall apply to Customs Duty (import tax) for Contractor's construction equipment and machinery under this Contract:
- i. Contractor's construction equipment and machinery, including their essential tools and spare parts, imported by the Contractor for the sole purpose of executing the Contract which will be exported out of Nepal upon completion of the Works shall be exempt from payment of customs duties levied in Nepal.
 - ii. In order to be eligible for this exemption the Contractor shall be required to deposit the amount or provide a bank guarantee to the Government of Nepal Customs Department, with a copy to the Employer, equal to the amount of applicable customs duties assessed in accordance with the prevailing laws, rules and regulations of Nepal for those imported items at the time of import. The amounts of the deposits so provided will be refunded, or the bank guarantees cancelled by the Nepal Customs Department, after the submission to the Nepal Customs Department of the re-export certificates with respect to these items issued by the Customs Department.
 - iii. If the Contractor disposes of any of these imported items in Nepal, he shall pay all customs duties and taxes applicable on such items under the laws and regulations of Nepal in force at that time.
 - iv. In the event that the value of the imported spare parts for each item of the construction equipment and machinery exceeds 10% of the CIF to port of entry value of the respective item of imported construction equipment and machinery, the Contractor shall be liable to pay all applicable taxes and duties on the import of these imported spare parts.

- (C) The following special conditions shall apply to Registration for Tax under this Contract:

- i. The Contractor and any foreign Subcontractors or Nominated Subcontractors employed on the Works, if not already registered in Nepal, shall be required to be registered with the concerned Inland Revenue Office for the purpose of the Contract. The Contractor shall complete this registration no later than 28 days after the date of signing the Contract Agreement. Certified copies of the Income Tax Registration Certificate(s) shall be submitted to the Employer within 14 days after registration.
 - ii. The Final Payment Certificate pursuant to Sub-Clause 14.13 shall be issued only after submission by the Contractor to the Employer of an Income Tax Clearance Certificate from the Government of Nepal for himself and any foreign Subcontractors or Nominated Subcontractors employed on the Works.
- (D) The following special tax conditions shall apply to Import Duty and Value Added Tax (VAT) for metal parts of the hydromechanical equipment imported for this Project under this Contract:
- i. VAT is not applicable on import of the metal parts of hydromechanical equipment required for the project under this contract.
 - ii. A special customs duty rate of 1% of the CIF to port of entry value shall be paid on metal parts of hydromechanical equipment imported by the Contractor for executing the Project under this Contract.
 - iii. The Contractor shall state separately in his Statements (payment invoices) the amounts paid at this special customs duty rate of 1% and these amounts shall be reimbursed by the Employer to the Contractor.

The conditions mentioned in section (D) above shall apply only to the Milestones MS-1 to MS-16 in the Volume 1 Bid Price Schedule.

Volume 1 Particular Conditions of Contract Sub-Clause 14.2

Add the following text to the end of the existing Sub-Clause 14.2 Advance Payment

“If a bank in Nepal issues the Advance Payment Security, it shall be a Class A commercial bank.

If a foreign bank issues the Advance Payment Security, it shall have an international “A” Rating determined by one of the following rating agencies: Moody’s, Standard and Poor’s, Fitch or DBRS (Dominion Bond Rating Service).”

Volume 1 Particular Conditions of Contract Sub-Clause 16.4

Payment on termination

Delete the GCC sub-paragraph (c) in its entirety.

Volume 1 Particular Conditions of Contract Sub-Clause 21.2

Delete this Sub-Clause in its entirety.

Volume 1 Particular Conditions of Contract Sub-Clause 21.3

Delete this Sub-Clause in its entirety.

8 Changes to the Volume 2 General Specifications

The existing table enclosed in Section 20 Interface Details in the Volume 2 General Specifications shall be deleted and replaced by the following three tables:

Civil Works and Hydromechanical Works (Lot 1) ↔ Mechanical and Electrical Equipment (Lot 2)

Location	Lot 2 Contractor	Lot 1 Contractor
<p>General</p>	<p>Responsible for designing, preparation of drawings, supply and installation of all mechanical and electrical equipment. The drawings shall show dimensions of all the equipment and shall indicate the necessary space required for operation and maintenance of the equipment.</p> <p>Responsible for showing the necessary space required for transportation of equipment into and out from the Site during the erection period and later during overhaul and maintenance of the equipment.</p> <p>Fire-fighting and fire detection, lighting and small power sockets in the Powerhouse shall be designed and provided by the Lot 2 Contractor.</p> <p>Lighting outside at the Powerhouse shall also be supplied by the Lot 2 Contractor.</p> <p>The elevator (lift) in the Powerhouse shall be designed, provided and installed by the Lot 2 Contractor.</p> <p>The main distribution boards in the Service Building at the Weir shall be designed and provided by the Lot 2 Contractor.</p> <p>Design data for all earthing and lightning protection shall be provided by the Lot 2 Contractor to the Lot 1 Contractor.</p> <p>The Draft Tube, Spiral Case and Inlet Valves shall be designed, supplied and installed by the Lot 2 Contractor.</p> <p>The Cooling water system shall be designed, supplied and installed by the Lot 2 Contractor.</p> <p>The Lot 2 Contractor shall supply the Lot 1 Contractor with all necessary equipment design loads.</p>	<p>Responsible for designing and constructing the civil works and designing, manufacturing and installing the hydromechanical equipment so that the project is fit for its intended purpose.</p> <p>The monitoring instrumentation for the Project shall be the responsibility of the Lot 1 Contractor, as shall the building finishes, heating, ventilation, air conditioning, lighting in outdoor areas at the Weir and lighting in the Adit, earthing and lightning protection, water supply and waste sanitary water systems for the Project.</p> <p>Responsible for providing sufficient space for the erection, operation and maintenance of mechanical and electrical equipment.</p> <p>Fire-fighting and fire detection, lighting and small power sockets in the Service Building at the Weir and at the Emergency Valve Chamber shall be designed and provided by the Lot 1 Contractor.</p> <p>All foundation slabs and platforms required for all equipment shall be installed by the Lot 1 Contractor.</p> <p>The Lot 1 Contractor shall take into consideration all equipment design loads in his design.</p>

Location	Lot 2 Contractor	Lot 1 Contractor
Temporary supply of water and power during implementation of the project (Construction water and power)	Responsible for cable extensions for electricity supply (construction power) for his own use from central distribution cabinets provided by the Lot 1 Contractor at the erection sites. Responsible for water pipes for water supply (construction water) for his own use from central distribution locations provided by the Lot 1 Contractor at the erection sites. Responsible for provision of working lighting for his erection work.	Responsible for providing and maintaining storage facilities, office facilities, personnel accommodation (for his own personnel and of a European standard for not more than 20 persons from Lot 2), the supply of electrical power and water at the Weir/Desander and Powerhouse for both the Lot 1 Contractor and Lot 2 Contractor during construction and erection of equipment.
Embedded Parts General	Responsible for providing the Lot 1 Contractor with details of all the embedded parts which the Lot 1 Contractor shall install. Responsible for supplying all embedded parts on time. The Lot 2 Contractor shall monitor and supervise the installation of all embedded parts.	Responsible for installing all embedded parts in the first stage concrete and second stage concrete.
Turbines General	Responsible for providing the Lot 1 Contractor with full details of all loads and forces imposed by the turbine equipment necessary for the design of the foundations. Responsible for the design and supply of the anchor bolts.	Responsible for the installation of the anchor bolts.
Turbines Distributor	The Lot 2 Contractor shall install his steel bearing plates in the concrete foundations and install the distributors prior to embedding. Information on forces from the distributor acting on the concrete foundation shall be provided by the Lot 2 Contractor to the Lot 1 Contractor. Responsible for the design and supply of the anchor bolts.	The Lot 1 Contractor shall construct the concrete foundations and install the anchor bolts in the concrete foundations according to drawings supplied by the Lot 2 Contractor. The Lot 1 Contractor shall install all anchor bolts in the concrete for the transfer of uplift forces due to buoyancy during concreting.
Turbines Inspection platform/grating	Girder for inspection platform/grating shall be supplied and installed by the Lot 2 Contractor.	Concrete foundation and bolts shall be supplied and installed by the Lot 1 Contractor.
Turbines Pit liner	Scaffolding and supports for installation and internal support prior to embedding shall be supplied by the Lot 2 Contractor.	The Lot 1 Contractor shall establish the concrete foundations and install bolts in the foundations for the erection of the liner according to drawings supplied by the Lot 2

Location	Lot 2 Contractor	Lot 1 Contractor
		Contractor. Embedding shall be performed in cooperation with the Lot 2 Contractor.
Powerhouse Crane and GIS Crane	<p>The Lot 2 Contractor is responsible for the design, supply and installation of the Powerhouse Crane and the GIS Crane.</p> <p>The Lot 2 Contractor shall supply the Lot 1 Contractor with the information of the loads from the Powerhouse Crane and the GIS Crane.</p>	<p>All foundation slabs and platforms required for all equipment shall be installed by the Lot 1 Contractor.</p> <p>The Lot 1 Contractor shall take into consideration all equipment design loads in his design.</p>
Cables, cable ducts, routing ways and conduits	<p>The Lot 2 Contractor shall prepare drawings showing the locations and dimensions for culverts, pipes, ducts, routing ways and conduits for cable pulling and cable installations.</p> <p>The Lot 2 Contractor shall make the fire protection sealing in the block-outs after the cable pulling is finished.</p> <p>The Lot 2 Contractor shall prepare drawings for all outdoor cable trenches (plans and sections). The Lot 2 Contractor shall place the cables and provide all cable protection material such as spacer blocks, plastic shields and warning tape, as well as clamps and fixing details.</p>	<p>The Lot 1 Contractor shall install culverts, pipes, ducts, routing ways and conduits for cables in accordance with drawings and information supplied by the Lot 2 Contractor.</p> <p>The Lot 1 Contractor shall embed the high voltage cables in lean concrete or an approved sand material according to the instructions of the Lot 2 Contractor.</p> <p>The Lot 1 Contractor shall excavate and backfill all outdoor cable trenches in accordance with the instructions of the Lot 2 Contractor.</p> <p>Where instructed by the Employer, the Lot 1 Contractor shall make the fire protection sealing in the block-outs and install protection materials under the supervision of the Lot 2 Contractor.</p>
Cable ladders	<p>The Lot 2 Contractor shall prepare drawings showing the locations and dimensions for block-outs for cable ladders in walls and floors.</p> <p>The Lot 2 Contractor is responsible for the supply and installation of cable ladders for his own cables. The ladders shall have sufficient space for the laying of all other contractors' cables, in accordance with their specifications.</p> <p>The Lot 2 Contractor is responsible for fire protection barriers in the block-outs for cable ladders in walls and floors.</p> <p>The Lot 2 Contractor shall deliver and install fixing bolts for racks.</p>	<p>For cable ladders to be installed along unlined rock walls, the Lot 1 Contractor shall deliver and install rock bolts as supports for the cable ladders.</p>

Location	Lot 2 Contractor	Lot 1 Contractor
Generators	<p>Generators including auxiliary equipment shall be supplied and installed by the Lot 2 Contractor.</p> <p>The Lot 2 Contractor shall supply drawings and descriptions of block-outs in concrete, foundation details and foundation fixing bolts.</p> <p>The Lot 2 Contractor shall deliver at site all foundation details and bolts intended for embedding in time for the Lot 1 Contractor to carry out his work.</p> <p>The Lot 2 Contractor shall specify all static and dynamic forces, and supply his information to the Lot 1 Contractor in time for the Lot 1 Contractor to be able to complete the foundation design.</p>	<p>The Lot 1 Contractor shall carry out embedding and grouting of foundation bolts and foundation details in accordance with instructions provided by the Lot 2 Contractor.</p>

The responsibility for the power supply to the hydromechanical equipment and lighting to be supplied and installed under this Contract is shown in the table below:

Power Supply for Hydromechanical Equipment and Lighting					
Lot 1 Contractor					
		Trafos	LVDB	LVDB to Consumer	Lighting
	Weir			X	X
	Adit with Valve Chamber			X	X
	Powerhouse				
Lot 2 Contractor					
		Trafos	LVDB	LVDB to Consumer	Lighting
	Weir	X	X		
	Adit with Valve Chamber	X	X		
	Powerhouse	X	X	X	X

Trafos: Transformers

LVDB: Low Voltage Distribution Board

The responsibility for the control systems for hydromechanical equipment to be supplied and installed under this Contract is shown in the table below:

Control of Hydromechanical Equipment					
Lot 1 Contractor					
		Local CB	Local Remote CB	RTU	Remote CB Powerhouse
	Weir	X	X		
	Adit with Valve Chamber	X	Not Applicable		
	Powerhouse	X	Not Applicable		
Lot 2 Contractor					
		Local CB	Local Remote CB	RTU	Remote CB Powerhouse
	Weir			X	X
	Adit with Valve Chamber			X	X
	Powerhouse			X	X

Local CB: Local Control Board

RTU: Remote Terminal Unit

9 Changes to the Powerhouse

The following changes have been made to the Turbine Floor, Generator Floor, GIS Floor and at the Draft Tubes of the Powerhouse:

1. Turbine Floor:
 - There is a different arrangement of columns underneath the Erection Bay;
2. Generator Floor:
 - There is also a different arrangement of columns underneath the Erection Bay;
 - There is also a different room arrangement on this floor,
 - The layout of the electrical equipment has been changed on this floor.
3. GIS Floor:
 - The equipment arrangement has been changed.

New updated drawings are enclosed as Appendix 2 of this Addendum No. 1.

10 Changes to Volume 3 - Civil Works Specifications

The following additional text shall be added to the Volume 3 – Civil Works Specifications, Chapter 13 Miscellaneous:

13.6 FENCING

13.6.1 Chain Link Mesh and Wires

The chain link mesh shall consist of minimum 2.5 mm diameter galvanised steel wire forming a mesh of not more than 50 x 50 mm. The straining wire shall be minimum 3 mm diameter galvanised steel wire. Four parallel straining wires shall be installed. Straining wires shall be fitted with a means of adjusting the tension of the wires.

All steelwork for fencing, including lacing bars, nuts and bolts, shall be hot-dipped galvanised.

13.6.2 Concrete Posts

The precast reinforced concrete posts and struts shall be manufactured from concrete Class 40/20 which complies with Volume 3, Civil Specification Section 2. Manufacture of posts shall not be commenced until a sample post has been made and approved. Straining posts for corner or angle positions shall be made to suit the angle in the fencing at each particular position.

Straining posts shall have struts and the posts shall be set in the ground to a depth of 0.75 metre and the hole shall then be filled to within 75 mm of ground level with Class 30/40 concrete. The cross section will be 150 mm x 150 mm. Struts will have a cross section of 120 mm x 120 mm with concrete base plates. Sides of straining posts and struts are to be parallel. Distance in between straining poles shall not exceed 30 m.

Straining posts will be equipped with turnbuckles for straining wire.

Intermediate posts shall be 150 mm x 150 mm and be set in the ground to a depth of not less than 50 cm. Distance between intermediate posts shall not exceed 3 m.

13.6.3 Steel Posts

The posts shall be of high grade steel tubular section not less than diameter 120 mm for straining posts and not less than diameter 80 mm for intermediate posts.

The posts shall be hot dip galvanised internally and externally. Before hot dip galvanising of the posts strong T-shaped flanges to receive fixing brackets shall be welded.

Straining posts shall have struts and the posts shall be set in the ground to a depth of 0.75 metre and the hole shall then be filled to within 75 mm of ground level with Class 30/40 concrete. Struts will have a diameter of not less than 80 mm with concrete base plates. Distance in between straining poles shall not exceed 30 m.

Intermediate posts shall be set in the ground to a depth of not less than 50 cm and the hole shall then be filled with concrete. Distance between intermediate posts shall not exceed 3 m.

Straining posts will be equipped with turnbuckles for straining wire.

13.6.4 Barbed Wire

The barbed wire shall be of hot dipped galvanised steel with two strands twisted and four pinned barbs. The strands of the barbed wire shall be of gauge three.

13.6.5 Gates

Gates shall be of steel frames with vertical steel poles and diagonal struts. The steel work shall comply with BS 449: Part 2 and shall be hot-dipped galvanised, and provided with a means of locking by lock.

Vehicle gates shall be rolling gates on rails and electrically driven. They shall also be provided with back stays, stops, bolts and locks. The gate control unit shall be installed inside the guardhouse. Pedestrian gates shall be hinged type and they shall be provided with hinges, back stays, stops, bolts and locks.

11 Addition to Volume 3 - Hydromechanical Specifications

The following addition shall be made to the Volume 3 - Hydromechanical Specifications:

A.1 Flushing System at Desander

A flushing system is required to clear the Desander free of sand. The flushing system basically consists of a high pressure submersible pump connected to a piping system which runs over the weir to the individual basins flushing channels. The pipes and fittings shall be hot dip galvanised. The final design is subjected to the approval of the Employer's representative.

The main dimensions and the arrangement of the flushing jet system are shown in the relevant drawings.

A.1.1 Basic Parameters

- Submersible pump	1
- Head	10 m
- Flow	0.5 m ³ /s
- Diameter of piping system	400 mm

A.1.2 Scope of Work

In addition to Employer's Requirements in the General Technical Specifications, this particular specification further specifies only the principal equipment and components to be supplied by the Contractor for the fulfilment of this section of this Contract, covering the supply and services necessary for one (1) set of flushing system and necessary electrical controls. The Contractor shall, however, provide complete supply, even if equipment or services to be done are not mentioned specifically in this specification.

- a) one (1) set of submersible pump including all necessary pipes and fittings;
- b) one (1) set of electrical control boards;
- c) 120 m of diameter 400 mm straight pipes
- d) six (6) pipe bends of diameter 400 mm;
- e) two (2) T-joints diameter 400 mm;
- f) three (3) manually operated gate valves (PN 6, DN 400);
- g) all other equipment, accessories, frames, fixed or movable parts, even if not mentioned above, required for trouble-free, safe and reliable operation, inspection and maintenance of flushing system, shall be furnished and included in the prices stated in the Tender, even if they are not listed or specified;

12 Changes to Volume 3 - Hydromechanical Specifications

The following changes shall be made to the Volume 3 - Hydromechanical Specifications:

A.2 Gantry Monorail Crane

The PTS Section 17 and the Technical Data Sheet 17 are changed from Monorail Hoist to Gantry Monorail Crane (new PTS Section 17 and new Data Sheet 17 are attached).

A.3 Tailrace Stoplog

The PTS Section 10 is amended as follows:

10.1.0 General

Old text:

The tailrace stoplog of the bulkhead type will be installed downstream of the turbine at the outlet to dewater the turbine water passage for inspection and maintenance.

The tailrace stoplog closes the opening 4.9 m span x 1.5 m height and consists of two (2) bulkhead sections having its skin plates, collar-beams, gratings, transverse diaphragms and two end supports.

New text:

The tailrace stoplog of the bulkhead type will be installed downstream of the turbine at the outlet to dewater the turbine water passage for inspection and maintenance.

The tailrace stoplog closes the opening 2.85 m span x 1.5 m height and consists of three (3) bulkhead sections having its skin plates, collar-beams, gratings, transverse diaphragms and two end supports.

Old text:

The automatic mechanically operated lifting beam will be included in the scope of supply of the tailrace stoplog monorail hoist.

New text:

The automatic mechanically operated lifting beam will be included in the scope of supply of the tailrace stoplog gantry monorail crane.

10.1.3 Basic Parameters

Old:

- | | |
|---|-------|
| - Number of tailrace stoplog sections per set | 2 |
| - Clear width of tailrace stoplog opening | 4.7 m |
| - Clear height of tailrace stoplog section | 1.5 m |

New:

- | | |
|---|---|
| - Number of tailrace stoplog sections per set | 3 |
|---|---|

- | | |
|--|--------|
| - Clear width of tailrace stoplog opening | 2.85 m |
| - Clear height of tailrace stoplog section | 1.5 m |

A.4 Gates at the Weir

Due to the allocation of a Service Building at the weir, the control systems and the electrical feeding for the radial gates and for the tunnel inlet gate are revised in PTS Sections 7 and 12 as follows:

In general the designation 'Central Control Room' shall be considered to be the Control Room at the Service Building at the weir.

The PTS Section 7 is amended as follows:

7.1.1 Limit of Supply

Old text:

With the low voltage power supply

Infeed terminals in the main switch box of the each control boards of the hydraulic hoist. The Lot 2 Contactor shall provide 220V DC supply to the control board. The Contractor shall be responsible generating the required 24V DC supply via a 220V DC/24V DC converters for the hydraulic control valves.

New text:

With the low voltage power supply

The Lot 2 Contractor will provide RTU and power distribution boards (LVDB) at the Service Building. All connections between the Service Building LVDB and the gates are within the scope of works of this contract.

7.4.5 Control Equipment

Old text:

The control equipment shall comprise as main components:

- local control board for gate, equipped with selector switches, position indicators, control and safety elements, wired up to the terminal block,
- reservoir level measuring equipment and water level measuring equipment behind the gate,
- provisions for remote-controlled lowering from the central control room.

New text:

The control equipment shall comprise as main components:

- local control board for gate, equipped with selector switches, position indicators, control and safety elements, wired up to the terminal block,
- reservoir level measuring equipment and water level measuring equipment behind the gate, with signal transmission and digital display at the Control Room of the Service Building
- remote control board (local-remote) for the gate at the Control Room of the Service Building, equipped with selector switches, position indicators, control and safety elements, wired up to the terminal block,
- signal transmission from local-remote CB to the RTU (supply of Lot 2) located in the Service Building.

Old text:

The scope of supply shall include the complete wiring as well as dry contacts for remote control from the Central Control Room (CCR) situated in the Bhotekoshi Power Plant. Power supply to the control equipment up to the clamping box of the control equipment shall be supplied by others.

New text:

The scope of supply shall include the complete wiring as well as dry contacts for remote control from the Control Room and the Lot 2 LV & RTU room at the Service Building. Power supply to the control equipment shall be part of this Contract. Power and control cables shall be installed in proper conductions.

The PTS Section 12 is amended as follows:

12.1.1 *Limit of Supply*

Old text:

With the low voltage power supply

Infeed terminals in the main switch box of the each control boards of the hydraulic hoist. The Lot 2 Contactor shall provide 220V DC supply to the control board. The Contractor shall be responsible generating the required 24V DC supply via a 220V DC/24V DC converters for the hydraulic control valves.

New text:

With the low voltage power supply

The Lot 2 Contractor will provide RTU and power distribution boards (LVDB) at the Service Building. All connections between the Service Building LVDB and the gates are within the scope of works of this contract.

12.2.0 *General*

Paragrah to be added:

The Contractor is responsible for supply and installation of all cables, boards and panels for signal and power transmission between the Lot 2 LV and RTU room at the Service Building and his equipment and installations.

12.2.1 Spillway and Under Sluice Radial Gate Components

Item to be added:

- p) Remote control board at the Control Room of the Service building with connection to the RTU (supplied by others) located in the Service Building.

12.4.7 Control Equipment

Old text:

The control equipment shall comprise as main components:

- local control board for each gate, equipped with selector switches, position indicators, control and safety elements, wired up to the terminal block;
- reservoir level measuring equipment;
- provisions for remote-controlled lowering from the central control room.

New text:

The control equipment shall comprise as main components:

- local control board for each gate, equipped with selector switches, position indicators, control and safety elements, wired up to the terminal block;
- signal transmission to the Service Building including remote control board at the Control Room of the Service Building and to the RTU of Lot 2 in the Service Building.
- reservoir water level measuring equipment and signal transmission to the Control Room and to the RTU of Lot 2 in the Service Building;

Old text:

The scope of supply shall include the complete wiring as well as dry contacts for remote control from the central control room.

New text:

The scope of supply shall include the complete wiring as well as dry contacts for remote control from the Control Room in the Service Building.

Old text:

Power supply to the control equipment up to the clamping box of the control equipment shall be supplied by others.

New text:

Power supply between the LV DB at the Service Building and the Contractor's equipment is in the scope of works of the Contractor.

A.5 Intake Trashrack Cleaning Machine

Due to the allocation of a Service Building at the weir, the electrical feeding for the intake trashrack cleaning machine is revised in PTS Section 13 as follows:

13.1.1 Limit of Supply

Old text:

With the low voltage power supply

Infeed terminals in the main switch box of the each control boards. The Lot 2 Contactor shall provide 220V DC supply to the each control board. The Contractor shall be responsible generating the required 24V DC supply via a 220V DC/24V DC converters for the hydraulic control valves.

New text:

With the low voltage power supply

The Lot 2 Contractor will provide RTU and power distribution boards (LVDB) at the Service Building. All connections between the Service Building LVDB and the equipment are within the scope of works of this contract.

13.4.12 Feeder Terminal Box

Old text:

The strainer and any cable clips used to retain the cable shall be free of sharp edges to prevent damage to the cable. The trailing cable shall be connected to the terminal box under this Contract. Others will provide the incoming power supply and the connection of this supply to the terminal box.

New text:

The strainer and any cable clips used to retain the cable shall be free of sharp edges to prevent damage to the cable. The trailing cable shall be connected to the terminal box under this Contract. The incoming power supply from the LV DC at the Service Building and the connection of this supply to the terminal box is within the scope of this Contract.

A.6 Gantry Cranes at the Weir

Due to the allocation of a Service Building at the weir, the electrical feeding for the Gantry Cranes at the weir are revised in PTS Sections 14 and 15 as follows:

Section Limit of Supply

Old text:

With the low voltage power supply

Infeed terminals in the main switch box of the each control boards of the crane. The Lot 2 Contractor shall provide 220V DC supply to the each control board. The Contractor shall be responsible generating the required 24V DC supply via a 220V DC/24V DC converters for the hydraulic control valves.

New text:

With the low voltage power supply

The Lot 2 Contractor will provide RTU and power distribution boards (LVDB) at the Service Building. All connections between the Service Building LVDB and the equipment are within the scope of works of this contract.

A.7 Bridge Crane in the Valve House

In PTS Section 16 the following is amended in view of the interface with Lot 2:

16.1.1 Limit of Supply

Old text:

With the low voltage power supply

Infeed terminals in the main switch box of the each control boards of the crane. The Lot 2 Contractor shall provide 220V DC supply to the each control board. The Contractor shall be responsible generating the required 24V DC supply via a 220V DC/24V DC converters for the hydraulic control valves.

New text:

With the low voltage power supply

The Contractor shall connect the power supply to his equipment to the LVDB (supplied by Lot 2) mounted inside the Valve Chamber.

A.8 Butterfly Valve Downstream of Surge Shaft

In PTS Section 9 the following is amended in view of the interface with Lot 2:

9.1.1 Limit of Supply

Old text:

With the low voltage power supply

Infeed terminals in the main switch box of the each control boards of the hydraulic hoist. The Lot 2 Contactor shall provide 220V DC supply to the each control board. The Contractor shall be responsible generating the required 24V DC supply via a 220V DC/24V DC converters for the hydraulic control valves.

New text:

With the low voltage power supply

The Contractor shall connect the power supply to his equipment to the LVDB (supplied by Lot 2) mounted inside the Valve Chamber.

9.4.9 Control Equipment

Old text:

The control equipment shall comprise as main components:

- local control board for valve, equipped with selector switches, position indicators, control and safety elements, wired up to the terminal block,
- reservoir level measuring equipment and water level measuring equipment behind the valve,
- provisions for remote-controlled lowering from the central control room.

New text:

The control equipment shall comprise as main components:

- local control board for valve, equipped with selector switches, position indicators, control and safety elements, wired up to the terminal block,
- provision for remote-control from the central control room at the powerhouse including position indicators. The signals shall be connected to the RTU (provided by Lot 2) inside the valve chamber.

Old text:

The local control board shall be installed in the hydraulic hoist rooms, one of which shall be located in the piers of the concrete structure. The electrical facilities of the board shall comprise the following:

- main switches and fuses,
- for each pump protected switchgear, relays and line switch, signal light "pump failure",
- push-buttons for command "open", "stop", "close", "emergency close",
- signal light for "highest" and "lowest" position,
- Key-operated selector switch for selecting "local" or "remote" control.

New text:

The local control board shall be installed in the valve chamber. The electrical facilities of the board shall comprise the following:

- main switches and fuses,
- for each pump protected switchgear, relays and line switch, signal light "pump failure",
- push-buttons for command "open", "stop", "close", "emergency close",
- signal light for "highest" and "lowest" position,
- Key-operated selector switch for selecting "local" or "remote" control.

13 Replacement of Performance Criteria – Volume 2

The existing Performance Criteria shall be replaced in its entirety by the following:

Performance Criteria

The Contractor shall fulfill the following Performance Criteria under this Contract:

- General:** All necessary civil works and hydromechanical equipment, including power supply and control boards, for this 3*34 MW (at 50.8 m³/sec discharge) project.
- River Gauging Station:** Water level gauging station 2 km upstream of weir with signal transmission to weir and powerhouse
- River Diversion Headworks:** Excavated tunnel length as progressed at the time of mobilization, to be taken over and excavation to be completed, invert concrete on full length, full lining works on 50m length, establishment of upstream portal with bulkhead (Stoplog), establishment of downstream portal with discharge canal to river, ventilation hole at plug area, concrete plug
- Cofferdams at Headworks:** Temporary cofferdams dimensioned for 1 in 20 years flood of the dry season passing through diversion tunnel, cofferdam freeboard 1.50 m minimum, structures floodable or removable for wet season river flow
- Service Building:** Service Building at the weir area hosting electrical rooms, battery room, store room, control room, kitchen and toilet. HVAC to establish suitable conditions for electrical equipment and suitable working conditions of staff. Lighting, small power, water supply, sewage and septic tank
- Weir:** Gated weir with 3 radial gates
Crane and bulkhead (Stoplog) storage facility
Minimum design flood discharge 1330 m³/sec (1 in 100 years flood)
Reduced safety requirements are acceptable for the flood discharge of 1900 m³/sec (1 in 500 years flood), freeboard ≥ 0.50 m
Maximum upstream flood water level at 1900 m³/sec discharge 1155.5 masl (discharge through weir radial gates and sluiceway radial gate)
Downstream concrete apron to include a suitable hydraulic jump

	Provision for measurable riparian minimum discharge
	Appropriate illumination of the area
Sluiceway:	Gated Sluiceway with 1 radial gate with flap; flap for water level control and discharge of floating debris, downstream apron as for weir
Intake:	Side water intake (named as the Intake), with coarse trashracks Clearance of intake sill above sluiceway approach invert: 5.4 m Full supply level elevation: 1153.40 m asl (Normal Operation Level) Design discharge 50.8 m ³ /sec Trash racking machine - automatic trash rack cleaner Appropriate illumination of the area
Desander:	Target particle size 0.2 mm at design flow 50.8 m ³ /sec; all larger particles shall be removed from the intake water by the Desander. Individual and joint operation of the desanding basins; individual and joint flushing of the desanding basins Appropriate illumination of the area
Forebay:	Minimum operation level at design flow 1153.09 m asl, fine trashrack
Pressure Conduit:	Underground circular pressure conduit Reinforced concrete road crossing (culvert)
Headrace Tunnels:	Design discharge 50.8 m ³ /sec, partially concrete lined, partially shotcrete lined, reinforced invert concrete with abrasion resistant concrete top layer on full length of tunnels
Existing Adit 1 Sakhuwa:	250 m long by 5.0 m wide by 5.0 m high (already built), to be taken over, maintained and plugged by the Lot 1 Contractor.
Adit 2 Jambu:	110 m long by 4.6 m wide by 5.0 m high, to be built, maintained and concrete plug with bulkhead gate by the Lot 1 Contractor.
Surge Tank:	Underground concrete lined cylindrical surge tank with steel lined throttle (orifice), with top cover/roofing
Valve Chamber:	Concrete lined to valve chamber, sufficient clearance for passage of valve chamber valve or gate. Chamber hosting emergency valve or gate and bridge crane with hoist. Lighting of valve chamber and access adit.

- Penstock:** Underground steel penstock with valve chamber and with connections to the turbines
- Powerhouse:** Powerhouse for 3 power generating units and all auxiliary systems and services (earthing, clean water, drinking water, sewerage system and sewage treatment system)
Automatic HVAC system to establish conditions suitable for all electrical equipment and for working of staff.
Supports and rails for one overhead travelling crane, crane capacity 100 tons.
Support and rails for one bridge crane at the GIS room.
Three draft tube gates and one gantry monorail crane.
Asphalt coated access, maneuvering and parking area
Distance of permanent structures at or above ground level minimum 25 m from Araniko Highway centre line, structures inside this distance to be adequately covered
- Tailrace Canal:** Concrete canal with road crossing (culvert)
Tailrace Sill Level 916.00 m asl
An opening shall be provided in the tailrace basin for a potential future downstream hydropower project. This opening shall be closed with concrete stoplogs in steel slots.
- Access Roads:** Headworks access road, construction adit access road at Sakhuwa, permanent access roads to valve chamber and surge tank
- Fencing, Security Wall, Guardhouses:** Perimeter fencing at the weir area. Perimeter fencing above the Powerhouse and security wall in front of the Powerhouse. Vehicular rolling gates electrically driven at the weir and the Powerhouse. Guardhouses with toilet, lighting and small power. Appropriate illumination of gate areas and wall area
- Buildings for diesel generators:** 500 kVA in Powerhouse
150 kVA at Weir
- Hydraulic Loss of Conveyance System:** Required minimum rated net head for turbines at 50.8 m³/sec discharge is 222 m
- Monitoring Installations:** According to international standards, water levels from river gauging station and headworks to be transmitted to powerhouse

14 Addition to Volume 3 - Hydromechanical Equipment - Technical Data Sheets

The following addition shall be made to the Volume 3 - Hydromechanical Equipment - Technical Data Sheets:

5: DESANDER (SETTLING BASINS) FLUSHING GATES AND ELECTRO HOISTS

Table of Contents

5. DESANDER (SETTLING BASINS) FLUSHING GATES AND ELECTRO HOISTS

5.1 Manufacturer

5.2 Main Data

5.2.1 Gate

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5.3.1 Electro Hoist

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5.4.1 Gate

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5.5 Weights

5.5.1 Weights

5.5.2 Heaviest and Largest Parts to be Transported to Site

DESANDER (SETTLING BASINS) FLUSHING GATES AND ELECTRO HOISTS

DESCRIPTION	UNIT	DATA
5.1 Manufacturer		
5.2 Main Data		
5.2.1 Gate Number of gates Number of hoists Size of gates - Clear width - Gate height - Construction height - Diameter of Main Wheels Design head Elevation of sill Elevation of lintel Thickness of skin plate Guaranteed leakage under any water level Operation speed of gates - Opening - Closing	Nos. Nos. mm mm mm mm m WC m asl m asl mm l/s/m cm/min cm/min	3
5.3 Informative Data		
5.3.1 Electro Hoist Manufacturer Type/Number Size (W/H/D) Motors - Type - Manufacturer - Rated power	- - mm - - - kW	

DESCRIPTION	UNIT	DATA
<ul style="list-style-type: none"> - Rated voltage - Rated current - Starting current - Relative duty factor (S) Maximum operating manpower force on hand wheel (if any)	V A A % N	
Rated output of electro hoist for closing Rated output of electro hoist for opening	kN kN	
5.3.3 Controls and Instruments		
Local control boards <ul style="list-style-type: none"> - Manufacturer - Type - Protection class 	IP	
- Material Position transducer <ul style="list-style-type: none"> - Manufacturer - Type - Transmission principle (no potentiometer) - Output signal (4-20 mA/bus) - 2 wire technique - Power supply - Protection class - Ambient temperature range - Humidity range Digital indicator <ul style="list-style-type: none"> - Manufacturer - Type - Front dimensions - Accuracy - No. of indicated figures - Type of indicated figures - Type of inputs 	Y/N V IP °C % RH mm %	

DESCRIPTION	UNIT	DATA
<ul style="list-style-type: none"> - Ambient temperature range Electrical indicator (Analogous) <ul style="list-style-type: none"> - Manufacturer - Type - Front dimensions - Accuracy 	°C mm %	
<ul style="list-style-type: none"> - Type of inputs - Ambient temperature range - Input signal (4-20 mA / bus) Limit switch <ul style="list-style-type: none"> - Manufacturer - Proximity type - Casing material - Protection class - Contact rating - Type of switch (SPDT/DPDT) - Snap action - Humidity range - Ambient temperature range - Casing material - Protection class - Contact rating - Type of switch (SPDT/DPDT) - Snap action - Ambient temperature range - Humidity range 	°C Y/N IP Y/N % RH °C IP Y/N °C % RH	
5.4 Materials		
5.4.1 Gate <ul style="list-style-type: none"> Gate leaves Gate main beams Wheels Wheel axles Type and material of gate seals 		

DESCRIPTION	UNIT	DATA
<p>5.4.2 Parts Embedded in Concrete</p> <p>Side guide frames Sill beams Sealing faces Track plates</p> <p>5.4.3 Electro Hoists</p> <p>Hoist actuator Actuator rod Hoist trunnion pin Hoist supporting beam Hoist trunnion Anchor bolts and nuts</p> <p>5.4.4 Submersible Pumps at Desander</p> <p>Type of pump Suction head (minimum) Delivery head (maximum) Rated flow Diameter of delivery pipe (hot dip galvanized) Number of gate valves Diameter of gate valves Pressure rating</p>	<p>m m m³/s m Nos DN PN</p>	
<p>5.4.4 Painting</p> <p>Material Dry thickness of paint Surface treatment Colour</p>	<p>µm</p>	
<p>5.5 Weights</p>		
<p>5.5.1 Weights</p> <p>Total weight of gates Total weight of embedded parts Total weight of electro hoists</p> <p>Total weight of supply</p>	<p>t t t t</p>	

DESCRIPTION	UNIT	DATA
<p>5.5.2 Heaviest and Largest Parts to be Transported to Site</p> <p>Heaviest part</p> <ul style="list-style-type: none"> - Name of part - Length - Width - Height - Weight 	<p></p> <p>mm</p> <p>mm</p> <p>mm</p> <p>t</p>	
<p>Largest part</p> <ul style="list-style-type: none"> - Name of part - Length - Width - Height - Weight 	<p></p> <p>mm</p> <p>mm</p> <p>mm</p> <p>t</p>	

15 Fencing at the Weir

The area of the Weir and Desander shall be fenced in with a wire mesh fence. A guard house with an entrance gate shall be included in the fence.

16 Perimeter Security Wall and Fence at the Powerhouse

A perimeter masonry security wall and fence shall be built around the perimeter of the Powerhouse.

An entrance gate, complete with a guard house, shall be built as the entrance into this wall.

A fence shall be erected around the mountain cut, which shall be connected to the security wall.

17 Service Building

A one-story Service Building, complete with equipment, shall be built at the Weir/Desander area. It shall include a control room, transformer room, battery room, kitchen, store and other rooms.

18 Changes to the Volume 4 Tender Drawings

Electronic AutoCAD copies of the updated Tender Drawings are enclosed in Appendix 3 enclosed with this Addendum No. 1.

Appendix 1

New Bid Price Schedule

Appendix 2

New Updated Drawings

Appendix 3

Electronic AutoCAD Copies of Drawings

Appendix 4

Electronic Copies of the Technical Data Sheets