SCOPE OF WORKS (SOW) FOR Road Graveling and canal lining in Nasrat Abad, Intezar and Ferdawsi CDCs of (10th and 5th) municipal district of Balkh Province

Background:

With the current political instability, economic volatility, the collapse of basic services, the uncertainty over continued international aid as a source of revenue, the disruptions to trade and finance, and the impacts of climate change on food production, the risks faced by the poor are becoming more intense and less predictable. It is estimated that as of August 2021, over half a million people have already been displaced by conflict and thousands more affected by natural disasters. Up to 30 percent of the population are projected to be in either a food security crisis or emergency by the end of the year 1, and half of all children under five are already severely malnourished.

An innovative, inclusive and highly flexible approach is needed, one that puts people first, targeting the most vulnerable and meets local needs by focusing on saving lives and livelihoods. UNDP is, therefore, adopting a highly integrated yet decentralized approach to programming known as the Area-based Approach for Socio-Economic Recovery and Community Resilience in Afghanistan (known as the ABADEI Program).

ABADEI is centered on addressing worsening poverty and vulnerability, supporting community resilience and social cohesion, and enabling the rehabilitation of small-scale critical infrastructure for essential needs while creating immediate sources of income through cash-for-work and agriculture infrastructure that are under threat, due to crisis, climate change and economic collapse.

Project Area:

The project constitutes of two roads namely the Nasrat Abad and Intezar Guzars which are situated in south east of Mazar city. The Nasrat Abad and Intezar road links the area to the main street of Mazar airport and Jumasic, with total population of 3,240 HH. The main project related impact is the consequential socio-economic development which will result in public safety and transportation facilities and therefore improve living standards. Besides, it will save and secure the lives of hundreds of thousands of women especially the pregnant women whose life is more likely to be at risk of loss due to difficult-to-pass roads. The improved wellbeing will be as an outcome of improved transport systems derived from reduced transport costs and travel time and the second lot is located in 5th municipal district of Mazar city with total beneficiaries of around 4,340 people. It is the main connecting road for Faqir Abad and Ferdawsi areas of the area to main road and public institutions such school and hospital. Currently, the residents of the area are facing acute challenges due to muddy and unpaved condition of the road. It is problematic for children and women during winter and rainy days. It is regarded as the main source of water and air pollution that can cause many diseases such asthma and other allergic and dermatosis effects.

Nature of Contract:

The required civil work for the road graveling and construction of culvert boxes project will be excavation, compacted backfilling, sub grading, gravel surface, stone masonry, PCC and RCC work etc...

a. Specific Objectives

The activities would contribute to the following ABADEI outcomes, outputs and activity results:

- Essential services enabled and supported

1 IPC Integrated Food Security Phase Classification, “Afghanistan.”
The objective of the project is to provide safe transportation facilities for the people of the area through road construction and canal lining.

b. Scope

The works shall be done as per scope of work, specifications, design, drawings, BoQs and general contract conditions, this project requires an experienced registered contractor to design and execute the job, the contractor shall provide all labor, material tools, equipment, supervision services, and other related items required to complete the project as per the design, drawings, BoQ, scope of work, specifications and satisfactory of UNDP engineer.

Workmanship and Materials

All workmanship shall be of the best quality appropriate to each category of work. Except where otherwise stated or approved by the Engineer, all materials used in the Works shall be of the best quality of their respective kinds as specified or described in the Specification, Drawings and Bills of Quantities and shall comply wherever possible with the current issue of the appropriate standard published by the British Standards Institution, or other equivalent national standard proposed by the Contractor and approved by the Engineer.

The Contractor shall use locally produced materials in preference to imported materials provided that they comply with the Specification and are available in sufficient and timely quantities. Temporary Works and Care during Construction The contractor shall construct and maintain all necessary channels, diversions and other temporary works necessary to ensure that irrigation water supplies are not interrupted during rehabilitation construction works; shall furnish all materials required therefore; and shall furnish, install, maintain and operate all necessary pumping and other equipment (if necessary) for maintaining water supplies around the rehabilitation works. After having served their purpose, all temporary works at the construction site shall be removed in a manner approved by the Engineer, and such areas after those are removed shall be levelled and graded to the extent required to prevent obstruction in any degree whatever and maintaining the designed function of the structure.

The contractor shall be responsible for and shall repair at his expense any damage to the foundations, structures, or any other part of the works caused by floods, water or failure of any part of the temporary diversion or protective works. For more detail on this and other general works please see the general part of attached specifications.

Excavation:

All excavation shall be carried out to the lines and levels shown on the drawings or to such lines and levels as the Engineer may direct. The Contractor shall trim all permanent excavation to the lines and levels shown on the drawings. Excavation shall generally be executed in such a manner as to ensure that the side slopes, as shown on the drawings, are not in any way endangered by undercutting.

As far as practicable, all suitable materials from the excavations shall be used in embankment and backfill for structures. The Contractor shall dispose of unsuitable or excess soil of the excavated materials in a place that is acceptable to the local community and so that they do not interfere with proper functioning of the works.

All necessary precautions shall be taken to preserve the material below and beyond the lines of all excavation in the soundest possible condition. Any damage to the work due to the Contractor’s operations, including shuttering to the material beyond the required excavation lines, shall be repaired at the expense of and by the Contractor. Any and all excess excavation or over excavation performed by the Contractor for any purpose or reason, except as may be directed in writing by the Engineer, and whether or not due to fault of the Contractor, shall be at the expense of the Contractor. Excavation taken out to a greater depth
than is necessary shall be filled to the required level with concrete of appropriate class or other material approved by the Engineer. All such excess excavation and over excavation shall be filled at the expense of and by the Contractor.

The bottom and side slopes of excavation against which concrete is to be placed shall be finished accurately to the dimension shown on the drawings or as prescribed by the Engineer and the surface so prepared shall be moistened with water and tamped or rolled with suitable tools or equipment for the purpose of securing a firm foundation. If at any point the natural foundation material is disturbed during the excavation process or otherwise, it shall be compacted in place, or it shall be removed and replaced with suitable earth materials or concrete at the expense of the Contractor, for more detail on this and other related work please see the earthworks part of attached specifications.

**Back filling:**
Backfilling with selected materials from excavation or borrow pits from approved source, in all excavations where the excavated material is required to be returned to the excavation as backfill, suitable material shall be set aside during excavation and shall be kept free from contamination with top soil, vegetable matter or other unsuitable material, failing which the Contractor shall at his own expense import suitable material from elsewhere, backfill at 90% shall be deposited in horizontal layers not more than 150 mm thick after being compacted, and shall be brought to the moisture content required for the purpose of compaction as instructed by the Engineer and the moisture content shall be uniform throughout each layer. The density of compacted random backfill shall not be less than 90 per cent of the maximum dry density obtained by compaction or, where the backfill is a cohesion less, granular material to a field dry density not less than 1950 kg/m3, backfill shall be placed carefully in the vicinity of any structure so as not to damage the structure. For more detail on backfilling and other related work please see the earthworks part of attached specifications.

**Gravel wearing Course on carriageway of Gravel road and Shoulders**
On completion of the reshaping activity, or in situations where the existing road formation profile is deemed to be acceptable after completion of the related tests, a wearing course layer of suitable gravel material shall be supplied from sources approved by the control Authority, laid to the required thickness, watered and compacted over the full width of the road carriageway.

**Quality of Gravel Material**
Gravel surface shall be selected from an approved source and processed to conform with the specified requirements. Processing shall include where necessary, crushing, screening, separation, blending (including blending of constituent materials from other sources) and any other operation necessary to produce a material conforming to the requirements of this specification. The method of selection and processing of all constituent materials shall be subject to the Engineer's approval and full scale production shall not commence until the Engineer has given such approval.

The material for gravel surface shall conform with the following requirements:

**Grading Requirements**
The grading of the crushed aggregate shall conform to the grading limits given in Table and according to specification and approval of engineer.

**Construction of the gravel layer**
Gravel wearing course material shall be spread in layers of not more than 150mm thickness per layer, watered and compacted in accordance to the specification to the final thickness detailed and in conformity
with the required lines, level and road cross section.
The sub grade material shall be watered prior to spreading the gravel wearing course layer. Additional water shall be added to the gravel as necessary during spreading until the optimum moisture content (OMC) for compaction is achieved. The amount of water to be added will be established on site by the operators' soils laboratory. Subsequent testing of the compacted wearing course layer to ensure achievement of required density will be undertaken by the operator at the contractor expense. Patching / graveling shall include the removal of spillage and oversize material from the side drains in order that these drains are fully restore to their original condition.

Gravel wearing course material shall conform to the following grading unless otherwise specified by the control Authority:
Immediately following at spreading of the coarse aggregate, it shall be compacted to the full width by rolling with either the three-wheel power roller of 8 to 10 tonnes capacity or an equivalent vibratory roller. Initially, light rolling is to be done, which shall be discontinued when the aggregate is partially compacted with sufficient void space in them to permit application of screenings. The rolling shall begin

<table>
<thead>
<tr>
<th>Sieve size (mm)</th>
<th>37.5</th>
<th>26.5</th>
<th>29.0</th>
<th>13.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage passing by mass</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>37.5</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>26.5</td>
<td>85-100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>19.0</td>
<td>70-100</td>
<td>80-100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>13.2</td>
<td>60-85</td>
<td>60-85</td>
<td>75-100</td>
<td>100</td>
</tr>
<tr>
<td>4.75</td>
<td>40-60</td>
<td>45-65</td>
<td>50-75</td>
<td>60-100</td>
</tr>
<tr>
<td>2.00</td>
<td>25-45</td>
<td>30-50</td>
<td>35-55</td>
<td>45-70</td>
</tr>
<tr>
<td>0.425</td>
<td>15-40</td>
<td>15-40</td>
<td>18-45</td>
<td>25-50</td>
</tr>
<tr>
<td>0.075</td>
<td>7-30</td>
<td>7-30</td>
<td>7-30</td>
<td>7-30</td>
</tr>
</tbody>
</table>

The fraction passing the 0.075mm (No.40) sieve shall not be greater than two-thirds of the fraction passing the 0.425 mm (No. 40) sieve. The coarse aggregate material retained on the 2.00mm (No.10) sieve shall have a mass percent of wore by the Los Angeles test (AASHTO T 96) of not more than 45.

The fraction passing the 0.425mm (No. 40) sieve shall have a liquid limit not greater than 35 and plasticity index range to 4- 9, when tested by AASHTO T89 and T90, respectively.

Kind of testing:
Sieve analyses (Gradation)
LL: not more than 35
PI: 4 – 9
MDD
CBR > 30%
FDT 98% one test in each 200 m.sq
LA The coarse aggregate material retained on the 2.00mm (No. 10) sieve shall have a mass percent of wear by the Los Angeles test (AASHTO T 96) not more than 45%
Finished surface shall vary not more than 10mm above or 15 mm down.
Material /soil: Dimension of material is 2/3*150mm or 50mm which is lesser.

Compaction: Thickness of wearing 150mm or less shall be compacted by 8 passes by a vibratory Roller with a static mass at least 8000kg per meter width. If the layer more than 150mm, material shall be placed in 2 layers. After approval of sub-grade layer then Gravel Wearing shall be permitted.

For more detail please see, drawings, BoQ and technical specification, all project work should be done in close coordination, instruction and satisfaction of UNDP engineer.
from the edges with the roller running forward and backward and adding the screenings simultaneously until the edges have been firmly compacted. The roller shall then progress gradually from the edges to the center, parallel to the center line of the road and overlapping uniformly each preceding rear wheel track by one half width and shall continue until the entire area of the course has been rolled by the rear wheel. Rolling shall continue until the road metal is thoroughly keyed with no creeping of metal ahead of the roller. Only slight sprinkling of water may be done during rolling, if required. On super elevated curves, the rolling shall proceed from the lower edge and progress gradually continuing towards the upper edge of the pavement. Rolling of sub base shall not be done when the sub-grade is soft or yielding or when the rolling causes a wave like motion in the sub-base or sub-grade. When rolling develops irregularities that exceed 12 mm when tested with a three-meter straight edge, the irregular surface shall be loosened and then aggregate added to or removed from it as required and the area rolled until it gives a uniform surface conforming to the desired cross-section and grade. The surface shall also be checked transversely by template for camber and any irregularities corrected in the manner described above. In no case shall the use of screenings to make up depressions be permitted.

**Application of Screening**
After the coarse aggregate has been lightly rolled to the required true surface, screenings shall be applied gradually over the surface to completely fill the interstices. Dry rolling shall be continued while the screenings are being spread so that the jarring effect of the roller causes them to settle into the voids of the coarse aggregates. The screenings shall be applied at a slow rate (in three or more applications) so as to ensure filling of all voids. Rolling and booming shall continue with the spreading of the screenings. Either mechanical brooms or hand brooms or both may be used. In no case shall the screenings be applied, so fast and thick as to form cakes, ridges on the surface making the filling of voids difficult, or to prevent the direct bearing of the roller on the coarse aggregates. The spreading, rolling and booming of screenings shall be performed on sections which can be completed within one day’s operation and shall continue until no more screenings can be forced into the voids of the coarse aggregate. Damp and wet screenings shall not be used under any circumstances.

**Sprinkling and Grouting**
After spreading the screening and rolling the surface shall be copiously sprinkled with water, swept and rolled. Hand brooms shall be used to sweep the wet screening into the voids and to distribute them evenly. The sprinkling, sweeping and rolling operations shall be continued and additional screenings applied where necessary until the coarse aggregates are well bonded and firmly set for the entire depth and until a grout has been formed of screenings and water that will fill all voids and form a wave of grout ahead of the wheels of the roller. The quantity of water to be used during the construction shall not be excessive so as to cause damage to the sub-base or sub-grade.

**Application of Binding Material**
After the application of screenings and rolling, a suitable binding material shall be applied at a uniform and slow rate in two or more successive thin layers. After each application of binding material, the surface shall be copiously sprinkled with water and the resulting slurry swept in with hand brooms or mechanical brooms or both so as to fill the voids properly. The surface shall then be rolled by a 8-10 tone roller, water being applied to the wheels in order to wash down the binding material that may get stuck to the wheels. The spreading of binding material, sprinkling of water, sweeping with brooms and rolling shall continue until the slurry that is formed will, after filling the voids form a wave ahead of wheels of the moving roller.

**Preparation of Sub-Grade**
The formation for a width equal to that of the crushed stone path shall first be cut to a depth, below the
proposed finished level, equal to the thickness of the course of brick aggregate (due allowance being made for consolidation) and dressed off in level to the finished profile. In case of made up soil, adequate watering shall be done so that earth settles down as much as possible and the same rolled up with a minimum three tonnes or light power roller, as directed by the Engineer-in-Charge.

**CONCRETE WORKS:**

**Concrete General:**
Concrete shall consist of cement, graded aggregate and water thoroughly mixed, placed and compacted as specified.
Before starting concreting the Contractor shall obtain formal written permission for concreting from the Engineer or his representative on site. The Engineer or his representative shall allow concreting after ascertaining the required lines and levels, suitability of formwork, availability of required plant and labour, proper fabrication and spacing of the steel bars and quality and quantity of cement and aggregates.

All concrete to be used in the Works shall be as shown on the Drawings, Bills of Quantities or as directed by the Engineer.

**Cement:**
All cement shall be from reputable manufacturers and conform to international standards. Cement shall be stored where it cannot be damaged by rain or moisture and shall be free of lumps when used. Sulphate-resisting cement shall be used for foundations and ordinary Portland cement for other works or as directed by Engineer or his representative.

**Concrete Aggregates:**
All concrete aggregates (sand & gravel) shall be furnished by the Contractor from approved sources and to be approved by the Engineer. They shall be free from organic material, lumps of soft material, clay, chalk, lime, peat, loam, soft clayey shale or decomposed stone, vegetable and other impurities that may be harmful to concrete.
Sand for concrete shall be clean, well graded and free of stones larger than 2mm and not include significant amounts of silt and clay. If sand, when dried after wetting, adheres together then it shall be considered unsuitable.
Gravel for concrete shall be uniformly graded and consist of hard and dense rock. The gravel shall be free of materials finer than 5mm and the surface shall be clean. Gravel for use in all concrete works, Mass Concrete, PCC and RCC shall have angular or cubical in shape. The maximum nominal size of the gravel shall be eighty (80) mm in mass concrete, forty (40) mm in structural concrete and twenty (20) mm in other thin concrete structures like slabs.

**Water for Concrete:**
Clean fresh water is to be used for the mixing of all concrete and mortar. Water that is safe to drink shall be considered suitable for making concrete.

**Steel Reinforcing Bars:**
Steel reinforcement shall be steel bars manufactured to international standards with a minimum yield stress of 250N/mm² or high yield steel grade 4501425 as indicated in the Drawings and Bill of Quantities or as directed and must comply with BS 4449, BS 4461 or another approved standard. Steel fabrics shall comply with BS 4483.
The Contractor shall be responsible for the accuracy of the cutting, bending and placing of the
reinforcement. Reinforcement will be inspected for compliance with the requirements as to grade, size, and shape, length, splicing locations, position and amount after it has been placed. Reinforcing bars or fabric shall be accurately placed and secured in position so that there will be a clear distance of at least 25mm between the bars or fabric and any adjacent embedded metal work and so that the bars and fabric will not be displaced during the placing of concrete, and the Contractor shall ensure that there is no disturbance of the reinforcing bars or fabric in concrete that has already been placed. Chairs, hangers, spacers and other acceptable metal, plastic or concrete supports may be furnished and used by the Contractor for supporting reinforcing bars or fabric.

All reinforcement bars shall, immediately prior to placing, be free from loose mill scale, loose rust, oil, grease, dirt or other foreign matter. Reinforcement is to be placed and secured in the exact position as indicated on the drawings and kept in the correct position in the forms without displacement during the process of vibrating, tamping and ramming the concrete in place. All free ends of the plain round bars shall have hook as shown on the drawings or as directed by the Engineer. Bars shall be bound together with best mild steel wire which shall be twisted tight with proper pliers. The free ends of the binding wire shall be bent inward. Minimum concrete cover to reinforcement should be 50mm measured from the outside of the bar, unless shown on the drawings or directed by the Engineer.

The Contractor must inform the Engineer of the completion of any reinforcement in time, in order to facilitate its inspection and check of conformity with the Working Drawings well before the concrete is placed. Relevant formalities shall be agreed upon between the Contractor and the Engineer at the appropriate time.

**Drawings and Bar Lists:**
Steel reinforcing bars or fabric shall be placed in concrete where shown on the Drawings or directed. A bar bending schedule may be provided for the Contractor’s convenience, but does not constitute a Contract Document the Contractor shall prepare for additional structures, in an approved manner, reinforcement detail drawings showing reinforcement bar lists, bar placement details and bar bending details for each structure, if not provided by the Engineer.

All reinforcing bars shown on the reinforcement detail drawings shall be identified on the bar lists in accordance with the standard reinforcing bar shapes as shown on the Drawings. All bar lists shall be identified with the relevant reinforcement detail drawing and all bars scheduled on the bar lists shall be defined and dimensioned in a manner approved by the Engineer.

**Concrete Classes:**
The classes of concrete to be used in the Works shall be as shown on the Drawings, Bills of Quantities or as directed by the Engineer. The concrete is classified on the basis of its compressive strength at twenty-eight (28) days as well as the maximum size of the aggregate as shown below and nominal mix proportions shall be used only as a guide.

<table>
<thead>
<tr>
<th>Concrete Max Slump(mm)</th>
<th>Concrete Class</th>
<th>Characteristic Cube Strength at 28 days (kg/cm²)</th>
<th>Maximum Aggregate size(mm)</th>
<th>Maximum water/cement ratio(%)</th>
<th>Approx. cement content</th>
<th>Nominal Mix proportions (Kg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>M25</td>
<td>250</td>
<td>20</td>
<td>45</td>
<td>400</td>
<td>1 : 1 : 2</td>
</tr>
<tr>
<td>75</td>
<td>M20</td>
<td>200</td>
<td>20</td>
<td>45</td>
<td>400</td>
<td>1 : 1.5 : 3</td>
</tr>
<tr>
<td>Type</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>M25 &amp; M20</td>
<td>Reinforced concrete for all RCC works, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M15</td>
<td>For various types of concrete works such as Mass Concrete structures and PCC works.</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Consistency:**

The concrete shall be of such consistency that it can be readily transported, placed and compacted in the Works without segregation of the materials. The resulting concrete shall be uniform and free from honey-combing. The consistency of the concrete as determined by the slump test shall be within the range of 5 cm to 10 cm. Samples for slump determination will be taken from the concrete during placing in the formwork.

**Mixing Concrete by Machine:**

Unless otherwise authorized by the Engineer, concrete shall be machine mixed at site.

Where the concrete is to be mixed in machines, these shall be of the batch mixing or other approved type. The machines shall ensure that all the concreting materials including the water are thoroughly mixed together before any portion of the mixture is discharged. The machines must be capable of discharging their contents while running.

All classes of concrete shall be mixed for a period not less than 1½ minutes after all materials, including water, are in the mixer. All mixing water shall be introduced before one-fourth of the mixing time has elapsed. The mixers shall not be loaded beyond their rated capacity, nor be operated at a speed in excess of that recommend by the manufacturer, generally between 15 to 20 revolutions per minute. The mixer shall produce a concrete of uniform consistency and appearance. All mixing equipment's shall be cleaned before commencing mixing and shall be kept free from set concrete.

Concrete for All Mass Concrete works, RCC works, & Stone Masonry Mortars shall be mixed by Machine, Hand Mixing is not permissible.

**Mixing Concrete by Hand:**

Where concrete is mixed by hand, this shall be done as near as practicable to the site where it is to be deposited. Clean mixing bankers of platforms of sufficient areas for the proper execution of the work shall be provided. These platforms if constructed of timber shall consist of planks closely jointed so as to avoid the loss of any grout or liquid from the wet concrete. The whole of the aggregate and cement shall be turned over on the banker in a dry state at least three (3) times. The water shall then be added gradually.
Mixing Concrete by hand is allowed only for small quantity works of less than 1M³

**Foundation Preparation for Concrete:**

Before placing concrete on foundations, the Contractor shall remove from all such surface oil, objectionable coatings, loose or unsound fragment of earth mud, debris and standing water, to the satisfaction of the Engineer and he shall keep such surfaces clean and free from standing water during concreting operations. Where new concrete is to be deposited on or against rock, the surface of the rock shall be toothed to form an adequate bond

**Placing of Concrete:**

The arrangements for placing concrete are to be such that in all cases the material may be conveniently handled and placed in the required position without re-handling or segregation. Except where otherwise directed, concrete shall not be placed unless the Engineer or his representative is present and has previously examined and approved the positioning, fixing and condition of reinforcement and any other items to be embedded and the cleanliness, alignment and suitability of the containing surfaces or formwork.

In placing concrete through reinforcement, care shall be taken that no segregation of the coarse aggregate occurs. On the bottom of beams or slabs, where the congestion of steel near the forms makes placing difficult, a layer of mortar of a composition compatible with the required concrete strength as directed shall be first deposited to cover the surface to a depth of approximately 3 cm.

Concrete shall not be placed in or in contact with standing or running water unless so specified or approved. Concrete shall not be placed against placed concrete which has been in position for more than 30 minutes unless a construction joint is formed as hereafter specified. When stoppage of concreting operations occurs for any reason, construction joints shall be placed. Before concreting operations are resumed, the surface of the concrete shall be cut or chipped to remove all laitance and to expose the aggregate. The surface of the concrete shall be thoroughly saturated and coated with a proportion of weight of 1:2 cement mortars one (1) cm thick before the placing of the concrete is resumed.

Concrete as reinforced concrete work shall be deposited in small quantities in a plastic state with a water cement ratio such to give the specified strength. The depositing of concrete in individual members shall be continued without stoppage up to an approved pre-arranged construction joint or until the member is completed and shall be finished off in such a manner that the junction of members shall be monolithic unless otherwise specified.

**Concreting in High or Low Ambient Temperature:**

Where the ambient temperature exceeds thirty-two degrees Celsius (32°C), the Contractor shall take special measures in the mixing, placing and curing of concrete. The temperature of the concrete when deposited shall not exceed thirty degrees Celsius (30°C). The Contractor shall carry out all necessary special measures to ensure that the maximum concrete temperature after placing shall not exceed thirty degrees Celsius (30°C) at the time of placing. During placing suitable means shall be provided to prevent premature stiffening of the concrete placed in contact with hot surfaces. The Contractor shall not mix and place concrete when the ambient temperature falls below three degrees Celsius (3°C).
**Concreting in Adverse Weather:**

No concreting will be allowed to take place in the open during storms or heavy rains/snowfall. Where strong winds are likely to be experienced additional precautions to ensure protection from driving rain and dust shall also be taken. The Engineer may withhold approval of commencement of concreting until he is satisfied that full and adequate arrangements have been made.

**Vibration of Concrete:**

Except where otherwise permitted by the Engineer, concrete shall be fully compacted throughout the full extent of the layer and shall be brought up in level layers of such depth that each layer is readily and properly incorporated with the layer below with the use of internal vibrators or by spading, slicing or ramming. It shall be thoroughly worked against formwork and around any reinforcement or embedded items without displacement. The internal concrete vibrator will either be arranged by Contractor himself.

The duration of vibration shall be limited to that required to produce satisfactory consolidation, without causing segregation. Vibration shall, on no account, be continued after water or excess grout (if any) appears on the surface.

**Curing and Protection:**

The Contractor shall take adequate measures to ensure that the concrete shall be kept damp continuously for a minimum of three (3) days after casting or for such other time as the Engineer may direct. After removal of this covering (layer of sacking, canvas, Hessian, straw mats or similar absorbent material or a layer of sand), the concrete shall then be sprayed with water for minimum period of a further fourteen (14) days.

All concrete liable to be affected by running water or wave action shall be adequately protected from damage during the setting period and all temporary protection works shall be to the satisfaction of the Engineer.

**Form Work:**

Formworks for concrete shall be constructed from materials of sufficient strength and supported to ensure that there is no deflection when concrete in placed. The formwork shall conform to the shapes, lines and dimensions of structures shown on the drawings. Where the concrete finished surface is exposed, the formwork shall be of good quality and free of gaps. Formwork shall not be removed until the concrete has obtained sufficient strength. Normally, formwork can be removed from walls after 2 days and from beneath slabs after 2 weeks.

The minimum periods between concreting and the removal of forms shall be as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Minimum Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sides of beams, walls, columns</td>
<td>24 hours</td>
</tr>
<tr>
<td>Soffits of secondary slabs (props left in)</td>
<td>4 days</td>
</tr>
<tr>
<td>Soffits of main slabs (props left in)</td>
<td>8 days</td>
</tr>
<tr>
<td>Soffits of beams (props left in)</td>
<td>8 days</td>
</tr>
</tbody>
</table>
Removal of props - secondary slabs 10 days
Removal of props - beams and main slabs 21 days
Arch centers, wedges eased 8 days
Arch centers, struck 21 days

The times in the above table are given as a guide and are based on average weather conditions and the use of Ordinary Cement. They may be changed if other types of cement are used, subject to the Engineer’s agreement. Formwork shall be constructed so that it can be removed without undue shock or vibration and so that side shutters of members can be removed without disturbing the soffit shutters; if the contractor wishes to leave some of the props in place when the soffit shutters are removed, these props shall not be disturbed during the striking. The detailed arrangements of the props shall be submitted in advance to the Engineer. In the case of heavy loading, folding wedges shall be provided. For pre-stressed units the side shutters shall be eased as early as possible and the soffit shutters shall permit movement of the units when the pre-stress is applied. All formwork must be removed without damage to the concrete. All formworks must be according to specification, BoQ and instruction of engineer.

For more detail on concrete work please see the attached specifications.

**Workmanship:**
Workers working on the site shall be skilled in their job and have related job experience.

**Materials:**
All materials used on this work shall be new and conforming to the contract specifications as per, specifications, International and local codes. Materials shall conform to the latest International Standards specifications as amended to date and carry certification mark. Contractor shall submit material samples and catalog for preapproval. All materials used on the project shall be approved by the engineer (UNDP), before use. Any changes/substitutes on material shall be approved by (UNDP), before proceeding.

**Storage of Materials:**
All materials shall be stored in a proper manner protected from natural elements so as to avoid contamination and deterioration.

**Safety:**
The UNDP assumes no responsibility for injuries or damages suffered by Contractor. Contractor is responsible and shall continue management and implementation of a safety and health program throughout construction. The UNDP reserve the right to suspend work when and where Contractor's safety and health program is considered to be operating in an inadequate or non-complying manner. Contractor shall provide all Personal Protective Equipment for the workers as per the requirement of the site. Work will be stopped in case the proper protection equipment is not found with the workers and the lapse of time shall be at the Contractor's expense. Contractor will not leave the work site in an unsafe condition or any other condition that might cause injury to personnel, damage to existing work, plants or equipment. Contractor will use all safety gadgets e.g. hard hats, cotton gloves and goggles as required on site to avoid the accident. Any equipment or work considered dangerous shall be immediately discontinued.
Site Location:
The project constitutes of two roads namely Nasrat Abad, Intezar and Ferdawi Villages which are situated in the north and north-east of Mazar-e Sharif City respectively. For GIS coordinates and project location please refer to the attached drawings. Contractors are advised to visit the site, verify the site condition and study the existing project site location to develop their proposals and other documents accordingly.

Drawings:
Detail drawings are attached to the documents.

c. Works on Brief
The project scope of works explained above and attached BOQs and specifications

d. Schedules and payments

UNDP will pay to contractor based on actual constructed work verified by UNDP engineer

<table>
<thead>
<tr>
<th>Description</th>
<th>Percentage</th>
<th>Timeline</th>
<th>Total cost in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress Payments upon completion of actual works done as per the agreed contract, BoQ and specifications, duly certified by the UNDP regional team.</td>
<td>100%</td>
<td>4.5 months (130 Days)</td>
<td></td>
</tr>
</tbody>
</table>

Liquidity damage /retention money will be 10% of total contract amount, or according to UNDP procurement rules and policy. The contractor shall guarantee that all work performed will be free from all defects in workmanship and materials and that all activities will provide the capacities and characteristics specified. The contract further guarantees that if, during a period of one year from the date of the certificate of completion and acceptance of the work, any such defects will be repaired by the contractor at his own cost.

CASH FOR WORK ARRANGEMENT
In consultation with CDCs, UNDP field coordinator will identify the most suitable labourers/beneficiaries based on the beneficiary selection criteria. Except in outstanding circumstances, one family can have maximum one labourer. This is to ensure as many households benefit from the intervention as possible. Vulnerabilities that will be considered for beneficiary selection include:

- households struggling with poverty
- women-headed households
- No child labour will be hired during project
- households with members who are unemployed, have disabilities and elderly

When the number of eligible labourers are high, a maximum number of working days per labourer could be set in order to ensure that as many households benefit from the intervention as possible.

The minimum pay per day for unskilled labour is 500 AFN

e. Key Performance Indicators and Service Level
The project will be regularly monitored by UNDP regional office, specifically by Field engineer who will be the project engineer for the said project, all the activities should be according to drawings, scope of work and given specification and have to be completed on given timeline and work plan, if there is anything found that were not according to drawings, scope of work and specification or have not done in good workmanship, the contractor should immediately repair the mentioned part according to given instruction by UNDP engineers.

Contractor shall not proceed with next activity until previous activity will be checked and approved by UNDP engineers. Contractor shall mention all inspection dates in the schedule chart, contract should work closely with UNDP engineers during the project implementation and share their Weekly schedule/activity plan, day to day activities plan for the duration of the project prior to the start date.

For dismantling/blocking or making connection to any existing services or any shutdown, contractor shall inform the (UNDP), at least three working days in advance and proceed with the work only after the permission from the UNDP. All dates and time schedule agreed upon should be strictly adhered to. Contractor shall notify the UNDP in advance regarding anticipated problems through the project.

f. Supervision

The project will be supervised by UNDP team, the contractor should report to UNDP regional offices or UNDP engineers and seek any type of approval, acceptance and assistance (based on contract) form them. The contractor should report weekly to UNDP office; the report should be comprehensive consisting of a narrative within 7 days following the completion of the services, the report must be sufficiently detailed (Date and time, activities description, pictures before and after, videos, issues, problems, challenges and recommendations) to allow certification of deliverables and expenditures, with all supported documents. The contractor should provide daily report if there were need or requested by UNDP. The contractor shall establish an efficient mechanism to ensure that a systematic update in regard to the implementation progress are available to UNDP and other parties of the project. The contractor shall provide the project manager/Engineer of the UNDP with a weekly plan for the visits and activities to be implemented on daily basis, besides the submission of weekly reports that that indicate the accomplished activities in accordance to the submitted weekly plans.

g. Facilities to be provided by UNDP

Everything will be the responsibility of the contractor. UNDP will only do the inspection and providing the installments based on the progress.

h. Expected duration of the contract/assignment

The project duration stated in work plan is 4.5 months (130 days), the contractor should strictly follow the work plan in order to complete the project on given time. The contractor should commence work within 7 days from the date on which he shall have been given access to the site and received the notice to commence from the UNDP and should perform and substantially complete the project on given time, in accordance with the contract. The contractor should provide all materials, supplies, labour and other services necessary to that end.
The estimated lead time for UNDP to review progress reports, certificate of payment, give comments, approve/accept outputs, etc. will be upon the rules and policy of UNDP.

The Defect Liability Period for this project will be 12 months after the completion of the project. If any defects happen during this period, the contractor is responsible to repair them by its own expenses.

i. Duty Station

The project constitutes of two roads namely Nasrat Abad, Intezar and Ferdawsi Villages which are situated in the north and north-east of Mazar-e Sharif City respectively. For GIS coordinates and project location please refer to the attached drawings.

The Contractor shall make his own arrangements, at his own expense, for all local accommodation he may require for offices, yards stores labour camps etc. and all buildings and all services in connection therewith which are required for the efficient execution of the Work.

Evaluation Table:

Please refer to RFQ Evaluation criteria.

Key personnel – Detailed evaluation

Contractor shall employ and provide one full time team to supervise the project and has experienced of carrying out such type of work. The below table show the staff and their experience for implementation of this project:

<table>
<thead>
<tr>
<th>S/N</th>
<th>Position/Item</th>
<th>Academy requirement</th>
<th>Experience (please detail on what)</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project Manager (engineer)/ Focal Point</td>
<td>Degree in Civil Engineer (For example)</td>
<td>A minimum of 8 years work experience in construction project management</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Site Engineer</td>
<td>Degree in civil engineering</td>
<td>A minimum of 5 years’ work experience in construction project supervision and implementation</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Field Supervisor/foreman</td>
<td>Degree in engineering or relevant field</td>
<td>A minimum of 2 years’ experience in construction project supervision</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Quality control engineer</td>
<td>Degree in engineering or relevant field</td>
<td>A minimum of 5 years’ experience in QC/QA, testing materials and laboratories</td>
<td>1</td>
</tr>
</tbody>
</table>