

BILL OF QUANTITIES

ROAD: KUTAI SI BYPASS-SAMTREDIA

LOT 4. SECTION KM30+000-KM41+354

| Item No | Description | Unit | Quantity |
|---|--|----------------|------------|
| 1 | 2 | 3 | 4 |
| BILL No. 1. PREPARATORY WORKS | | | |
| 1 | Basic survey and detailed setting out of road and right-of-way | | |
| 1.1 | Basic survey and detailed setting out of road and right-of-way on main road | km | 11.354 |
| 1.2 | Basic survey and detailed setting out of road and right-of-way on junctions | km | 0.147 |
| 2 | Removal of existing concrete pavement | m ² | 4,869.00 |
| 3 | Dismantling of existing guardrails | l.m | 11,267.00 |
| 4 | Disposal existing guardrails to the production base as scrap metal | t | 278.24 |
| 5 | Dismantling of existing road signs and structures and disposal to the production base as scrap metal | t | 40.775 |
| 6 | Cutting of anchors in cast in situ concrete foundations of three-post structure and full-frame structure up to design elevation, loading manually and disposal to the production base as scrap metal | t | 1.470 |
| 7 | Dismantling of cast in situ concrete foundation of existing road signs | m ³ | 54.00 |
| TOTAL FOR BILL No. 1. | | | |
| BILL No. 2. EARTHWORKS | | | |
| | <i>Main road</i> | | |
| 1 | Removal of top soil, loading and transportation for re-use | m ³ | 12,010.00 |
| 2 | Excavation of filled soil by excavator, loading and transportation to dumpsite | m ³ | 23,440.00 |
| 3 | Excavation of soft material to any depth in cut, load and transport to dumpsite | m ³ | 31,550.00 |
| 4 | Construction of benches on fill slopes | m ³ | 33,160.00 |
| 5 | Provide, place and compact fill to embankment with gravel, (borrow to fill). | m ³ | 430,990.00 |
| 6 | Provide, place and compact fill to embankment with rock soil, (borrow to fill). | m ³ | 23,700.00 |
| 7 | Reshaping of road bed | m ² | 176,790.00 |
| 8 | Reshaping of slopes | m ² | 87,570.00 |
| 9 | Distribution of top soil on fill slope thickness 15 cm | m ³ | 12,630.00 |
| | <i>Ramps and Intersections</i> | | |
| 10 | Excavation of soft material to any depth in cut, load and transport to dumpsite | m ³ | 950.00 |
| 11 | Reshaping of road bed | m ² | 2,270.00 |
| | <i>Dividing strip</i> | | |
| 12 | Provide, place and compact fill to dividing strip with gravel, (borrow to fill). | m ³ | 14,725.00 |
| 13 | Provide and place fill to dividing strip with clay, (borrow to fill). | m ³ | 21,156.00 |
| 14 | Distribution of top soil on dividing strip thickness 15 cm | m ³ | 5,029.00 |
| TOTAL FOR BILL No. 2. | | | |
| BILL No. 3. CULVERTS AND DRENAGE | | | |
| | I. BOX CULVERTS SIZE 1.5X2.0 | | |

| 1 | 2 | 3 | 4 |
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| | <i>Preparatory works</i> | | |
| 1 | Removal of existing socle in the outlet manually by jack hammers, loading and disposal to dumpsite | m ³ | 1.50 |
| | <i>Earthworks</i> | | |
| 2 | Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal | | |
| 2.1 | By excavator | m ³ | 630.00 |
| 2.2 | Manually | m ³ | 31.00 |
| 3 | Construction of gravel bed under the culvert, key and inlet and outlet structures | m ³ | 58.50 |
| 4 | Filling of rubble stone around the culvert, wedging and compaction | m ³ | 1,680.00 |
| 5 | Excavation of water course in outlet of box culverts | m ³ | 500.00 |
| | <i>New box culverts</i> | | |
| 6 | Construction of reinforced concrete box culvert, size 1.5 x 2.0 m B30F200W6 including all ancillary works and materials. | l.m | 60.00 |
| 7 | Construction of concrete bed under the box culvert B22.5F200W6 | m ³ | 56.50 |
| | <i>Inlet/ Outlet structures</i> | | |
| 8 | Construct reinforced concrete inlet/outlet structure for box culvert 1.5X2.0m B30F200W6 as shown on the drawings including all ancillary works and materials. | m ³ | 27.50 |
| 9 | Construction of concrete bed under the inlet/outlet structures B22.5F200W6 | m ³ | 14.50 |
| 10 | Waterproofing for inlet/outlet structures | m ² | 75.00 |
| 11 | Concrete of key, and socle B30F200W6 | m ³ | 7.00 |
| 12 | Stone rip-rap | m ³ | 50.00 |
| | SUM I. | | |
| | II. BOX CULVERTS SIZE 4.0X2.5 | | |
| | <i>Preparatory works</i> | | |
| 1 | Installation of steel re-usable pipe d=1.22 m, L=12 m by crane, for removal of water, follow-up removal and transportation to the production base | l.m | 48.00 |
| 2 | Removal of existing socle in the outlet manually by jack hammers, loading and disposal to dumpsite | m ³ | 2.25 |
| | <i>Earthworks</i> | | |
| 3 | Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal | | |
| 3.1 | By excavator | m ³ | 3,550.00 |
| 3.2 | Manually | m ³ | 177.00 |
| 4 | Pumping of water with two pumps, capacity 60 m3/hr | Equip. shift | 40.00 |
| 5 | Construction of gravel bed under the culvert, key, and inlet and outlet structures | m ³ | 260.40 |
| 6 | Filling of rubble stone around the culvert, wedging and compaction | m ³ | 7,360.00 |
| 7 | Excavation of water course in outlet of box culverts | m ³ | 790.00 |
| | <i>New box culverts</i> | | |
| 8 | Construction of reinforced concrete box culvert, size 4.0x2.5 m B30F200W6 including all ancillary works and materials. | l.m | 138.00 |
| 9 | Construction of concrete bed under the box culvert B22.5F200W6 | m ³ | 283.50 |
| | <i>Inlet/ Outlet structures</i> | | |
| 10 | Construct reinforced concrete inlet/outlet structure for box culvert 4.0x2.5m B30F200W6 as shown on the drawings including all ancillary works and materials. | m ³ | 276.00 |
| 11 | Construction of concrete bed under the inlet/outlet structures B22.5F200W6 | m ³ | 96.00 |
| 12 | Waterproofing for inlet/outlet structures and water intake well | m ² | 180.00 |

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| 13 | Concrete of key, and socle B30F200W6 | m ³ | 97.80 |
| 14 | Stone rip-rap | m ³ | 540.00 |
| | SUM II. | | |
| | III. BOX CULVERTS SIZE 6.0x4.5 | | |
| | <i>Preparatory works</i> | | |
| 1 | Installation of steel re-usable pipe d=1.22 m, L=12 m by crane, for removal of water, follow-up removal and transportation to the production base | l.m | 36.00 |
| 2 | Removal of existing socle in the outlet manually by jack hammers, loading and disposal to dumpsite | m ³ | 3.60 |
| | <i>Earthworks</i> | | |
| 3 | Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal | | |
| 3.1 | By excavator | m ³ | 1,320.00 |
| 3.2 | Manually | m ³ | 66.00 |
| 4 | Pumping of water with two pumps, capacity 60 m3/hr | Equip. shift | 60.00 |
| 5 | Construction of gravel bed under the culvert, key and inlet and outlet structures | m ³ | 85.50 |
| 6 | Filling of rubble stone around the culvert, wedging and compaction | m ³ | 6,000.00 |
| | <i>New box culverts</i> | | |
| 7 | Construction of reinforced concrete box culvert, size 6.0x4.5 m B30F200W6 including all ancillary works and materials. | l.m | 24.00 |
| 8 | Construction of concrete bed under the box culvert B22.5F200W6 | m ³ | 64.50 |
| | <i>Inlet/ Outlet structures</i> | | |
| 9 | Construct reinforced concrete inlet/outlet structure for box culvert 6.0x4.5m B30F200W6 as shown on the drawings including all ancillary works and materials. | m ³ | 288.40 |
| 10 | Construction of concrete bed under the inlet/outlet structures B22.5F200W6 | m ³ | 69.90 |
| 11 | Waterproofing for inlet/outlet structures | m ² | 120.00 |
| 12 | Concrete of key, and socle B30F200W6 | m ³ | 52.20 |
| 13 | Stone rip-rap | m ³ | 225.00 |
| | SUM III. | | |
| | III. BOX CULVERTS SIZE 1.0x1.5 | | |
| | <i>Preparatory works</i> | | |
| 1 | PK 379+00 filling of concrete B22.5 F200W6 into the existing reinforced concrete pipe-culvert d=2x1.0m (Filling of concrete into culvert body L=30 m under pressure) | m ³ | 60.00 |
| 2 | Removal of existing gabion mattresses manually, loading and disposal to dumpsite (PK 378+75.36 abutment N2 river Cherekha, on the abutment cones | m ³ | 3.60 |
| | <i>Earthworks</i> | | |
| 3 | Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal | | |
| 3.1 | By excavator | m ³ | 180.00 |
| 3.2 | Manually | m ³ | 9.00 |
| 4 | Pumping of water with two pumps, capacity 60 m3/hr | Equip. shift | |
| 5 | Construction of gravel bed under the culvert, key, water intake well and inlet and outlet structures | m ³ | 12.40 |
| 6 | Filling of rubble stone around the culvert, wedging and compaction | m ³ | 270.00 |
| 7 | Restoration of gabion mattress on cone size. 2.0x0.3x3.0 m | m ³ | 3.60 |
| | <i>New box culverts</i> | | |
| 8 | Construction of reinforced concrete box culvert, size 1.0x1.5 m B30F200W6 including all ancillary works and materials. | l.m | 18.00 |

| 1 | 2 | 3 | 4 |
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| 9 | Construction of concrete bed under the box culvert B22.5F200W6 | m ³ | 5.00 |
| | <i>Inlet/ Outlet structures</i> | | |
| 10 | Construct reinforced concrete inlet/outlet structure for box culvert 1.0x1.5m B30F200W6 as shown on the drawings including all ancillary works and materials. | m ³ | 3.70 |
| 11 | Construction of concrete bed under the inlet/outlet structures B22.5F200W6 | m ³ | 1.70 |
| 12 | Concrete of water intake well, B22.5F200W6 | m ³ | 5.60 |
| 13 | Waterproofing for water intake well and inlet/outlet structures | m ² | 14.00 |
| 14 | Concrete of key, and socle B30F200W6 | m ³ | 1.90 |
| 15 | Stone rip-rap | m ³ | 9.00 |
| | SUM III. | | |
| | V DRENAGE | | |
| | <i>Treatment facilities</i> | | |
| 1 | Removal of existing treatment facilities | | |
| 1.1 | Excavation of soil manually, leveling in situ | m ³ | 1.00 |
| 1.2 | Removal of reinforced concrete by jack hammers | m ³ | 2.00 |
| 1.3 | Dismantling of steel pipes, follow-up installation on treatment facilities | t | 0.074 |
| 2 | Installation of steel pipes on treatment facilities | t | 0.055 |
| 3 | Excavation of soil with excavator | m ³ | 315.00 |
| 4 | Construction of crushed aggregates bed h-10 cm | m ³ | 18.00 |
| 5 | Construction of concrete leveling layer B20F200W6, h-10 cm | m ³ | 18.00 |
| 6 | Construction of cast in situ reinforced concrete treatment reservoir, B30F200W6 | m ³ | 126.00 |
| 7 | Bituminous insulation | m ² | 774.00 |
| 8 | Backfilling of soil in pit with excavator | m ³ | 90.00 |
| 9 | Loading of extra soil with excavators and transportation to the dumpsite | m ³ | 225.00 |
| | SUM V. | | |
| TOTAL FOR BILL No. 3. | | | |
| BILL No. 5. BRIDGES | | | |
| B-1. BRIDGE OVER THE RIVER GUBISTSKALI | | | |
| | <i>I Preparatory works</i> | | |
| 1 | Construction of the site, displacing of the delivered gravel soil by bulldozer, leveling | m ³ | 400.00 |
| 2 | Construction of technological sites from coarse rocky soil for the construction of abutments, compaction in 0.5m layers | m ³ | 200.00 |
| 3 | Excavation of soil by bulldozer for the construction of piers, levelling in situ | m ³ | 790.00 |
| 4 | Construction of half-islands from the delivered gravel soil for the construction of piers N5, 6 and N7 | m ³ | 2400.00 |
| 5 | Gravelling of technological sites of piers by the delivered gravel, leveling by bulldozer | m ² | 1010.00 |
| | <i>II. Abutments N1 and N11</i> | | |
| 1 | Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories) | l.m | 363.00 |
| 2 | Loading of taken out soil by excavator and disposal to dumpsite | m ³ | 422.00 |
| 3 | Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite | m ³ | 16.00 |
| 4 | Pile integrity test | unit | 2 |

| 1 | 2 | 3 | 4 |
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| 5 | Construction of reinforced concrete cross-beam, back wall, wings, bedplates and stops against seismicity | | |
| 5.1 | Excavation of coarse grained soil by excavator, piling in situ, leveling by layers, compaction | m ³ | 156.00 |
| 5.2 | Excavation of soil manually | m ³ | 17.00 |
| 5.3 | Construction of crushed aggregates bed | m ³ | 29.00 |
| 5.4 | Concrete leveling layer B30 F200 W6 | m ³ | 13.00 |
| 5.5 | Reinforced concrete B30F200W6 | m ³ | 250.00 |
| 5.6 | Bituminous insulation | m ² | 233.00 |
| 6 | Construction of embankment from coarse rocky soil behind the cones and abutments, compaction in 0.5 m layers | m ³ | 780.00 |
| 7 | Construction of cast in situ parapets on wings, concrete B30F200W6 | m ³ | 1.60 |
| | <i>III Piers N2 ÷ N10</i> | | |
| 8 | Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories) | l.m | 2081.00 |
| 9 | Loading of taken out soil by excavator and disposal to dumpsite | m ³ | 2563.00 |
| 10 | Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite | m ³ | 81.00 |
| 11 | Pile integrity test | unit | 72 |
| 12 | Construction of reinforced concrete raft foundation: | | |
| 12.1 | Excavation of soil with excavator, pilling in situ | m ³ | 2211.00 |
| 12.2 | Excavation of soil manually, strengthening of pit walls | m ³ | 245.70 |
| 12.3 | Area of strengthening | m ² | 1172.00 |
| 12.4 | Pumping of water with two pumps, capacity 60 m3/hr | Equip. shift | 47.00 |
| 12.5 | Construction of crushed aggregates bed | m ³ | 110.00 |
| 12.6 | Concrete leveling layer B30 F200 W6 | m ³ | 48.00 |
| 12.7 | Reinforced concrete of raft foundation B30F200W6 | m ³ | 726.00 |
| 12.8 | Bituminous insulation | m ² | 945.00 |
| 12.9 | Backfilling of soil into the pit | m ³ | 1573.00 |
| 12.10 | Loading of extra soil with excavator and transportation to dumpsite | m ³ | 884.00 |
| 13 | Construction of reinforced concrete pier column in form work, B30F200W6 | m ³ | 298.00 |
| 14 | Bituminous insulation | m ² | 211.00 |
| 15 | Construction of reinforced concrete cast in situ cross-beam, supporting bedding and anti-seismic stops, B30F200W6 | m ³ | 342.00 |
| | <i>IV Superstructure</i> | | |
| 16 | Pre-fabrication of pre-stressed reinforced concrete beams L=33 ð and transportation to the site, unloading, B40F200W6 | m ³ | 1808.00 |
| 17 | Construction of anti-seismic rubber bearing parts on supporting beddings 30x40x9 cm including uniting steel slab | unit | 160.00 |
| 18 | Rubber gasket between beams and stops against seismicity | kg | 1760.00 |
| 19 | Installation of water removing galvanized steel pipes prior to installation of superstructure beams | kg | 8857.00 |
| 20 | Delivery of superstructure beams in trucks and installation by gantry crane type mounting device | unit | 80.00 |
| 21 | Concreting of longitudinal seams of beams and cast in situ areas of end beams, B40 F200 W6 | m ³ | 243.00 |
| 22 | Connection of the superstructure in one continuous temperature system and construction of back slabs B40F200W6 | m ³ | 72.00 |
| 23 | Construction of gasket from flexible material for uniting the beams into continuous temperature system | m ² | 49.00 |

| 1 | 2 | 3 | 4 |
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| | <i>V Bridge deck</i> | | |
| 24 | Construction of cast in situ reinforced concrete slabs on superstructure installed beams h=10.0 cm B40F200W18 (Initial W6) | m ³ | 463.00 |
| 25 | In situ concreting of cast in situ reinforced concrete barrier B30F200W6 | m ³ | 130.00 |
| 26 | Pre-fabrication and installation of embedded details for fixing steel elements of barrier | kg | 1980.00 |
| 27 | Pre-fabrication and painting of steel elements of barriers, transportation and installation | kg | 20526.00 |
| 28 | Installation of cast iron pipes for water removal | unit | 60.00 |
| 29 | Application of bitumen on the surface of cast in situ slab | t | 3.80 |
| 30 | Asphalt concrete of carriageway h=7 cm | m ² | 3802.00 |
| 31 | Cat in situ concrete of sidewalks B40F200W6 | m ³ | 49.50 |
| 32 | Installation of embedded details for the securing of railing | kg | 1056.00 |
| 33 | Application of bitumen on sidewalk surface | t | 0.33 |
| 34 | Asphalt concrete of sidewalk h=3 cm | m ² | 330.00 |
| 35 | Pre-fabrication of steel railing, painting, transportation and installation | kg | 20790.00 |
| 36 | Painting of reinforced concrete barrier | m ² | 660.00 |
| | <i>VI Construction of movement joints</i> | | |
| 37 | Movement joints (with rubber compensator) | L.m | 84.00 |
| | <i>VII Conjunction of bridge with the road bed</i> | | |
| 38 | Construction of crushed aggregates bedding under transition slabs | m ³ | 140.00 |
| 39 | Pre-fabrication of transition slabs, transportation to the site, installation, B30F200W6 | m ³ | 35.80 |
| 40 | Monolithing of transition slabs B30F200W6 | m ³ | 4.60 |
| 41 | Protective painting on transition slabs, included leveling layer and protecting layer | m ² | 138.00 |
| | <i>IX Construction of reinforced concrete pavement</i> | | |
| 42 | Construction of base from crushed aggregates h=25 ÷ 45 cm | m ³ | 90.00 |
| 43 | Reinforced concrete of pavement B35 F200 W6 h=28 cm | m ² | 115.00 |

TOTAL FOR B-1.

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| B-2. BRIDGE OVER THE RIVER CHEREKHA | | | |
| | <i>I Preparatory works</i> | | |
| 1 | Construction of the site, displacing of the delivered gravel soil by bulldozer, leveling | m ³ | 100.00 |
| 2 | Construction of rip-rap on the right bank in the downstream : | | |
| 3 | Excavation of soil by excavator, loading and disposal to dumpsite | m ³ | 135.00 |
| 4 | Construction of rip-rap from the delivered rocky soil d>0.5m | m ³ | 305.00 |
| 5 | Construction of technological site of coarse rocky soil for the construction of abutments , compaction in 0.5 layers | m ³ | 900.00 |
| | <i>II. Abtuments N1 and N2</i> | | |
| 1 | Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories) | l.m | 478.00 |
| 2 | Loading of taken out soil by excavator and disposal to dumpsite | m ³ | 558.00 |
| 3 | Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite | m ³ | 23.00 |
| 4 | Pile integrity test | unit | 20 |
| 5 | Construction of reinforced concrete cross-beam, back wall, wings, bedplates and stops against seismicity | | |
| 5.1 | Excavation of coarse grained soil by excavator, piling in situ, leveling by layers, compaction | m ³ | 181.00 |

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| 5.2 | Excavation of soil manually | m ³ | 20.00 |
| 5.3 | Construction of crushed aggregates bed | m ³ | 33.30 |
| 5.4 | Concrete leveling layer B30 F200 W6 | m ³ | 14.50 |
| 5.5 | Reinforced concrete B30F200W6 | m ³ | 287.00 |
| 5.6 | Bituminous insulation | m ² | 264.00 |
| 6 | Construction of embankment from coarse rocky soil behind the cones and abutments, compaction in 0.5 m layers | m ³ | 450.00 |
| 7 | Construction of cast in situ parapets on wings, concrete B30F200W6 | m ³ | 1.60 |
| | <i>IV Superstructure</i> | | |
| 8 | Pre-fabrication of pre-stressed reinforced concrete beams L=33 Ø and transportation to the site, unloading, B40F200W6 | m ³ | 180.80 |
| 9 | Construction of anti-seismic rubber bearing parts on supporting beddings 30x40x9 cm including uniting steel slab | unit | 16 |
| 10 | Rubber gasket between beams and stops against seismicity | kg | 176.00 |
| 11 | Installation of water removing galvanized steel pipes prior to installation of superstructure beams | kg | 1007.00 |
| 12 | Delivery of superstructure beams in trucks and installation by gantry crane type mounting device | unit | 8 |
| 13 | Concreting of longitudinal seams of beams and cast in situ areas of end beams, B40 F200 W6 | m ³ | 24.30 |
| 14 | Construction of back slabs B40F200W6 | m ³ | 9.00 |
| | <i>V Bridge deck</i> | | |
| 15 | Construction of cast in situ reinforced concrete slabs on superstructure installed beams h=10.0 cm B40F200W18 (Initial W6) | m ³ | 47.00 |
| 16 | In situ concreting of cast in situ reinforced concrete barrier B30F200W6 | m ³ | 13.00 |
| 17 | Pre-fabrication and installation of embedded details for fixing steel elements of barrier | kg | 198.00 |
| 18 | Pre-fabrication and painting of steel elements of barriers, transportation and installation | kg | 2052.60 |
| 19 | Installation of cast iron pipes for water removal | unit | 6.00 |
| 20 | Application of bitumen on the surface of cast in situ slab | t | 0.38 |
| 21 | Asphalt concrete of carriageway h=7 cm | m ² | 380.00 |
| 22 | Cat in situ concrete of sidewalks B40F200W6 | m ³ | 5.00 |
| 23 | Installation of embedded details for the securing of railing | kg | 106.00 |
| 24 | Application of bitumen on sidewalk surface | t | 0.03 |
| 25 | Asphalt concrete of sidewalk h=3 cm | m ² | 33.00 |
| 26 | Pre-fabrication of steel railing, painting, transportation and installation | kg | 2079.00 |
| 27 | Painting of reinforced concrete barrier | m ² | 66.00 |
| | <i>VI Construction of movement joints</i> | | |
| 28 | Movement joints (with rubber compensator) | L.m | 32.40 |
| | <i>VII Conjunction of bridge with the road bed</i> | | |
| 29 | Construction of crushed aggregates bedding under transition slabs | m ³ | 140.00 |
| 30 | Pre-fabrication of transition slabs, transportation to the site, installation, B30F200W6 | m ³ | 35.80 |
| 31 | Monolithing of transition slabs B30F200W6 | m ³ | 4.60 |
| 32 | Protective painting on transition slabs, included leveling layer and protecting layer | m ² | 138.00 |
| | <i>VIII Construction of cones surfaces</i> | | |
| 33 | Construction of gabion mattresses on cones | m ³ | 171.00 |
| | <i>IX Construction of reinforced concrete pavement</i> | | |
| 34 | Construction of base from crushed aggregates h=25 ÷ 45 cm | m ³ | 90.00 |

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| 35 | Reinforced concrete of pavement B35 F200 W6 h=28 cm | m ² | 115.00 |
| TOTAL FOR B-2. | | | |
| B-3. BRIDGE OVER THE RIVER OCHOPA | | | |
| | <i>I Preparatory works</i> | | |
| 1 | Construction of the site, displacing of the delivered gravel soil by bulldozer, leveling | m ³ | 200.00 |
| 2 | Removal of existing gabion mattresses manually on the left side of the overpass (on abutment cones), loading and disposal to dumpsite | m ³ | 90.00 |
| 3 | Construction of technological site of coarse rocky soil for the construction of abutments N1 and N4 , compaction in 0.5 layers | m ³ | 1030.00 |
| 4 | Construction of technological site for pier N2, excavation of soil by bulldozer, leveling in situ | m ³ | 50.00 |
| 5 | Construction of technological site from the delivered gravel for pier N3, compaction in layers, follow-up removal and disposal to dumpsite | m ³ | 440.00 |
| 6 | Excavation of soil by excavator for construction d=1.22 m pipe, loading and disposal to dumpsite | m ³ | 110.00 |
| 7 | Installation of re-usable 4 pipes d=1.22 m, L=12.0 m by crane in the river bed to divert water, follow up dismantling and disposal to dumpsite | l.m | 48.00 |
| 8 | Gravelling of technological sites by the delivered gravel, leveling by bulldozer | m ² | 240.00 |
| | <i>II. Abutments N1 and N4</i> | | |
| 9 | Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories) | l.m | 405.00 |
| 10 | Loading of taken out soil by excavator and disposal to dumpsite | m ³ | 470.00 |
| 11 | Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite | m ³ | 16.00 |
| 12 | Pile integrity test | unit | 14 |
| 13 | Construction of reinforced concrete cross-beam, back wall, wings, bedplates and stops against seismicity | | |
| 13.1 | Excavation of coarse grained soil by excavator, piling in situ, leveling by layers, compaction | m ³ | 156.00 |
| 13.2 | Excavation of soil manually | m ³ | 17.00 |
| 13.3 | Construction of crushed aggregates bed | m ³ | 29.00 |
| 13.4 | Concrete leveling layer B30 F200 W6 | m ³ | 13.00 |
| 13.5 | Reinforced concrete B30F200W6 | m ³ | 250.00 |
| 13.6 | Bituminous insulation | m ² | 233.00 |
| 14 | Construction of embankment from coarse rocky soil behind the cones and abutments, compaction in 0.5 m layers | m ³ | 1320.00 |
| 15 | Construction of cast in situ parapets on wings, concrete B30F200W6 | m ³ | 1.60 |
| | <i>III Piers N2 ÷ N3</i> | | |
| 16 | Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories) | l.m | 462.00 |
| 17 | Loading of taken out soil by excavator and disposal to dumpsite | m ³ | 614.00 |
| 18 | Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite | m ³ | 18.00 |
| 19 | Pile integrity test | unit | 16 |
| 20 | Construction of reinforced concrete raft foundation: | | |
| 20.1 | Excavation of soil with excavator, piling in situ | m ³ | 800.00 |
| 20.2 | Excavation of soil manually, strengthening of pit walls | m ³ | 76.00 |
| 20.3 | Area of strengthening | m ² | 424.00 |
| 20.4 | Pumping of water with two pumps, capacity 60 m3/hr | Equip. shift | 18.00 |
| 20.5 | Construction of crushed aggregates bed | m ³ | 24.40 |

| 1 | 2 | 3 | 4 |
|-------|--|----------------|---------|
| 20.6 | Concrete leveling layer B30 F200 W6 | m ³ | 10.60 |
| 20.7 | Reinforced concrete of raft foundation B30F200W6 | m ³ | 161.40 |
| 20.8 | Bituminous insulation | m ² | 147.00 |
| 20.9 | Backfilling of soil into the pit | m ³ | 680.00 |
| 20.10 | Loading of extra soil with excavator and transportation to dumpsite | m ³ | 196.00 |
| 21 | Construction of reinforced concrete pier column in form work, B30F200W6 | m ³ | 88.20 |
| 22 | Bituminous insulation | m ² | 94.00 |
| 23 | Construction of reinforced concrete cast in situ cross-beam, supporting bedding and anti-seismic stops, B30F200W6 | m ³ | 76.00 |
| | <i>IV Superstructure</i> | | |
| 24 | Pre-fabrication of pre-stressed reinforced concrete beams L=33 Ø and transportation to the site, unloading, B40F200W6 | m ³ | 542.40 |
| 25 | Construction of anti-seismic rubber bearing parts on supporting beddings 30x40x9 cm including uniting steel slab | unit | 48 |
| 26 | Rubber gasket between beams and stops against seismicity | kg | 528.00 |
| 27 | Installation of water removing galvanized steel pipes prior to installation of superstructure beams | kg | 2416.00 |
| 28 | Delivery of superstructure beams in trucks and installation by gantry crane type mounting device | unit | 24 |
| 29 | Concreting of longitudinal seams of beams and cast in situ areas of end beams, B40 F200 W6 | m ³ | 72.90 |
| 30 | Connection of the superstructure in one continuous temperature system and construction of back slabs B40F200W6 | m ³ | 21.60 |
| 31 | Construction of gasket from flexible material for uniting the beams into continuous temperature system | m ² | 20.00 |
| | <i>V Bridge deck</i> | | |
| 32 | Construction of cast in situ reinforced concrete slabs on superstructure installed beams h=10.0 cm B40F200W18 (Initial W6) | m ³ | 139.00 |
| 33 | In situ concreting of cast in situ reinforced concrete barrier B30F200W6 | m ³ | 39.00 |
| 34 | Pre-fabrication and installation of embedded details for fixing steel elements of barrier | kg | 594.00 |
| 35 | Pre-fabrication and painting of steel elements of barriers, transportation and installation | kg | 6158.00 |
| 36 | Installation of cast iron pipes for water removal | unit | 18.00 |
| 37 | Application of bitumen on the surface of cast in situ slab | t | 1.14 |
| 38 | Asphalt concrete of carriageway h=7 cm | m ² | 1141.00 |
| 39 | Cat in situ concrete of sidewalks B40F200W6 | m ³ | 11.90 |
| 40 | Installation of embedded details for the securing of railing | kg | 317.00 |
| 41 | Application of bitumen on sidewalk surface | t | 0.10 |
| 42 | Asphalt concrete of sidewalk h=3 cm | m ² | 99.00 |
| 43 | Pre-fabrication of steel railing, painting, transportation and installation | kg | 6237.00 |
| 44 | Painting of reinforced concrete barrier | m ² | 198.00 |
| | <i>VI Construction of movement joints</i> | | |
| 45 | Movement joints (with rubber compensator) | L.m | 28.00 |
| | <i>VII Conjunction of bridge with the road bed</i> | | |
| 46 | Construction of crushed aggregates bedding under transition slabs | m ³ | 140.00 |
| 47 | Pre-fabrication of transition slabs, transportation to the site, installation, B30F200W6 | m ³ | 35.80 |
| 48 | Monolithing of transition slabs B30F200W6 | m ³ | 4.60 |
| 49 | Protective painting on transition slabs, included leveling layer and protecting layer | m ² | 138.00 |
| | <i>VIII Construction of cones surfaces</i> | | |

| 1 | 2 | 3 | 4 |
|----|--|----------------|--------|
| 50 | Construction of gabion mattresses on cones | m ³ | 246.60 |
| 51 | Construction of stopper of gabion boxes size 1.5x1.0x1.0 m | m ³ | 18.00 |
| | <i>IX Construction of reinforced concrete pavement</i> | | |
| 52 | Construction of base from crushed aggregates h=25 ÷ 45 cm | m ³ | 90.00 |
| 53 | Reinforced concrete of pavement B35 F200 W6 h=28 cm | m ² | 115.00 |

TOTAL FOR B-3.

| | | | |
|-----------------------------------|---|----------------|---------|
| B-4. OVERPASS AT PK 370+65 | | | |
| | <i>I Preparatory works</i> | | |
| 1 | Construction of the site, displacing of the delivered gravel soil by bulldozer, leveling | g ³ | 100.00 |
| 2 | Removal of existing gabion mattresses manually on the left side of the overpass (on abutment cones), loading and disposal to dumpsite | g ³ | 50.00 |
| 3 | Excavation of soil by excavator where abutments shall be constructed, loading and disposal to dumpsite | g ³ | 180.00 |
| 4 | Construction of technological site of coarse rocky soil for the construction of abutments , compaction in 0.5 layers | g ³ | 710.00 |
| | <i>II. Abutments N1 and N2</i> | | |
| 5 | Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories) | l.m | 363.00 |
| 6 | Loading of taken out soil by excavator and disposal to dumpsite | m ³ | 423.00 |
| 7 | Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite | m ³ | 16.00 |
| 8 | Pile integrity test | unit | 14 |
| 9 | Construction of reinforced concrete cross-beam, back wall, wings, bedplates and stops against seismicity | | |
| 9.1 | Excavation of coarse grained soil by excavator, piling in situ, leveling by layers, compaction | m ³ | 170.00 |
| 9.2 | Excavation of soil manually | m ³ | 19.00 |
| 9.3 | Construction of crushed aggregates bed | m ³ | 31.40 |
| 9.4 | Concrete leveling layer B30 F200 W6 | m ³ | 13.60 |
| 9.5 | Reinforced concrete B30F200W6 | m ³ | 250.00 |
| 9.6 | Bituminous insulation | m ² | 255.00 |
| 10 | Construction of embankment from coarse rocky soil behind the cones and abutments, compaction in 0.5 m layers | m ³ | 420.00 |
| 11 | Construction of cast in situ parapets on wings, concrete B30F200W6 | m ³ | 1.60 |
| | <i>IV Superstructure</i> | | |
| 12 | Pre-fabrication of pre-stressed reinforced concrete beams L=33 g and transportation to the site, unloading, B40F200W6 | m ³ | 180.80 |
| 13 | Construction of anti-seismic rubber bearing parts on supporting beddings 30x40x9 cm including uniting steel slab | unit | 16 |
| 14 | Rubber gasket between beams and stops against seismicity | kg | 176.00 |
| 15 | Installation of water removing galvanized steel pipes prior to installation of superstructure beams | kg | 1007.00 |
| 16 | Delivery of superstructure beams in trucks and installation by gantry crane type mounting device | unit | 8 |
| 17 | Concreting of longitudinal seams of beams and cast in situ areas of end beams, B40 F200 W6 | m ³ | 24.30 |
| 18 | Construction of back slabs B40F200W6 | m ³ | 7.20 |
| | <i>V Bridge deck</i> | | |
| 19 | Construction of cast in situ reinforced concrete slabs on superstructure installed beams h=10.0 cm B40F200W18 (Initial W6) | m ³ | 46.30 |

| 1 | 2 | 3 | 4 |
|----|---|----------------|---------|
| 20 | In situ concreting of cast in situ reinforced concrete barrier B30F200W6 | m ³ | 13.00 |
| 21 | Pre-fabrication and installation of embedded details for fixing steel elements of barrier | kg | 198.00 |
| 22 | Pre-fabrication and painting of steel elements of barriers, transportation and installation | kg | 2052.60 |
| 23 | Installation of cast iron pipes for water removal | unit | 6.00 |
| 24 | Application of bitumen on the surface of cast in situ slab | t | 0.38 |
| 25 | Asphalt concrete of carriageway h=7 cm | m ² | 380.00 |
| 26 | Cast in situ concrete of sidewalks B40F200W6 | m ³ | 5.00 |
| 27 | Installation of embedded details for the securing of railing | kg | 106.00 |
| 28 | Application of bitumen on sidewalk surface | t | 0.03 |
| 29 | Asphalt concrete of sidewalk h=3 cm | m ² | 33.00 |
| 30 | Pre-fabrication of steel railing, painting, transportation and installation | kg | 2079.00 |
| 31 | Painting of reinforced concrete barrier | m ² | 66.00 |
| | <i>VI Construction of movement joints</i> | | |
| 32 | Movement joints (with rubber compensator) | L.m | 28.00 |
| | <i>VII Conjunction of bridge with the road bed</i> | | |
| 33 | Construction of crushed aggregates bedding under transition slabs | m ³ | 140.00 |
| 34 | Pre-fabrication of transition slabs, transportation to the site, installation, B30F200W6 | m ³ | 35.80 |
| 35 | Monolithing of transition slabs B30F200W6 | m ³ | 4.60 |
| 36 | Protective painting on transition slabs, included leveling layer and protecting layer | m ² | 138.00 |
| | <i>VIII Construction of cones surfaces</i> | | |
| 37 | Construction of gabion mattresses on cones | m ³ | 121.60 |
| | <i>IX Construction of reinforced concrete pavement</i> | | |
| 38 | Construction of base from crushed aggregates h=25 ÷ 45 cm | m ³ | 90.00 |
| 39 | Reinforced concrete of pavement B35 F200 W6 h=28 cm | m ² | 115.00 |

TOTAL FOR B-4.

TOTAL FOR BILL No. 5.

BILL No. 6. ROAD PAVEMENT

| | | | |
|---|---|----------------|------------|
| | <i>Concrete pavement -Main road</i> | | |
| 1 | Construction of sub-base with sand and gravel mix, thickness 30 cm | m ³ | 64,695.00 |
| 2 | Construction of lower layer of base course with crushed aggregates 0-40 mm, thickness 25 cm | m ² | 131,367.00 |
| 3 | Provide and construct concrete pavement, 28 sm thick, in two layers, including formwork, dowels, anchors, joints, joint filler, primer, admixtures, sealants and all incidental works, finishing to lines and levels as per drawing and per specification | m ² | 120,799.00 |
| 4 | Construction of reinforcement fabric in cement concrete pavement within the limits of engineering structures | t | 37.17 |
| 5 | Construction of shoulders with sand and gravel mix | m ³ | 6,685.00 |
| | <i>Concrete pavement - Ramps and Intersections</i> | | |
| 6 | Construction of sub-base with sand and gravel mix, thickness 30 cm | m ³ | 449.00 |
| 7 | Construction of lower layer of base course with crushed aggregates 0-40 mm, thickness 25 cm | m ² | 793.00 |
| 8 | Provide and construct concrete pavement, 24 sm thick, including formwork, dowels, anchors, joints, joint filler, primer, admixtures, sealants and all incidental works, finishing to lines and levels as per drawing and per specification | m ² | 647.00 |
| 9 | Construction of shoulders with sand and gravel mix | m ³ | 171.00 |

TOTAL FOR BILL No. 6.

| 1 | 2 | 3 | 4 |
|-----------------------------------|---|----------------|-----------|
| BILL No. 7. ROAD FURNITURE | | | |
| 1 | Provide and install plastic guide (signal) posts on marking line as shown on the drawings, including all ancillary works and materials | u | 68 |
| 2 | Standard light reflecting road signs, II and III-type size, covered with high intensity prismatic-optical system "VIII" class adhesive films | | |
| 2.1 | Warning signs | u | 6 |
| 2.2 | Prohibitory signs | u | 6 |
| 2.3 | Indication signs | u | 4 |
| 2.4 | Special regulation signs | u | 9 |
| 2.5 | Distance mark (7.13) | u | 22 |
| 2.6 | Steel posts MP-5 | u | 18 |
| 2.7 | Steel posts MP-6 | u | 22 |
| 2.8 | Steel posts MP-8 | u | 2 |
| 2.9 | Concrete for foundation B22.5F200W6 | m ³ | 14.40 |
| 2.10 | Install additional road signs | u | 5 |
| 3 | Bilingual road signs of individual design, with the frame on aluminum profile, covered with high intensity prismatic-optical system "VIII" class adhesive films | | |
| 3.1 | Earthworks | | |
| 3.1.1 | Excavation of pit by excavator, piling in situ | m ³ | 166.00 |
| 3.1.2 | Excavation of pit by excavator, loading and transportation to dumpsite | m ³ | 180.00 |
| 3.1.3 | Excavation of pit manually, strengthening of pit wal | m ³ | 50.00 |
| 3.1.4 | Area of strengthening | m ² | 360.00 |
| 3.1.5 | Leveling of base manually | m ² | 193.00 |
| 3.1.6 | Backfilling | m ³ | 216.00 |
| 3.2 | Crushed aggregates bed | m ³ | 19.30 |
| 3.3 | Manufacturing and installation of metal moulds for fixing anchors and embedded details in the foundation | t | 0.2010 |
| 3.4 | Sign plates | m ² | 299.52 |
| 3.5 | Steel for structures | t | 33.7330 |
| 3.6 | Construction of anchors and embedded details for fixing the posts | t | 2.6110 |
| 3.7 | Painting of steel structure by silver, pale RAL-9006 two-component acryl polyurethane enamel on two-component, epoxy, zinc- phosphate, anticorrosive primer | m ² | 573.00 |
| 3.8 | Reinforced concrete for foundation B22.5F200W6 | m ³ | 171.60 |
| 3.9 | Sand-cement base h-2 cm under steel posts | m ² | 2.00 |
| 4 | Construction of berms from soil for standard road signs and signs of individual design | m ³ | 5,330.00 |
| 5 | Distribution of top soil on berms thickness 15 cm | m ³ | 1,055.00 |
| 6 | Provide and install safety barrier of rails (CINOL-ALPOL covered) f-3 on the main road, as specified, including support, fixing and all ancillary works and materials | l.m | 10,690.00 |
| 7 | Connection of steel safety guardrails with bridge barrier | l.m | 4.80 |
| 8 | Plastic signal beacon at the road fork | set | 4 |
| 9 | Impact attenuator sand barrel, 1 set – 10 units | set | 4 |
| 10 | Horizontal marking of carriageway (white) by road paint on methylnmethacrylate base of improved night visibility with reflective glass beads size 30-600 mkm | m ² | 9,653.20 |
| 11 | Rumble strips. Cold plastic structure two-component yellow marking paint, thickness 6 mm with reflective glass beads, size 100-850 mkm | m ² | 67.60 |
| 12 | Single-sided armored concrete barrier B30F200W6 on the concrete foundation B20F200W6 | l.m | 19,504.00 |

| 1 | 2 | 3 | 4 |
|----|--|-----|----------|
| 13 | Single-sided armored concrete barrier B30F200W6 without foundation | l.m | 1,294.10 |
| 14 | Reflective elements type III to be installed on concrete parapets | u | 4160 |

TOTAL FOR BILL No. 7.

| BILL No. 8. ROAD LIGHTING | | | |
|---------------------------|---|----------------|---------|
| | <i>DEMOLITION WORKS</i> | | |
| 1 | Disconnection and dismounting of fighting fixtures from Type "A" posts (H=10.0m) | Unit | 23 |
| 2 | Disconnection and dismounting of fighting fixtures from Type "D" posts (H=9.0m) | Unit | 5 |
| 3 | Disconnection of 0.4kV cables with 4x16mm ² cross section from existing connection pannels inside bottom end of Type "A" and "D" posts | End | 144 |
| 4 | Dismounting of Type "A" post (H=10.0m, two-arm bracket) | Unit | 23 |
| 5 | Dismounting of Type "D" post (H=9.0m, one-arm bracket) | Unit | 5 |
| 6 | Digging pit (size 1.5x1.5x1.7m) by hand around foundations of Type "A" and "D" posts in IV category ground with piling of dug soil at place. | m ³ | 106.50 |
| 7 | Demolition of reinforced concrete foundations (diameter D=0.55m) of Type "A" and "D" posts by use of perforator at 1.5m depth level | Unit | 28 |
| | <i>INSTALLATION WORKS</i> | | |
| 1 | Installation of reinforced concrete drilling piles in category V soil for Type "A2" posts | Unit | 23 |
| 2 | Installation of reinforced concrete drilling piles in category V soil for Type "D" posts | Unit | 24 |
| 3 | Digging of cable trench (depth 0.6m, width 0.4m) in category IV soil by hand, with piling of dug soil at place | m ³ | 548.00 |
| 4 | Installation of mounting structures on bridges for Type "B" posts | Unit | 14 |
| 5 | Installation of cable hangers on bridge structures | Unit | 490 |
| 6 | Installation of 10kV copper cables (cross section 3x35mm ²), placed in Ø80mm corrugated PVC pipes, in cable trench | l.m | 400.00 |
| 7 | Installation of 10kV copper cables (cross section 3x35mm ²), placed in Ø100mm steel pipes | l.m | 90.00 |
| 8 | Installation of 0.4kV copper cables (cross section 4x16mm ²), placed in Ø40mm corrugated PVC pipes, in cable trench | l.m | 2325.00 |
| 9 | Installation of 0.4kV copper cables (cross section 4x16mm ²), placed in Ø40mm corrugated PVC pipes, on cable hangers fixed to bridge structures | l.m | 540.00 |
| 10 | Installation of 0.4kV 4x16mm ² cable inside post body | l.m | 305.00 |
| 11 | Installation of Type "A2" posts by flange joint | Unit | 23 |
| 12 | Installation of Type "B" posts by flange joint | Unit | 14 |
| 13 | Installation of Type "D" posts by flange joint | Unit | 24 |
| 14 | Installation of coupling sleeves on 10kV copper cables (cross section 3x35mm ²) | Unit | 6 |
| 15 | Cleaning ends of 0.4kV copper cable (cross section 4x16mm ²) wires and connection to mounting panel clamps | end | 488 |
| 16 | Backfilling of cable trenches and installation of warning tape after backfilling of 0.2m deep layer of soil | m ³ | 539.00 |
| 17 | Installation of 0.23kV copper cable (cross section 3x1.5mm ²) inside post body and ligting fixture bracket | l.m | 3290.00 |
| 18 | Connection of ends of 0.23kV copper cable (cross section 3x1.5mm ²) to clamps on mounting panel of post and lighting fixture clamps | end | 3092 |
| 19 | Installation of lighting fixtures on Type "A2" and "B" post. | Unit | 203 |
| 20 | Installation of lighting fixtures on Type "A2" and "B" post, dismantled earlier. | Unit | 23 |
| 21 | Installation of lighting fixture on Type "D" posts. | Unit | 18 |
| 22 | Installation of lighting fixture on Type "D" posts, dismantled earlier. | Unit | 5 |

TOTAL FOR BILL No. 8.

| 1 | 2 | 3 | 4 |
|--------------------------------------|--|----------------|------------|
| BILL No. 9. GREENERY | | | |
| 1 | Seeding of perennial plants on fill slopes, dividing strip and berms | m ² | 124,757.00 |
| TOTAL FOR BILL No. 9. | | | |
| SUBTOTAL OF BILLS No.1 - No.9 | | | |