# VOLUME 3

# TECHNICAL SPECIFICATIONS

**GENERAL REQUIREMENTS**

The Technical Specification is an integral part of the Tender Documentation /TD/ together with the provisions of the Contract, the detailed design drawings, building permissions and the other contract documents. The Specification specifies and further develops the requirements for the implementation of the construction works under the Contract.

Implementation of construction and assembly work must be consistent with all relevant execution of specific types of works legal and regulatory framework, technical rules and regulations and applicable standards following sequence and technology of the performance of different types of works in different parts of the site.

## Drawings, As-built Documentation and Operation and Maintenance Manuals

The contract Drawings are those listed in Volume 5, and those as shall be supplied under the Contract.

The As-built drawings and Operation and Maintenance Manuals shall be prepared in Macedonian languages.

The Contractor shall submit to the Supervisor, all the prepared documentation as well as all other guarantees and operation manuals for the installed equipment in three copies and in electronic format.

## Access to Site

The Contractor shall provide means of access to and on the site, for all personnel, materials and equipment.

For purposes of carrying out the Works, the Contractor shall limit his installations and operations to the defined working areas, as shown on the Drawings.

The Contractor if is necessary, shall submit for approval of the Supervisor and the relevant Authorities/Departments of the Republic of North Macedonia, details of his planned installations and operations at the sites defined on the Drawings as Contractor's working areas.

The Contracting Authority will provide free of charge a working area for the Contractor. The Contractor shall be responsible for the provision of suitable construction materials and for the construction of all-temporary offices, stores and workshops.

The Contractor shall provide a temporary fence to demarcate the working area and to provide a boundary during the construction period.

## Construction Generally

The following general requirements shall apply at each site:

1. The Contractor shall provide and maintain all temporary roads, foot-paths and structures, necessary for the purpose of the Contract. On completion of the works, the Contractor shall remove such structures and restore the ground to the satisfaction of the Supervisor.
2. The Contractor shall provide adequate lighting where work is being carried out and shall provide and install any additional lighting, which the Supervisor may require.
3. The Contractor shall be responsible for the location of suitable sources of materials for the execution of the works, except where otherwise specified, whether such sources are on the site or not and for obtaining all necessary permissions.
4. Materials available on the site shall be used for the execution of the works.
5. Structures, which are to remain intact, shall be properly located, adequately supported, protected and maintained. Services shall be similarly treated, unless a diversion is deemed necessary, in which case it shall be carried out in a manner that prevents inconvenience to the owner and ensures the continuity and safety of the services concerned.
6. The Contractor shall not pollute roads, lands and other places on the site.
7. The Contractor shall provide and maintain adequate communications around the site.
8. The Contractor shall provide, maintain and remove on completion of the works, fencing of the site and adequate security measures on access roads, but without prejudice to his obligations such as maintenance of free access for the Contracting Authority, the Beneficiary, the Supervisor and any other persons entitled to such access.
9. As may be required by the Authority concerned, the Contractor shall be responsible for locating and protecting existing pipes, cables and other items of existing services and for the avoidance of damage to existing pavements and buildings, whilst they continue to be in use. In the event of the Contractor damaging water, fuel, electricity or telephone services, whether these have been marked out or not, the Contractor shall immediately inform the Authority concerned, and advise the Supervisor.

The Contractor must keep a log at the construction site. This log must contain all changes and deviations from the detailed design. The construction log shall be signed and stamped by the Contractor and the Supervisor.

## Construction Program

In accordance with the Conditions of Contract, the Contractor shall submit to the Supervisor detailed programmes for the execution of the works, showing the order in which the various sections of the work are to be constructed, and in so shall take account of the restrictions andlimitations described in this Specification.

Detail planning of working programme shall be agreed with the representative of the Contracting Authority.

Once accepted by the Supervisor, the programmes shall be strictly followed, unless any alterations are found necessary during the construction and confirmed by the Supervisor.

The Contractor shall state and allow a reasonable margin of time for the contingencies.

## Submissions to the Supervisor

Wherever these Specifications require, the Contractor shall submit to the Supervisor proposals, details, calculations, information, materials, test reports, certificates, etc. The Supervisor will consider each submission and shall reply to the Contractor in accordance with the relevant provision of the Contract Conditions.

No operation shall be carried out without complete notice having been given to the Supervisor by the Contractor, sufficiently in advance of the time of the operation to enable the Supervisor to make such arrangements as he may deem necessary for its inspection and checking.

The approval of the Supervisor of any submission shall not relieve the Contractor from his responsibilities under the Contract.

## Setting Out

The Supervisor will indicate to the Contractor sufficient primary reference points close to or on the sites, for the use by the Contractor in setting out the works. The Contractor shall set out the whole of the works relative to these points.

The Contractor shall protect the above reference points and level bench marks, and in the event of damage shall survey and re-establish the points.

The Contractor shall set out the works in accordance with the Drawings supplied by the Supervisor, or as instructed by the Supervisor.

The Contractor shall verify all dimensions and levels shown on the Drawings and referred to in the documents forming of or issued under the Contract, on the site, and he will be held responsible for promptly pointing out errors in such dimensions and levels.

The existing reference benchmarks indicated by the Supervisor shall form the basis of measurement for all Construction works, unless otherwise requested in writing by the Contractor, or unless otherwise stated in the Contract Documents.

## Approval of sources, materials and plants

Materials incorporated must originate in a Member State of the European Union or a country covered by the Interreg - IPA CBC Programme 2021 – 2027. However, the goods to be purchased may originate from any country. Material that originates from sources, which are not approved by the Contracting Authority and the Supervisor, cannot be used for Works.

Approval of a source does not mean that all material in the source is approved. The Contractor has to ascertain by continuous control check measurements that only material which complies with the requirements specified in the various clauses of these specifications will be used for the Works.

## Weather Conditions

Without limiting his liabilities, the Contractor shall make suitable arrangements to protect the works and the temporary works, against the effects of the weather.

## Disposal of Materials

The Contractor shall not dispose of materials of any kind obtained from the site without the permission of the Supervisor. Debris shall be removed only to dumping areas approved by local authorities.

The Contractor must provide full compliance with the Rulebook on processing communal and other kinds of solid waste.

## Testing by the Contractor

The Contractor shall provide throughout the whole period of execution of the works, as requested by the Supervisor, all necessary tests for the control of the materials and workmanship, in accordance with this Specification. If necessary, the Contractor shall have such tests carried out by an independent organization, acceptable to the Supervisor.

## Safety on Site

Safety on site shall be a prime consideration of the Contractor who is to appoint a Safety Supervisor throughout the contract. This person is to provide the Supervisor with weekly reports on safety of all operations including regular inspection reports on all site equipment and the storage of hazardous materials.

The Contractor is to ensure that all persons working on the site are to have adequate personal protective clothing. He is also to provide the Supervision staff with helmets when visiting the site.

## Quality Assurance

The Contractor, his suppliers and other sub-contractors, shall comply with the Quality Standards set out in the Conditions of Contract, in all respects. Copies of the quality plan, records and other documentation, shall be submitted to the Supervisor, in respect to imported materials and before such materials arrive on the site.

## Liaison with CA

The Contractor shall keep in close contact with Contracting Authority Officials.

## Applicable standards

As a minimum the Macedonian standards and codes shall always be satisfied. Other internationally acknowledged standards and codes may be used only if:

* They are more or at least equally stringent compared to the respective Macedonian standards and codes or
* European technical approvals (with or without guidance).

The materials which are used must correspond to the requirements of the standardized documents asset in Macedonian standards and codes.

If the Contractor should wish to supply material or execute work to an alternative national standard or international specification, he shall give full details of his proposal in writing to the Supervisor.

## 1.17 Signs

The Contractor shall provide and maintain in good condition at least *one* project identification sign securely supported in a prominent location near to the access to the site. The signs shall be prepared strictly in accordance with the EU guidelines for Visibility.

* 1. **CONTROL OF WORKS**

The Contracting Authority will provide a consultant who will supervise construction with investment functions, according to Macedonian legislation and other legal acts in construction works. The Contracting Authority and / or Supervisor may at any time inspect the work, control technology performance and issue instructions to remove the defects, according to the specified technology and method of implementation. If found serious defects, errors and low quality performance, the Contracting Authority shall notify the Contractor that breached the contract and should stop to work. The Contractor shall always provide access to the construction site of the authorized representatives of the Contracting Authority and the Supervisor.

**2.1 Contractor's equipment**

The Contractor shall furnish equipment which will be efficient and appropriate to secure a satisfactory quality of work and a rate of progress which will insure the completion of the Works within the time stipulated in the Tender. If at any time such equipment appears to be inefficient, inappropriate or insufficient for securing the quality of work required or for the rate of progress, the Supervisor may be entitled to order the Contractor to increase the efficiency, change the character or hire additional equipment, and the Contractor shall conform to such order.

**2.2 Protection of existing structures and utilities**

The Contractor shall assume full responsibility for the protection of all buildings, structures and roads existing in the area of the construction site, public or private, whether or not they are shown on the drawings.

The Contractor has to pay special attention to avoid any damages on any protected areas.

Any damage resulting from the Contractor's operations shall be repaired at his expense.

**2.3 Safety and security on site**

Safety and security arrangement should be performed in accordance with Macedonian Construction Law

**2.4 Handling and storage of materials and plants**

All materials and plants to be incorporated in the work shall be handled and stored in a manner, which prevents injury of any kind whatsoever. Any materials or plants which, in the opinion of the Supervisor, have become too damaged to be fit for the use intended or specified shall be promptly removed from the site, and the Contractor shall receive no compensation for the damaged material or its removal.

**2.5 Clean-up work**

The Contractor shall clear way and remove from the site any wreckage, rubbish and temporary works, which are no longer required.

**2.6 Responsibility of the Contractor**

Approvals from the Supervisor do not relieve the Contractor from his obligations or responsibilities under the Contract.

**3. ADMINISTRATIVE SPEIFICATIONS.**

**3.1 Progress meetings**

The Contractor shall agree with the Supervisor and the Contracting Authority for dates for regular progress meetings. These meetings shall normally be held monthly, no later than 10 working days after the completion of each month.

**3.2 Quality assurance**

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of this contract. The system shall be in accordance with the details stated in the Contract. The Supervisor shall be entitled to audit any aspects of the system.

**4. IMPLEMENTATION OF THE WORKS**

**4.1 Materials**

The Contractor shall use only materials that conform to the technical requirements set forth in the clauses of this Technical Specification.

All Materials and Plant supplied to perform the Permanent Works under the contract shall be new products. Second-hand Materials and Plant will not be accepted.

The Tender drawings constitute the drawings issued for construction/ installation/ execution.

**4.2 Testing**

Reliable shall be only the type and amount of tests performed in conformity with the prescription of this Technical specification, except when this right is granted to the Contracting Authority.

The Contracting Authority may require additional tests when the results obtained are uncertain.

Beside the tests specified in this Specification, the Contracting Authority may require additional tests to establish possible hidden omissions and effects. Costs for these tests shall be entirely at the Contractor’s expense if such defects are confirmed.

**4.3 Inspection and measurement of works**

The Contracting Authority may at any time inspect the quality and measure the amount of works performed. If this cannot be done with the Contractor’s assistance, a deadline shall be fixed for hiring external specialists. In this case, the expenses shall be paid by the Contractor.

**5. PREPARATORY WORKS**

Before starting the works the Contractor has to perform some preparatory works at the site.

**5.1 Boards and signs**

The Contractor shall mount and maintain in good condition a board with the name of the project and the co-financing institutions written in a way /text and font size/ conforming to the requirements of the Contract and in compliance with EU visibility guidelines.

**5.2 Setting out the site**

The Contractor shall in co-operation with the Contracting Authority set out the total site to be used for construction.

**5.3 Temporary facilities**

The Contractor shall effects all expenditure for establishing, operation and removal of temporary facilities if such are needed for the good performance of the Contract. All needs for establishing such facility shall be duly justified.

**5.4 General supply facilities**

***Sanitary Arrangements***

The Contractor shall provide for and maintain temporary sanitary facilities on the site for the use of all persons connected with the Works. The Contractor shall keep the facilities in a clean and sanitary condition, and shall post notices and take such precautions as may be necessary to keep the site clean.

***Water supply***

The Contractor shall provide for and maintain an adequate supply of potable water for his use. The water supply shall be used for construction purposes and for consumption in the temporary facilities.

***Power supply***

All electrical power required by the Contractor shall be provided by him at his own expense. The Contractor prior to taking-over of the Works shall remove all temporary installations if it is not agreed upon that the Contracting Authority takes over the installations.

**6. ADDITIONAL SPECIFICATIONS**

All provisions and clauses from the Macedonian Construction Law and other codes that are valid obligate the Contractor.

SPECIFIC REQUIREMENTS

**LOCATION**

The subject location is located at KP 1493 KO GJAVATO, MUNICIPALITY BOGDANCI, namely at this location there is a facility that is in poor condition and at the request of the investor, the preparation of project documentation for the RECONSTRUCTION OF PART OF THE BUILDING OF THE CULTURE CENTER (PHASE 1) V. GJAVATO, the project is divided into 2 phases that separately develop the small and large facility, in this first phase the small facility is being developed.

**AREA**

The area of ​​KP 1493 is 1498 m2, of which 549 m2 belong to the existing facility.

**EARTHWORKS**

New projects are planned, first of all, works for the rehabilitation, dismantling and demolition of the existing stairs so that a ramp for the disabled can be installed in the same place on the first part to the first landing, while a mechanical ramp for the disabled will be installed from the landing to the entrance of the small building.

The ground floor of the small part of the building, the floor level of the large hall and the floor level of the parterre, i.e. the access from the outside, are at three different heights, so that the largest difference between which needs to be overcome from the parterre to the interior of the small building is 90cm. The need for a ramp is inevitable, which in order to meet the slope standards must be designed so that it only reaches the landing that is at an elevation equal to the elevation of the large hall. A mechanical ramp will be installed from that landing to the upper entrance to the small building. In addition to the ramp, stairs are also planned that reach two landings with different heights, one to the large hall +0.60m and from here another set of stairs to the higher landing for the entrance to the small building at an elevation of +0.90cm.

**PROGRAM**

The new program envisages that the small facility will receive a new function so that it will be repurposed as a center for tourists and cyclists and the rooms located there will be given the function of an information center for visitors, a room for presentation, rest and preparation of cyclists, a kitchen, toilets and an entrance area, i.e. compared to the previous purpose of the rooms, the repurposing of them is accordingly given in the table below:

* The existing toilets remain in the same function, with a washbasin with wardrobes added to the anteroom, while one of the three cabins is a toilet, one is a shower cabin and one is a toilet room for people with disabilities.
* The women's cloakroom is being converted into a room as an information center for visitors.
* The men's cloakroom is being converted into a presentation room.
* The larger office is being converted into a room for cyclists to rest and prepare.
* A smaller office is being converted into a kitchenette - catering corner.
* The entrance corridor remains in function as an entrance corridor.

The new program will allow for a contribution to the attractiveness of the facility as well as attendance, will improve the overall appearance of the village fabric and will be a center that is needed to develop tourism and recreation in the area.

**INTERIOR**

The interior of the facility, i.e. the interior, is being reconstructed by removing all existing wall, floor and ceiling finishes along with the tiled roof structure.

A new screed is being installed and new granite tiles are being applied, the walls are being painted, the ceilings are being made of plasterboard. The toilets are being modified to include one shower cabin and one cabin for disabled people. The door from the toilets to the large hall remains in place so that in the future there will be communication between these two spaces.

**FLOORS**

The floors in PHASE 1 of the small facility are being treated so that after removing the existing ceramic tiles and repairing the existing cement screed, PE foil is being installed, a new reinforced cement screed with a d=7cm and new granite tiles on glue. (both on the terrace and the landing with the stairs). In the sanitary facilities and in the area near the kitchen, waterproofing is being applied before the granite tiles are being glued.

**WALLS AND CEILINGS**

Repair of damaged areas on the walls is carried out by removing existing plaster to a healthy base, cleaning and dusting the wall surface, applying an appropriate primer, plastering and smoothing until a healthy flat surface is obtained, ready for painting and finally painting with polycolor - two coats. The ceilings in the small building, i.e. in phase 1, are treated by installing a new wooden substructure on the existing roof structure and installing a ceiling system on a two-row substructure attached to a metal substructure, covering with gypsum cardboard panels.

**FACADE**

Thermal insulation contact facade of the entire building with the following composition:

- Substrate with deep-acting effect, wild glue, thermal insulation board expanded polystyrene EPS 10cm, 20kg/m2, complete with plastic dowels, fiberglass mesh, white glue, base coat, acrylic plaster

- painting in tone according to the investor's wishes.

Production of a base with extruded polystyrene HPS 10cm.

**ROOFING WORKS**

In phase 1, a small building is covered with a formwork of boards, tar paper, wooden battens in two directions and covered with a steel plastic sheet over the existing rafters. Mineral wool d=20cm in rolls coated on both sides with foil is placed over the ceiling.

The roof structure is renovated with the necessary elements and insulation and a new roof covering - sheet metal is applied.

Various works in the building will be foreseen such as the installation of new vertical and horizontal gutters made of flat plastic sheet metal 14x14 and 10x10, sheet metal cladding wherever necessary, installation of ridges and snow guards, installation of eaves made of flat plastic sheet metal and installation of a metal fence as mentioned above in the description

**The following electrical installations are planned:**

* Connection to an existing switchboard;
* Electrical installations for lighting in the premises;
* Electrical installations for sockets in the premises;
* Installation for panic lights in the building;
* Installation for fire detection and alarm;
* Telephone/computer installation in the building;
* Protection against touch voltage by routing the 3rd and 5th conductors;
* Testing of the entire installation and control during the first commissioning.

**Electrical power connection**

The power supply to part of the premises will be carried out by replacing the switchboard that currently exists.

It will be replaced with a new one in plastic design with a FID switch and automatic fuses.

**Electrical installations for sockets**

A sufficient number of sockets have been installed in all premises according to the project program.

All sockets are placed at a height of 1.2m from the finished floor,

the installation conductors for sockets are type 2 PP -Y -3x2.5mm for

single-phase sockets and 2 PP-Y-5x2.5mm for three-phase sockets.

**Installation for fire detection and alarm**

In the building we have installed a system for early detection and fire alarm i.e. Fire control panel which is intended for the entire building and is located right in front of the entrance door, to the left of RT-2.

A fire control panel, combined detectors and optical callers are used.

The combined detectors are placed in each room of the auxiliary building.

There is also the possibility for the fire control panel itself to be connected to the nearest fire brigade for rapid intervention if necessary.

**Installation for RTV and T/C sockets**

An installation for RTV and T/C sockets has been designed in the building, which would allow for smooth communication with all institutions and information from them.

**Video surveillance installation**

A video surveillance installation has been designed in the hallway of the building, which consists of a 32-channel video recorder, external and internal cameras, with which the system would allow smooth surveillance of the ground floor arrangement.

**Panic light installation**

An installation for LED panic - necessary lighting has been designed.

Panic LED lights with built-in Ni/Cd batteries are planned, which in the event of a power outage provide necessary lighting, at the entrance from the ground floor and above the entrance door from each access.

The panic light installation is carried out with conductors 2 PP – Y-3x1.5mm placed in a flexible hose in a hollow ceramic block.

**Fire detection and alarm installation**

In the building we have installed a system for early detection and alarm of fire, i.e. Fire control panel, which is intended for the entire building and is located right in front of the entrance door, to the left of RT-2.

A fire alarm panel, combined detectors and optical callers are used. The combined detectors are placed in each room of the auxiliary building. There is also the possibility that the fire alarm panel itself can be connected to the nearest fire brigade for rapid intervention if necessary.

Installation for RTV and T/C connections An installation for RTV and T/C connections has been designed in the building, which would allow for uninterrupted communication with all institutions and information from them.

**WATER SYSTEM SECTION**

In the building, the water supply and sewage system have been solved by providing new PE water supply and sewage pipes that connect to the existing water supply and sewage system. Water supply and drainage are planned for the new toilets and shower cabins, as well as the new kitchenette.