Terms of

Reference for

Preparation of Detailed Design for the Construction of Access Road, Railway Line and Relevant Infrastructure for the Anaklia Deep Sea Port

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PROJECT BACKGROUND

THE ANAKLIA DEEP SEA PORT

The Anaklia Deep Sea Port will be developed as a greenfield port located on the Black Sea at a focal point on the historic Silk Road between China and Europe. As part of the program and to accelerate the economic development of Anaklia Port as a regional logistics hub, ADC includes a Free Industrial Zone (FIZ) Master Plan concept in its proposal to the MoESD which would grant rights to develop roughly 650 Hectares (Ha) of land without tax burden. The project was granted by way of a public tender. The winner of the process was chosen on account of their Technical, Financial, and Legal capabilities, as well as their port concept and the Investment Agreement offered. ADC signed the Investment Agreement on the 3rd of October 2016.

INVESTMENT OBLIGATIONS INCLUDED IN THE INVESTMENT AGREEMENT

Road Infrastructure

The Investment Agreement stipulates that the Government of Georgia is responsible for the investments in road infrastructure. The following general roadway requirements are set for Phase 1 of operations:

- 2 (two) total lanes (one in each direction) with carriageway of 11 (eleven) meters in width;
- the roadway shall be designed for high use by heavy goods vehicles (Design speed 80km/h);
- design and construction to be in accordance with all applicable construction norms and technical standards; and

- Resettlement action Plan have to be prepared for around 30 m wide corridor along the roadway to permit future widening to cater for increased use during later Phases of the Project.

Rail Infrastructure

The Investment Agreement stipulates that the Government of Georgia is responsible for the investments in rail infrastructure. The following general rail infrastructure requirements are set for Phase 1 ofoperations:

- At least 1 (one) electrified rail line, and other supportive railway infrastructure subject to further agreement between parties and upon elaboration of comprehensive detailed study and/or detail design, considering the railway operational and/or infrastructural conditions and/or restrictions;
- Parties hereby agree that the details of train operation and provision of freight wagons on the rail spur shall be subject for further discussions and agreement between the Parties, considering the railway operational and/or infrastructural conditions and/or restrictions;
- The railway shall be designed to permit high use by heavy industrial-use freight and rolling stock capable of carrying 20-foot and 40-foot containers and oversized loads at speeds up to 80Km/h, subject to the railway infrastructural restrictions;
- RAP and project buffer have to be prepared so that, there was an availability of land along the length of the line to allow for future installation of an additional electrified rail line of a specification compatible with the first line noted above; and
- Design and construction to be in accordance with all applicable construction norms and technical standards.

ONGOING AND COMPLETED STUDIES

In February 2017, Roads Department of Georgia signed the contract with consulting company for the Preparation of Pre-Feasibility Study and Feasibility Study for Samtredia-Zugdidi Bypass Road (including access road to Anaklia Deep Sea Port). Study is financed by World Bank. Pre-feasibility study defined preferred alignment for the construction of Road and Railway between Tsatskhvi and Anaklia (Access to the Anaklia Deep Sea Port).. (Above Mentioned Documents will be provided to the consultant after signing the contract)

OBJECTIVES

The Government of Georgia through its agency, Roads Department of Georgia thus requires consultancy services necessary for the Preparation of Detailed Design for the Part 1 - Construction of Access Road and Part 2 - Railway Line and relevant infrastructure for the Anaklia Deep Sea Port (approximate length is 17-18 km) based on the pre-feasibility study results. Supplier (hereinafter referred to as the Consultant) is responsible to analyze pre-feasibility study results and if necessary present to RD improvements for the alignment proposed by Pre-Feasibility Study.

The detailed description of the required services is given below.

PART 1 - PREPARATION OF DETAILED DESIGN FOR THE CONSTRUCTION OF ACCESS ROAD TO THE ANAKLIA DEEP SEA PORT

Lot 1 requirements for Road Infrastructure Part

GENERAL

The Consultant shall prepare all relevant documents necessary for the approval, tendering and construction of the works. These documents include, but are not necessarily limited to, detailed drawings, specifications, bill of quantities, cost estimates and traffic management plans.

The Consultant shall carry out the design in accordance with International and Georgian design standards and norms. Prior to commencing the detailed design, the Consultant shall establish a set of design criteria and standards to be used and agreed on with the Procuring organization (hereinafter referred to as the Client).

All aspects of the design shall be described in Design Reports. The reports shall include design criteria, assumptions, methods, models, codes and standards used for the design of each element. Calculations summaries are to be included in the annexes along with all data collected.

The Consultant shall be fully responsible for the accuracy and completeness of the data, designs and documents and shall provide clarifications, as required, during civil works tendering.

DATA COLLECTION

The Consultant shall conduct all topographical, geological, geotechnical, hydrological and other surveys that will be required to carry out the detailed design of this highway segment.

The Consultant shall prepare a plan for the collection of data, including all geological, geotechnical investigations and tests. The schedule shall detail the number of locations and the timing of all investigations. This plan should be included in the Inception Design Report. The Consultant shall revise the plan should the Client consider the scope of the investigations inadequate.

Data collection should pay particular attention to identifying any other potential risks and their activity to the timing and quality of the project design.

The Consultant shall provide a minimum of seven days advance written notice to the Client whenever carrying out any tests or investigations. In particular, any programme for borehole drilling should show the number, type, location and projected date of boreholes on each location.

All data collected, including topographical models and material test results, shall be included as annexes to the Design Reports.

Field survey investigations and tests would include, but not be limited to, the ones described below. These requirements constitute the minimum level of data collection to be carried out by the Consultant but may not be taken as limiting the Consultant's obligations.

Topography

The Consultant shall undertake a topographical survey suitable and appropriate for this commission. The survey shall be in such detail as to allow for a full and final design of the project and to allow contractors to set out the works. This includes the establishment of a network of permanent bench marks. Topographic survey of terrain required for preparation of the design shall be developed in absolute UTM coordinate system and must be linked with GEO-CORS bases of National Agency of Public Register of Georgia.

The Consultant will make sure that sufficient data is available regarding topography and that the entire ground is triangulated and contoured. The interval selected must help calculate quantities to the desired accuracy and shall be justified by the Consultant. Full cross-sections extending to an appropriate distance either side of the road centreline and elevations along the centreline of the existing road at appropriate intervals shall be taken. The interval selected shall be justified by the Consultant. A three-dimensional digital terrain model shall be prepared from the survey data.

As part of the Design Report, the Consultant shall submit a topographical survey report to include field note-books, benchmarks locations, setting-out coordinates etc. All survey information should be submitted in digital form using software agreed by the Client.

Geotechnical Investigations

The Consultant shall undertake comprehensive geotechnical and material investigations along the alignment as required for good and cost-effective design. The scope and details of these investigations and testing shall be set out in the plan laying out the data collection methodology, to be submitted with the Interim Report, and shall be agreed upon with the Client.

This will include investigating and evaluating the properties of the existing original ground below the embankment and water table. Common material properties shall be determined (e.g., CBR, Atterberg limits, peak and residual strength and compressibility, moisture-density relationship, natural moisture content and in-situ density, grading, RMR and so on) by carrying out appropriate laboratory and in-situ tests as per AASHTO/BS standards.

These investigations should consist of drilled boreholes and trial pits through existing ground at sufficient intervals along the preferred alignment as it will be required and necessary based on the geological investigations and accordingly to standards and norms. Each investigation is to be taken down to an appropriate depth sufficient for the design of the relevant earthworks and structures.

The Consultant shall undertake additional subsoil investigations at bridges and culverts which shall consist of boreholes and trial pits to provide all necessary and required geotechnical data for foundation design accordingly norms and standards for design of bridges.

The Consultant must plan for enough boreholes and trial pits (plan to be described in the report laying out the data collection methodology) to provide accurate information relative to the design of all structures.

The Consultant may consider to separate the ground investigation program in two phases consisting of:

- first phase for investigating the ground profile in the locations for earthworks (cut slopes, embankments) and structures (bridges), and
- Second phase for investigating the final locations of bridge piers and artificial structures following consultation with the Client.

The investigations, logging and testing shall be carried out in accordance with recognised good international practice using relevant codes and Standards, such as BS1377, BS 5930+A2 (2010) and EC 7 which shall be subject to the approval by the Client before adoption.

The Consultant shall also assess the geo-morphological and hydro-geological characteristics along the road, identify potential critical areas in terms of soil erosion, slope failure, landslides, other geo-hazards and seismic risks, and determine the requirements and costs of appropriate slope stabilization and erosion protection measures.

The Consultant shall prepare a factual and an interpretive report on the geotechnical investigations and testing. These reports shall be submitted separately to the Client in addition to being appended to the Interim Design Report.

Quarries and borrow pits

The Consultant shall investigate existing quarries and borrow pits and search for suitable materials for the construction of embankments, replacement of unsuitable subgrade soil, sub-base, base, concrete and asphalt. The Consultant shall also thoroughly investigate potential unexploited sources of materials near the roads. The objective of the materials survey will be to minimize haulage distances from quarries and borrow pits to the construction sites.

The Consultant will assess the local capacity to produce adequate material for the different phases of the construction and based on this assessment make recommendations to use existing quarries and/ or to open new quarries. A quarry and borrow pit location plan shall be provided by the Consultant.

Hydrology

The Consultant shall examine scour, erosion, drainage and flood characteristics along the road and ensure that the survey covers all aspects related to design, environmental and hydrological matters.

DETAILED DESIGN

The detailed design for which will include, but not necessarily be limited to:

Geometric design

The deliverables will include horizontal plan at a scale of 1:1000, and longitudinal profile drawings at scales 1:1000h/1:100v showing existing roads, tracks, rivers, ground levels/vertical alignment of the existing lane, formation and design levels, gradient, radius, etc. and 1:500/1:50 for the interchanges. The geometric elements of the sections will be based on computerized techniques. The geometric design elements for horizontal and vertical alignment will take into consideration the existing road. Basic design rules like optimum correspondence between the horizontal and vertical alignment, clearance for drainage structures etc. will be considered as well as hydrological study findings, geotechnical and environmental constraints and structural aspects. The design will incorporate safety features in the geometric design, road markings, crash barriers, guardrails, etc. Cross-sections will be drawn at 20 metre intervals at the scale of 1:100. The drawings will show cut and fills, side drains, pavement, camber, super elevation, erosion protection etc. Interchanges, temporary connections to the existing road network will also be designed in consultation with the RD. Particular attention will be required in optimising geometric design in landslide areas with cost effective measures.

Pavement design

For the designs of pavement the Consultant shall consider two alternatives: i) asphalt pavement and ii) concrete pavement. A 20-year performance period will be taken into account with proper consideration to local conditions (e.g. floods, high rainfall, winter condition, etc.) in addition to RD requirements and appropriate life cycle analysis. If insufficient guidance is available, the Consultant shall follow the guidelines given in the latest series of American Association of States Highway and Transportation Officials (AASHTO) Guides or other internationally practiced standards for design of road pavement structures in similar environment.

Drainage and culverts

The Consultant shall ensure adequate surface and sub-surface drainage to the pavements considering local precipitation and water table levels. Drainage includes both cross and longitudinal drainage facilities to ensure safe and fast disposal of free draining water from the pavement. In built up areas special consideration should be made regarding covered/open channels appropriately designed for draining out both surface and sub-surface water. The drainage design should include detail plan showing both vertical and horizontal placements of drains, conduits, out falls, turn outs, specialized drainage layers if any and all other provisions for all sections with special attention to road intersections and built up areas. AASHTO and other internationally practiced standards for drainage design should be consulted where necessary.

Bridge and structures detailed design

When designing bridges, culverts and structures, the Consultant will suggest adopting loading and design standards in accordance with current Georgian standards and generally accepted international practices. The Consultant will undertake detailed design of all bridges, culverts and structures and prepare detail drawings. Consultant shall provide Comparison of Bridge Types by Superstructure by considering factors including economy, availability of the local construction materials and construction methods. The Detail Design for the Bridges will be submitted together with relevant engineering calculations, considering the foundations and peers, as well as for whole bridge.

Road equipment

Traffic signs, road markings, culverts, pedestrian and animal crossings, road equipment and safety devices shall be fully designed and shown on the drawings.

Road Lighting

Consultant shall prepare detailed engineering design for the lightening of entire road section. All road lighting schemes shall comply fully with the requirements of applicable standards in Georgia generally accepted international practices. All road lighting schemes shall be designed for the use of specifically manufactured road lighting luminaires, which provide for photo metrically controlled light output distribution, satisfying the need to illuminate an area of roadway to the level as required by the standards and restrict glare discomfort to motorists. All road lighting design drawings shall contain but not limited to the following information:

a) The location of all lighting columns together with details of the chainage, height, length of outreach, lamp wattage, circuit number and phase. The luminaire type shall be specified if not semi-cut-off type photometric distribution.
b) All cable routes with circuit numbers shown in the various sections of the cable route.
c) The location of all cable pits.
d) The location of the Lighting Supply and Control Cabinet.
e) A table showing circuit numbers, the general location of the lights on each circuit, cable and circuit breaker sizes and numbers, consumers mains cable and circuit breaker sizes.
f) A legend detailing symbols used on the drawing.
g) Notes detailing:
    a. The type of discharge lamps to be used.
    b. Luminaire photometric type on which the design is based, e.g. semi cutoff or cut-off.
    c. Cable type.
    d. Conduit size and type.
    e. distance of light columns from traffic lanes
h) Any other information that may be necessary because of unusual or non-standard situations or conditions.

Project designing includes field surveying activities, processing and design of field data. To this end, the supplier is obliged to provide the design documentation;

• Description of the project section of the road;

• Line lighting network composition;

• Electroductive part;

• Transformer substations

• The contour report of the Complete Transformer Substation

• Wiring cables;

• Selection of cable;

• lighting network;

• Basic parameters of lighting pants and lights;

• Placement of metering nodes;

• Transportation of transformer substations;

• Placement of outdoor lighting poles;

• Provide required design services for works under the technical regulations of Georgia, as well as the terms of the contract;

• The project of the project organization should include a work plan schedule, which will determine the approximate terms of construction;

• Preliminary arrangements for projects with the organizations and persons concerned with the purpose of carrying out investigative and project activities in case of necessity;

• Projects should be taken into account in the field of motor roads achieved and accumulated international experience based on the specific conditions of Georgia using new technologies and equipment;

The design documentation should include the construction of the electric power line, the electrical load and cable crossing report, the grounding of the poles. Electrotechnical equipment should be selected according to the relevant standards and technical standards;

• The adjacent network should be checked on short coating and load power. In case of necessity, the principles of arrangement of relay protection should be reviewed and the report of the installations is required;

• A new set of transformer substation should be selected. Arrangement of the transformer substation plant, balance contour, balancing electricity accounting unit;

• The installation should be considered for installation of visible disclosure, and should be considered to be protected from excessive control;

• The project should contain a network report. The voltage loss report should be carried out, according to which the isolator isolator wires will be selected;

• The constructive, engineering and other types of solutions developed by the design organization should be drawn up and conformed to the applicable legislation in Georgia. Be compatible with drawings and specifications, compliance with the list of materials with specifications and drawings;

Temporary Works and Diversions

The Consultant shall include in the design any temporary works and/or diversions that are needed during the construction period for each road. All temporary works or diversion should be designed to cater for the uninterrupted flow of traffic for the period concerned.

PART 2 - PREPARATION OF DETAILED DESIGN FOR THE CONSTRUCTION OF RAILWAY LINE AND RELEVANT INFRASTRUCTURE FOR THE ANAKLIA DEEP SEA PORT

OBJECTIVES

Overall Objectives

The overall objective of this project is the construction of the railway link to the Anaklia deep sea port with its railway supportive infrastructure and Anaklia railway station with station building in a way as it is defined in the investment agreement and in JSC "Georgian Railway's" traffic operational infrastructure and maintenance manuals, standards and guidelines.

Specific Objectives

The specific objectives of this project are to prepare the detailed design for railway link to the Anaklia deep sea port with its railway supportive infrastructure and Anaklia railway station. Design shall be satisfactory to obtain a construction permit in Georgia including ecological expertise and environmental permit as required; detail design shall be developed in such details and scope to ensure competitive and least cost bidding on the tender announced by FIDIC Conditions of contract for construction (for building and engineering works designed by the employer, RED BOOK) ;

Basic parameters of the railway for the deliverables

- Railway line category -3;
- Working regime – twenty four hour during all year;
- Railway Embankment
    - Seismic stability – according to seismic belt standards;
    - Obstruction Clearance – C;
    - Number of main tracks in main line – 2
    - The width of the embankment top surface 11.7, in straight section however provided width shall be modified adequately in respect with the curve sections
- Plan and profile of the alignment
    - The length of the track approximately 18km. The length is conditional and will be specified after the detail design will be prepared.
    - Minimum range of curve radius 800m, 600m in difficult conditions and 400m radius to be agreed with the client.
    - Approximate connection station on the existing main railway line shall be "Tsatskhvi post". The connection point Tsatskhvi indicated in this TOR shall not be considered as final connection point and that shall be subject to the

further review. The final location shall be defined based on the alternative route provided by the consultant.

- An approximate Connecting point coordinates with Anaklia deep sea port - are attached to this TOR.
- Maximum ruling gradient – 6‰,

- Superstructure
  - Gauge – 1520mm;
  - Main track structure type of station to station joint tracks block with the length of 25m, main and receiving and dispatching tracks – R-65 rail type;
  - Type of sleepers – reinforced concrete, new;
  - Number of the Sleepers in 1km section – In straight sections and in the curves with the radius of 1200m and more - 1840 sleepers. In the curve sections with the radius of 1200m and/or less, 2000 sleepers;
  - Type of Ballast crushed rabble;
  - Under track ballast prism on the embankment- 35 cm thick;
- Station track:
  - Number of station tracks up to 20 in Anaklia Station, and up to 3 in Tsatskhvi station and 5 in Khobi station;
  - Station Effective length of receiving and dispatch tracks – 850 m;
  - Minimum radius of the curve 800m;
  - The station tracks must be arranged on 0‰ gradient. In special cases can be on 1,5 ‰ gradient with client (employer) prior approval.
  - Type of the Rail - P65, new;
  - Type of the Sleeper - reinforced concrete, new;
  - Number of the Sleepers in 1km. section – 1840
  - Type of the ballast - crushed rabble;
  - The thickness of the ballast layer under the track - 30 cm;
  - Railway switches on the main line - new P65 type 1/11 type;

    - Railway switches on the receiving, dispatching and on other type of tracks - new P65 type 1/9 mark;
    - Railway switches has to be arranged on new wooden beams;

- Hauling type – electric with direct current 3.3kv;
- Locomotive type – VL-10 and VL-11 electric locomotives.
- Gross train weight: freight trains-3000t in West - East direction and 3500t east to west direction, passenger trains 1200t;
- Signaling system for the train operations shall be automatic blocking;
- Train radio communication between drivers and dispatchers has to be ensured. For safe operations a waveguide should be set along all main railway line area (using contact system aerial);
- Micro processing centralization (Hybrid) should be provided at the stations;
- Backbone line – fiber-optical cables;
- The structure of OCS should correspond to 3rd category regulations adopted for railways and Georgian regulations in force;
- Automatic blocking and longitudinal power transmission lines should be installed alongside the contact line;
- Traction substation of direct current has to be constructed;
- For the power supply of the new traction substation the new double chained power line must be construction from the local power station based on permission and technical condition by the authorized licensed body
- Buildings and supportive facilities;

Scope of work For Interim Design Report Stage for Lot 1 (Railway part)

- **Collecting data -** The Consultant shall conduct all topographical, geological, geotechnical, hydrological and other surveys that will be required to carry out the detailed design of railway infrastructure.

  The Consultant shall prepare a plan for the collection of data, including all geological, geotechnical investigations and tests. The schedule shall detail the number of locations and the timing of all investigations.

  Data collection should pay particular attention to identifying any other potential risks and their activity to the timing and quality of the project design.

  In addition to this the consultant is obliged to analyze the existing Pre-Feasibility Study prepared in year 2017 (Above Mentioned Documents will be provided to the consultant after signing the contract)

- **Elaboration of the alternative routes (at least 3 alternatives must be proposed by the consultant).** After defining the location for the station Anaklia, the consultant is obliged to perform respective calculations for defining the necessary amount of railway tracks in Anaklia and Ttsatskhvi stations. Such calculations must be based on technical standards and forecasted freight flows from the Anaklia deep sea port**.**

- **Selection of the alternative route by the client**

- **Detailed geological, topographical survey (detail technical requirements are provided below)**

  Detail geological survey report must be prepared in accordance with "Snip 1.02.07.-87" based on what:

  1) Along the route of the future railway subgrade (for the subgrade with the depth of 12 meters) in every 250 meters the Geological boreholes should be arranged with the depth of 5-10 meters. Due to the relief of the designated area (Kolkheti lowland), it is expected to have 12 m height filling or cutting with a depth of 12 meters.
  2) On the sections designed with the bridges, the boreholes have to be drilled under each pier of the bridge with the depth of 10 meters.
     - If the design envisages the slab foundation, than the depth of the borehole should be the half of the slab width but not les then 20 meters.
     - If the design envisages the foundation piles, then the depth of the borehole should be 5 meters below the bottom mark of the designed pier.
  3) On the sections designed with the culvers, the single borehole has to be drilled under each crossing point of track axis and the culvert axis with the 5 meters depth under the deigned foundation.
     - If the length of the culvert exceeds 10 meters, then 2 boreholes (beginning and the end of the culvert) with the same depth.
  4) Under the areas of the designed stations, 3 boreholes on each cross section with the depth of 5 m. Distance between the cross sections should be 200 m;

5) For the buildings of the railway stations, 4 boreholes (each station building) with the depth of 5 meters below the foundation bottom.
6) Areas where (water sands or densely-capable clays) monolithic samples (solid structure) cannot be taken, investigation should be done according to the ground penetration methodology (dynamic or stable) and Character calculations have to be obtained.
7) At least 3 samples of the underground water has to be taken, each from the different layers of the water, and the type and quality of their aggressiveness has to be checked towards the reinforced concrete and the metal.
8) To determine the corrosion quality of the soil, geophysical electric measurements (in the areas of buildings and structures) has to be conducted.
9) Laboratory investigations. The following features should be defined in the laboratory:

- Granulometric composition (for sand and course crushed soil) (standard 12536-79).
- Organic substances (clay and sand soils) (standard 27740-79)
- Natural humidity (loam, sandy and coarse-crushed soils) (standard 5180-84)
- Density (for all types of soil; standard 5180-84)
- Maximum density (for clay, sand and coarse-crushed soils)
- Soil particle density (clay materials)
- Density and plasticity thresholds (clay soil)
- Maximum molecular capacity (clay soil)
- Filtration coefficient (with the tables, according to ground composition)
- Corrosive activity (clay and sand soil – standard 233908-79)
- Compressibility (clay and sand soil standard 26518-85)
- Resistance to the penetration (clay soil)

Graphical annexes

- Map of the actual materials (layout of the boreholes);
- Geological cross sections;
- Geological-lithological columns of the boreholes;
- Photo materials;

Detail Topographical survey report must be prepared in the following scale:

- Topo plan for the main line, 1:1000;
- For the Anaklia and Tsatskhvi railway stations, 1.1000;
- In case of underpasses, overpasses, river crossing, irrigational channel crossings, plan should be prepared, in 1:500;

- **Based on the findings of the detail geological and topographical survey report consultant shall define the final axis of the alignment and provide preliminary plans and longitudinal profile.**
- **With the participation of the client defining the location for the power substation,**
- **With the participation of the client defining the location for following building and structures, such as: Anaklia railway station, station building, railway track**

maintenance unit building and Wagon checkers building (some basic technical details are provided below);

- **Defining the location for the other supportive railway infrastructure such as locomotive and wagon maintenance depots (detail design of depots are excluded from the scope of work of this TOR);**

  - Approximate space necessary for the locomotive`s technical maintenance building is 1500 sq.m. - With the length of - 55 m, and width - 27 m. Estimated total area required for the Locomotive Department`s operational activities is approximately 7000 sq. meters.
  - The wagon maintenance depot workshop with the space of 2016 sq. m. (84x24m) equipped with two parking tracks.
  - One room for the space of the wagon checkers on the port territory with the space of 15 sq. m.

- **Identification the locations of possible crossing points with the engineering networks and obtaining the respective technical conditions and/or permissions for crossing of such.**

- **After identification of all sites where railway infrastructure must be constructed consultant should elaborate the general masterplan indicating all structures which shall be constructed based on this TOR and provide to the client for approval.**

- **Obtaining the report from the respective authorities regarding the possible findings of the cultural heritage or archeological site.**

- **Elaboration the architectural concept for the following buildings, such as: Anaklia station, railway track maintenance unit, Wagon checkers. Space allocation diagram for the station building is the following:**

	1st floor	sq.m
1	Space for the telecommunications and IT systems	20
2	Space for Chief of operator of customers service	30
3	operator of customers service	25
4	Battery charging room	10
5	Store	15
6	WC	20
7	Canteen	30
8	Lobby	40
9	Canteen store	25

10	Space for engineering networks	40
	2nd floor	
11	Room for dispatchers	30
12	Technical room	30
13	Room for chief technical service operator	20
14	Room for the operator of technical recordings	25
15	Changing room for 20 workers	35
16	Bathroom for 20 workers	30
17	Room for head of station with on addition room	40
18	Room for deputy head of station for the technical issues	20
19	Room for deputy head of station for the sales issues	20
20	Room for chief engineer of the station	30
21	Office manager	15
22	Room for the accountants	30
23	WC M/F	20
	3rd floor	
24	Conference room	35
25	Room for OHSE training room	30
26	Room for the Ferry and container division	25
27	Room for the freight service chief specialist/ specialist	50
28	Archive with technical library	**30**
29	WC M/F	20
	4th floor	
30	Station operations room with panoramic view on the station tracks	50

31	Rest room for the station on duty	15
32	WC M/F	5
33	Store room	5
34	**Total**	**865**

Space allocation diagram for the railway track maintenance unit

Spaces	sq.m.
Room for track maintenance unit	20
Changing room for track workers	40
Store room	15
Bathroom	8
WC	4
total	87 sq.m.

Space allocation diagram for the Wagon checkers building

#	Name	Space (sq.m.)
1	**Wagon checkers building**	
2	Room for the head of unit	15
3	Masters room	10
4	Operator	10
5	Wagon checkers on duty	15
6	Changing room	70
7	Bathroom	5
8	WC	5
9	Store room	15

10	canteen	10
11	workshop	5
	Total	**160**

Concept design for the station building shall include:

- Basic area tables,
- Project components,
- Description of basic design goals and objectives.
- Based on the assembled data Concept Design Package must be submitted in form of the sketch and include:
- Preliminary written description to describe the design intent of the project components
- Preliminary site plan in: 1000 or 1:2000 scale.
- Zoning diagrams
- Dimensioned floor plans for all areas including basements
- Schematic Building sections
- Schematic building heights,
- Complete drawings and specifications list
- Preliminary structural concept, narrative, diagrams and systems
- Sketches, Mood images;

Scope of work For Draft Design Report for Lot 1 (Railway part)

According to the current freight forecast the client believes that for the initial stage of Anaklia deep sea port development for the railway infrastructure the following works should be necessary to be executed:

1. **Power supply –**

35/10 construction of power substation in Anaklia railway station	1 unit
Reconstruction of Khobi railway station	5 tracks
Construction of Anaklia railway station	8 tracks
Catenary system and longitudinal power supply	18km

2. **Construction of subgrade and superstructure installation works**

Installation of railway new single track with P65 rails on fastenings	18 km
Railway Subgrade	18 km

Anaklia station	8 tracks
Tsatskhvi railway station	1 track. Connection block post
Khobi	5 tracks

3. **Telecommunication**

high pressure polystyrene pipe with 50mm inner radii
Telecommunication plastic sewerage well
The single-mode with 24 optical-fiber cable (Constriction length 2km).
Plastic coupling for the 24 wire fiber optic cables
Installation of the high pressure polyethylene in the ground
Installing the fiber optic cables in the telecommunication sewerage
Welding of the fiber optic cables in the couplings
Installation of the telecommunication plastic well

4. **Buildings**

Anaklia Station Building construction
Tsatskhvi Station Building construction
Track Department Building construction
Wagon technical service point facility
Workshop or covered facility for wagon current and unscheduled repair
In case the there is a need the wagon checkers room

5. **IT**
6. **Water treatment facilitate**

In addition to the above mentioned the consultant's scope of works includes the following, but not limited to:

- **Elaboration of the detail plan and longitudinal profile of the main line, Anaklia railway station with 8 tracks and connection station on the existing main railway line with single track connection block post;**
- **Elaboration of the detail design of the embankment for the main single track line railway section Tsatskhvi-Anaklia:**

- **Detail design for the artificial structures (culverts, bridges, underpasses, overpasses, etc) for single track embankment**

- **Detail design of the embankment for Anaklia (only for 8 tracks) and Tsatskhvi (with single track connection block post) khobi (5 tracks) railway stations drainage system and drained water treatment facility (only for Anaklia railway station).**

  Drained water treatment facility design must be prepared in accordance with the environmental regulation and Georgian legislation.
- **IT**

Technical Requirements for the station Anaklia, Tsatskhvi and Khobi

- Connecting communication optical fiber nodes with optical fiber lines to all adjacent buildings;
- The existence of communication nodes in the buildings (where the above mentioned fiber- optic line will pass) in order to install active and passive communication equipment with the appropriate racks;
- In case of several communication nodes in one building, they have to be connected to each other. If the length is less than 95 meters than the UTP6 category cable has to be used, if the length is above 95 meters, then the optical fiber cable is necessary;
- Air vents in the rooms with communication nodes;
- Secure the switches in the rooms with communication nodes (minimum 3, 4000 watt capacity)
- Secure each working place with the communication network cable (minimum category UTP5e) which will be connected to the communication node;
- Presence of the relevant reserves when installing the communication network (at least 15%)
- 1 technical room with area of min. 5 sq. meters in the station buildings.
- Secure each working place with the automatic switches (minimum 2, 700 watt capacity);

- **Detail design for the overhead catenary system (OCS) power supply and power substation**

For the construction of the Anaklia Sea port, on the first stage a new single track line should be built, which will be electrified with direct current of 3.3kv;
Projected OCS network console supports has to be installed in 3.1 meters normal clearance from the railway axis and anchor support – with clearance of 3.3 meters and rough traverses.
The reinforced concrete supports shall be accepted to be SS-10.8 type which have to be installed in the TS-4.5 glaze foundations. With the anchor supports the TA-4.5 type anchor concrete foundations can be used. During the calculation of the strength of the supports the SNIP-2-01.07-85 can be used.
The aerial catenaries of the automated blocking system type AS-35 steel-aluminum conductor can be used, which is installed on a separate SV-11 type masts. Longitudinal el. Supply aerial AS-50 type lines will be installed on the contact network supports.
OCS network should be M-120+2MP-100, on the basis of the report and in case of the need as the supportive feeder the M-120 copper wire can be used.
Straight, inclined consoles will be used as holders of contact network, which are separated from contact network. For longitudinal power supply and auto blocking lines have to be used galvanized metal brackets.
The new railway line has to be separated electrically by existing power feeder separator. There has to be installed station disconnections with motor drivers. The same principal has to be used for separating distance between stations.

For the normal operation of the new line it will be necessary to construct a module type 10KV. or 35 KV. Substation. The location of the substation shall be defined according to the acts received by a special commission as it is prescribed in this TOR. The mentioned traction substation is capable to supply electricity for train traction and other railway facilities.
For the supply of the new traction substation it is necessary to build the local substation considering the relevant technical conditions.
Consultant is obliged to elaborate detail design for the lightning of the Anaklia Tsatskhvi and Khobi railway stations.

- **Detial design for the telecommunication system including the design for installation of the fiber optic cable;**

  The following works has to be provided for the telecommunication system:
  Along the railway track, on the both side of the track in the telecommunication well (high pressure polystyrene pipe with 40-50mm inner radii). The single-mode with 24 optical-fiber cable has to be installed in the stations and in the level crossings as well (in case of such).
  In stations Khobi, Tsatskhvi and Anaklia isolated telecomunication facilities shoul be installed with no less then 15sq.m. area, with metal door and window lattices, double el. supply system and earthing on the first floor of the building.
  After approval of the final topology, the station operation schemes and the railway level crossings, the detail list of the telecommunication equipment will be prepared based on what the detail design must be elaborated

- **Detail design of the station building and the building for railway track maintenance unit:**

  For the construction of Anaklia Station building, for the rehabilitaion of existing Tsatskhvi railway station building, for the construction of track maintenance unit building and for the construction of the Wagon checkers building detail design should include the following parts but not limited to:
  - In addition to the Anaklia station building (approximate area of 680 sq. m.) four supplementary buildings will be required, each 15-20 sq. meters (totally 60-80sq.m) on the both sides of the station entrance. Building will be used by the workers on duty such as switch operators and locomotive braking operators. Process for the defining of the location shall be conducted with the participation of the client.

  - Topographical and geological survey;

  - Architectural detail design (plans, internal layouts cross section);

  - Structural detail design;

  - Power supply electricity network

  - HVAC system detail design (only AC systems for railway track maintenance unit building is out of scope of consultancy services)

  - MEP detail design

- Low voltages systems detail design (including fire safety, intra net telephone…)
- Landscaping design of building surroundings
- External connection with utility distribution companies

- **Detail design for the crossing points with the engineering networks in accordance to the obtained crossing permissions and given technical conditions;**
- **Detail cost estimation and bill of quantities for all above enumerated construction activities.**
- **Detail Geology report**

LOT 2 – Requirements

Detailed Design for the arrangement of the rail tracks, superstructure and overhead catenary systems shall be submitted separately as a Lot 2. Technical Specifications and requirements are provided in the ToR above.

LOT 3 Requirements

The main concept for the preparation and completion of the design is depending on the freight forecast presented in the Master Plan for the Anaklia Deep Sea Port Development. As the actual freight traffic meet the forecast the construction of the additional track and supportive infrastructure will be required. Consultant is obliged to **finalize the conceptual design according to the requirements as it stipulated for the following works:**

- **Elaboration of the concept design of the embankment for the additional track line between the railway sections Tsatskhvi-Anaklia.**
- **Concept design for the extended artificial structures (culverts, bridges, underpasses, overpasses, etc.)**
- **Concept design for the additional siding tracks in the Anaklia, Tsatskhvi and Khobi stations.**
- **Preparation of the concept design for the second track on the main line between the railway sections Tsatskhvi-Anaklia.**
- **Concept design for the electrification of additional tracks in main line and in stations**

Technical standards, norms and regulations which must be applied are the following but not limited to:

For the preparation of design drawings:

- СниП 1.02.01-85;
- СНиП 11-01-95б;
- ГОСТ Р 21.1702 – 96;
- For the construction permit purposes, elaborated detail design drawings must be in line also with the government of Georgia's decree #57 issued on 24th of March 2009 regarding the rules for the obtaining of construction permit and conditions of permit.

Rail Track

- SNIP 32-01-95 "RAILROADS WITH 1520MM TRACK"
- SNIP 32-104-98 "DESIGNING THE ROADBED OF 1 520 MM GAUGE RAILWAYS"
- СТН Ц-01-95 "1520MM RAILROADS"
- GOST 9238-83 "STRUCTURAL AND ROLLING – STOCK CLEARENCES FOR RAILWAYS OF 1520 (1524) MM GAUGE"
- ПРАВИЛА ТЯГОВЫХ РАСЧЕТОВ ДЛЯ ПОЕЗДНОЙ РАБОТЫ. — М.: ТРАНСПОРТ, 1985
- ИНСТРУКЦИЯ ПО ПРИМЕНЕНИЮ ГАБАРИТОВ ПРИБЛИЖЕНИЯ СТРОЕНИЙ ГОСТ 923883 (УТВ. МПС СССР 18.11.1986 N ЦП/4425)

Buildings and structures

- SNIP 2.09.04-87
- SNIP 21-01-97
- SNIP 2.09-02-85

- SNIP **2.05.03-84* «МОСТЫ И ТРУБЫ»**

Standards for Bearing structures

- SNIP 2.01.01-82
- SNIP -7-81
- SNIP 2.02.01-83
- SNIP II-23-81
- SNIP II-22-81
- SNIP 2.03.01-84

Standards for OCS systems

- ГОСТ 16350-80
- ВСН 12-92
- СНИП III-41-76

ENVIRONMENTAL IMPACT ASSESMENT FOR PART 1 AND PART 2

The output of the Consultant's work will be an EIA report, including Environmental Management Plan (EMP).

The Consultant's assignment will comprise of the following tasks for preparation of EIA report:

The main objectives of the EIA study are to:

- Preparation of the scoping report for submission to the Ministry of Environment Protection and Agriculture of Georgian, according to the EIA Code of Georgia.
- Identify sensitive environmental, social, and cultural heritage receptors within the corridor, point out risks to the natural and social environment and to the cultural assets associated with the anticipated construction works in this section, and describe their nature and scope;
- Cooperate with the engineers in the process of defining exact alignment of the road with the purpose of integrating environmental, social, and cultural heritage perspectives into the selection of the optimal route;
- Provide a set of detailed mitigation measures aimed at avoiding or decreasing expected negative impacts of construction on the natural, social, and cultural environment, and develop an environmental management matrix including mitigation and monitoring plans;
- Produce an EIA report, including an environmental management matrix, satisfactory to the client;

- Assist the Employer in preparation of the MS Power Point presentation in Georgian language during the public consultation meetings of the EIA report and receiving the Environmental Decision from the MoEPA.

The Consultant should prepare the EIA report according to the existed legislation of Georgia. The consultant is responsible for conducting studies and preparing documents necessary to gain approval from MoEPA - and will be expected to amend documents to address comments from these agencies and others during the approval process. Application for the environmental permit will be prepared, submitted and progressed by the client with the assistance of the consultant. The Consultant will assist the Employer to carry out the conditions according to the Environmentall Dicision.

SCOPE OF THE ASSIGNMENT

Key issues environmental and social issues may include:

- Impacts of noise, vibration and air pollution near inhabited areas during construction and operation; (According to the Modelling) and in case of the impact to elaborate mitigation measures impact;
- Risks of uncovering archaeological material during excavation works;
- Risks related to temporary storage and final disposal of construction waste and excess material;
- Risks of soil degradation and erosion from cutting slopes and borrowing construction materials;
- Identify the territories for spoiled soil disposal temporary and constantly storage, according to the Georgian Legislation
- Identify the Emerald Network and prepare the report according to the Bern Convention; the report should include information about the species and habitats, elaborate mitigation measures; Prepare the Conservation Plan;
- Risks of Landslide;
- Risks of ground water flows;
- Risk of water pollution from construction near rivers and streams;
- Water and land biodiversity research, identify the impact and prepare the mitigation measures;
- Geological, Geomorphological and Tectonic research identify the impact and prepare the mitigation measures
- Detailed Hydrological and Hydrogeological research identify the impact and prepare the mitigation measures;
- Identify the "Red List" species, identify the impact and prepare the mitigation or compensation measures within the EIA report and Management Plan;

Collection of Baseline Data

The consultant will collect baseline data describing the existing biophysical environment in the area likely to be affected by the proposed project. Data must be sufficiently robust, detailed and

recent to enable impacts to be identified accurately and mitigation to be planned appropriately. Data should be collected on the physical, biological and human (socio-economic and socio-cultural) environments, and should cover individual topics within these fields at an appropriate level of detail. These should include, but not necessarily be limited to, the following:

Physical: geology; topography; soils and land capability; landscape; climate; air quality; noise; surface water; groundwater; seismicity and natural hazards.

Biological: flora and fauna; rare and/or endangered species (Red List species); critical habitats and ecosystems; protected areas, routs of the birds and animal migrations, and etc.

Existed Infrastructure: Transport and communications (railway, Gas and water pipes and etc).

Particular attention should be given to the presence of land plots registered as the State Forest Fund. If the right of the way of the selected alignment of the road section overlaps with the territory of the State Forest Fund, The consultant should prepare:

i. Cadastral measurement drawing for the relevant plot of the alignment (.shp files);
ii. According to the effective law, conduct preliminary inventory of timber resources existing at the territory, which should be delisted from the State Forest Fund;
iii. In accordance with the Georgian legislation, provide relevant information on obtaining a cutting permit for species included in the Red List (if any);
iv. Prepare Tree Compensation Plan according to the de-listing documentation.

Cultural Heritage: overview within the EIA report the existed Cultural Heritage and possibility of the archaeological findings

Human: population; communities; demographics; employment and socio-economics; land use; land ownership and tenure; infrastructure; transport; public health; cultural heritage; archaeology; minority communities; disadvantaged; gender; recreation; tourism.

Surveys should be conducted to address important gaps in the existing data and to collect up-to-date information on topics and areas where significant negative impacts are expected. The consultant should describe the proposed field work in detail in the inception report. Surveys should include land use and ownership, and archaeology and cultural heritage, so that the consultant may produce maps of these features in the route corridor, to assist in determining impacts. Socio-economic surveys are also likely to be required given the absence of up-to-date information; and the consultant should also collect data on noise, vibration, air quality and other features as necessary. Information on flora and fauna is available from multiple publications however most of them are issued several decades ago and may not be relied upon without verification trough walk-over or other type of field work.

1. Impacts and Mitigation

The detailed EIA studies and/or the particular approach adopted in the designs may reveal different impacts. The consultant should therefore prepare a matrix that is specific to this project, reflecting the results of the EIA and describing the proposed mitigation measures in more detail.

Avoidance of impacts is preferred over mitigation by the client's policy, so the consultant must liaise closely with the team conducting the detailed design to ensure that actions to avoid or mitigate impacts are incorporated into the design where appropriate. The consultant should also ensure that the design team is informed in a timely manner of mitigation measures that need to be included in construction contracts.

2. Analysis of Alternatives

The EIA should include a systematic comparison of the feasible project alternatives (in terms of location, technology, design and operation), including the "no project" scenario. For each alternative this should discuss: the potential impacts; feasibility of mitigation; capital and recurrent costs;

suitability under local conditions; and residual impacts on the natural and social environment and on the cultural heritage. Comparisons should be quantified as far as possible, and

the analysis should explain what role did the EIA findings play in the selection of the preferred alternative as well as in the identification of the exact alignment of the carriageways.

5 Cost Estimates

EIA report should include an estimated cost for hazard impact mitigation (if any), which should be considered in Bill of Quantities. .

6 Environmental Management Matrix

The EIA report should include an environmental management matrix comprising of an Environmental Mitigation Plan and an Environmental Monitoring Plan

Environmental Mitigation Plan should:

- clearly identify what specific potential impacts may various types of works have on the sensitive receptors;
- provide concrete actions prescribed for managing these impacts, including location and timing of these actions;
- provide cost estimates for the main discrete mitigation measures (those that are unlikely to be part of a construction company' corporate policy and will not necessarily be included into general pricing of the contract);
- give measurable criteria for identifying how adequately are the mitigation measures being applied and how effective they are;
- specify responsibility for the implementation of each mitigation activity.

Environmental Monitoring Plan should:

- list out of all prescribed mitigation measures by types of construction activities;
- provide selected criteria of monitoring implementation of mitigation measures;
- specify methods for measuring outcomes of applied mitigation measures (visual, instrumental, survey, etc.);
- identify location and timing/frequency of monitoring mitigation measures by the prescribed criteria;
- give cost estimates of monitoring mitigation measures by the prescribed criteria;
- specify responsibility for tracking each monitoring criterion.

It is essential that the Environmental Mitigation and Monitoring Plans are practical and user-friendly documents. Environmental Mitigation Plan shall be included into tender documents, so that it is available for interested bidders and its requirements are reflected in the submitted bids. Later, the Environmental Mitigation Plan shall be annexed to the contract between the client and the works provider, and adherence to it will become binding term of the contract. The EMP must therefore:

7 Disclosure and Stakeholder Consultation

Disclosure and stakeholder consultation on the draft ESIA report conducted according to national legislation, and are intended to inform stakeholders about the project, its potential impacts and mitigation, and to involve them in a partnership in developing and implementing the project solutions and mitigation measures.

As the project proponent, the client will:

- Organise consultation meetings, including advertising them, inviting participants, arranging the venue and providing presentation equipment;
- Chair each meeting and give an introductory presentation, and chair and participate in discussions as appropriate.
- The consultant will:
- Prepare and deliver an MS Power Point presentation in Georgian at each meeting describing their work;
- Produce summaries of their work in Georgian to be distributed at each meeting;
- Produce a written records of each meeting in Georgian and English languages, noting attendance, stakeholders' affiliations, points raised in discussion and answers given;
- Incorporate an account of the consultation process in the ESIA report, identifying how each point was addressed in the ESIA report and/or engineering design, and providing valid reasons why any points were not addressed.

The Consultant may conduct additional consultations if deemed necessary, and should inform the client in advance if their involvement is required. Small meetings and *ad hoc* discussions on site should not require client's involvement, but contacts like these should be documented and included in the EIA report.

7. LIAISON

The consultant should liaise with the Roads Department, MoENRP and the engineering design team to the extent necessary as outlined above. The client will facilitate initial contacts with each agency and should be invited to all subsequent meetings with MoENRP so that they have the opportunity to attend.

Liaison with the engineering team is particularly important to ensure that environmental and social issues play the necessary role in influencing the design, and so that the ESIA will contain accurate and appropriately detailed information on the designs. It is important therefore for the environmental and engineering teams to forge a good working relationship.

Communication with the MoENRP is also important both in assisting the process of applying for an Environmental Permit, and in understanding the requirements of the Georgian EIA system, so these contacts should also be given priority.

Draft EIA reports will be reviewed by the client and consultants will address all comments from these agencies in producing the final EIA report. Consultants must also address relevant comments made by stakeholders during consultations and include minutes of consultation meetings and other documents covering consultation process into the final EIA report.

Environmental Management Matrix shall include two tables: environmental mitigation Plan and Environmental Monitoring Plan, as outlined in detail in the present TOR. Both of these tables must cover road construction and operation phases.

BIDDING DOCUMENTS FOT PART 1 AND PART 2

The Consultant shall prepare Bidding Documents for civil works in accordance with the Georgian state procurement regulatory legislation. The Bill of Quantities as a part of the Bidding Documents shall include the respective items to implement the Environmental Management Plan (EMP) measures. Draft Bidding Documents shall be submitted together with a Draft Design Report.

The Consultant shall then prepare the Final Bidding Documents incorporating all comments by the Client/

Finally consultant shall submit bidding documents for both parts (part 1 and part 2) as a several lots:

Lot 1 - Detailed Design for the construction of Road and Rail Infrastructure and any other supporting infrastructure, except detailed design related to the arrangement of rail tracks and superstructure;

Lot 2 - Detailed Design for the arrangement of the rail tracks and superstructure including OCS;

Lot 3 - Conceptual Design for constructing a double track railway line for the second phase of railway infrastructure.

DURATION OF ASSIGNMENT

Total Duration of Activities is 10 months, including the time required for the Client to review and approve the reports

DELIVERABLES FOR LOT 1

The Consultant will prepare and submit to the Road Department of the Ministry of Regional Development and Infrastructure of Georgia (RD) the following reports:

a) **Inception Design Report:** This report will be submitted within 1 month after contract signing and shall summarize initial findings. Consultant shall establish a set of design criteria and standards to be used and agree them with the Client (including the plan laying out the methodology to conduct the relevant site topography/geotechnical investigations). This report shall also include a Quality

Management Plan and traffic management plan.

b) **Interim Design Report:** This report will be submitted within 3 months from the contract signing and shall detail all the work performed during the reporting period for detailed design. This shall give proposals covering, preliminary conclusions based on the analyses substantially completed, survey results, and will also identify actual and anticipated difficulties and delays in the work, their causes and the remedies proposed to solve them. The Interim Design Report shall include results of field surveys, studies, investigations and instrumental tests. The Consultant shall prepare a plan for the collection of data, including all geological, geotechnical investigations and tests, as well as the scoping report should be prepared according to the Georgian Environmental Code The schedule shall detail the number of locations and the timing of all investigations. This plan should be included in the Interim Design Report. In addition to this for the railway infrastructure designing purposes the consultant is obliged to provide the whole package of the first Stages deliverables, which should comply with the requirements of TOR.

c) **Draft Design Report:** This report will be submitted Within 6 months from the contract signing and shall display the services carried out during assignment and will include analyses, findings, results and recommendations of the detailed design, and will also contain all supporting material. It will include a concise executive summary in which the project design standards and cost estimates broken down into local currencies shown clearly. Draft Bidding Documents shall also be submitted together with the Draft Design Report. Draft Design Report shall include, but not limited to pavement design report, detailed designs, drawings, specifications, summaries, explanatory notes, draft Bill of Quantities, cost estimates, based on the Environmental Decision for the Scoping report issued by the MoEPA and EIA report. In addition to this for the railway infrastructure designing purposes the consultant is obliged to provide the whole draft package of the

deliverables as it is defined in this TOR. Report should include draft detailed design for railway subgrade, power supply/OCS, artificial structures, telecommunication, IT systems and other supportive structures and buildings.

d) **Final Design Report:** This report will be submitted Within 7 months from the contract signing and shall incorporate all revisions deemed necessary arising from comments received from the Client following discussions and agreements in the course of evaluating the draft report and will be submitted to the Client for approval. It shall contain all the findings, analyses, results, and all supporting material. Final Report shall include, but not limited to pavement design report, detailed designs, final drawings, specifications, summaries, explanatory notes, final Bidding Documents and Bill of Quantities, cost estimates, according to the necessity updated final version of the EIA report. In addition to this for the railway infrastructure designing purposes the consultant is obliged to provide the whole Final package of the Deliverables as it is defined in this TOR. Report should include Final detailed design for railway subgrade, power supply/OCS, artificial structures, telecommunication, IT systems and other supportive structures and buildings.

Schedule of Deliverables under the assignment are shown in the table below.

Deliverables	**No. of copies**	**Language**	**Submission Deadline**	**Payment Percentage from the Lot 1 contract amount**
Inception Report	**2**	English	Within 1 month from the contract signing	10 %
	5	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		
Interim Report	2	English	Within 3 month from the contract signing	25%
	5	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		
Draft Design Report	2	English	Within 6 month	35%

	5	Georgian	from the contract signing	
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		
Final Design Report	10	English	Within 7 month from the contract signing	30%
	10	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		

DELIVERABLES FOR LOT 2

The Consultant will prepare and submit to the Road Department of the Ministry of Regional Development and Infrastructure of Georgia (RD) the following reports:

a) **Draft Design Report:** This report will be submitted Within 9 months from the contract signing .

b) **Final Design Report:** This report will be submitted Within 10 months from the contract signing.

Schedule of Deliverables under the assignment are shown in the table below.

Deliverables	**No. of copies**	**Language**	**Submission Deadline**	**Payment Percentage from the Lot 2 contract amount**
Draft Design Report	2	English	Within 9 month from the contract signing	55%
	5	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		

Final Design Report	10	English	Within 10 month from the contract signing	45%
	10	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		

DELIVERABLES FOR LOT 3

The Consultant will prepare and submit to the Road Department of the Ministry of Regional Development and Infrastructure of Georgia (RD) the following reports:

a) **Interim Report:** This report will be submitted within 8 month after contract signing

b) **Draft Report:** This report will be submitted Within 9 months from the contract signing

c) **Final Design Report:** This report will be submitted Within 10 months from the contract signing

Schedule of Deliverables under the assignment are shown in the table below.

Deliverables	**No. of copies**	**Language**	**Submission Deadline**	**Payment Percentage from the Lot 3 contract amount**
Interim Report	**2**	English	Within 8 month from the contract signing	30 %
	5	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		
Draft Design Report	2	English	Within 9 month from the contract signing	40%
	5	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		
Final Design Report	10	English	Within 10 month from the contract signing	30%
	10	Georgian		
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		

	10	Georgian	from the contract signing	
	2	Electronic ENG+GEO (CD) including AutoCAD files as applicable		

Documents produced by the Consultant as part of these services will be subject for the review and approval of Road Department and external organizations/experts.

1. PROJECT ADMINISTRATION

OBLIGATIONS OF THE CLIENT AND CONSULTANT

Client's Obligations

The Client will provide all relevant information in their possession to the Consultant free of charge, but all responsibility for missing data provided by Client lies solely with Consultant.

The Client will provide the Consultants with all available data and reports relevant to the study

Consultant's Obligations

The Consultant will properly review and analyze all information, data and reports obtained from the Client in the execution of the services. The consultant will be responsible for analyses, interpretation, and conclusion made from the data and information provided by the client. All such information, data, and reports will be treated as confidential and returned to the Client upon completion of the assignment. The responsibility for the correctness of using such data will rest with the Consultant.

The Consultant will be responsible for arranging for all necessary office and living accommodation, transportation, equipment and supplies, surveys, investigations, materials testing, secretarial services, related to the performance of the works at their cost. The Consultant will be responsible for the printing of all reports, drawings, maps, etc.

The Consultant will provide the maps, plans and all drawings with final bidding documents both in hard (except Bidding Documents) and electronic copies in CD ROMs and in acceptable (Editable and PDF) electronic format.

All reports and documents relevant to the project, maps, aerial photos, 3D visuals, field survey notes, computer programs and electronic data, etc. produced by the Consultant in the course of the execution of the work will become the sole property of the Client.

The consultant is expected to cooperate and exchange information with other consultants and stuff authorized by the RD as required.

QUALITY MANAGEMENT

Prior to undertaking any tasks under this assignment, the Consultant shall prepare a Quality Plan for the Consultant's duties. The plan is to be included in the Inception Report and cover:

- designation of the Consultant's key personnel and their responsibilities;
- details of any sub-consultancies or specialists to be employed;
- list of quality procedures to be followed;
- programme of work and arrangements for monitoring progress;
- technical review procedures;
- document control procedures.

SUBMITTALS, APPROVALS AND CLARIFICATIONS

All reports to be prepared by the Consultant and submitted to the Client will be in English and Georgian languages prepared on A4, A3 and A1 metric size papers. All reports will be submitted as 2 hard copies in English language and 2 hard copies in Georgian language, and two soft copies in CD ROM format for each language. The consultant will discuss and get approval of the software format used to prepare the soft copies for drawings to ensure compatibility with available software in the Client's establishment.

Documents produced by the Consultant as part of these services will be subject to the review and approval of various divisions of Road Department and external organizations. The estimated time for revision and issuing the comments on submitted reports is about ten calendar days for each report (Detailed breakdown of time period for revision of each report is defined in Deliverables section.). Documents to be reviewed will include, but not necessarily be limited to, the geotechnical investigation reports and data, designs, and tender documents. The approval process will be managed by RD, but the Consultant shall assist the Client in obtaining approvals by preparing all supplementary reports, calculations, copies of drawings and explanations necessary. The Consultant shall also assist the Client in responding to request for clarifications from prospective bidders during the bidding process.

CONSULTATIONS AND MEETINGS

Progress meetings between the Consultant and the Client shall be held twice per month. The agenda for the meetings and the minutes shall be prepared by the Consultant. The Consultant shall present a brief progress report at each progress meeting.

Minutes of meetings shall be submitted no later than three working days after the meeting for the agreement of Client. The minutes shall include an abbreviated action list with assigned responsibilities.

Since the preparation of the RAP is not included in this TOR and will be part of the other contract, the supplier is obliged to work closely with the consultant on the Resettlement Action Plan and provide all the necessary data and documentation necessary for the development of the plan.

After completion of the Contract, during implementation of construction works, if requested by the Employer, Consultant is liable to revise Design Documentation, Resettlement Action Plan, Environmental Impact Assessment and other different accompanying documentations and submit them to the Employer.

WORKING LANGUAGE

The working languages will be Georgian. It is expected from the consultant to submit English translation of the correspondence.