

Cuts, Embankments, MSEW, Culverts, Retaining Structures, Drainage – Hydraulic Works, Ground Improvement Works

Construction of Segment No 1 in Tirana-Elbasan Road (Km 0 till Krrabe Tunnel Entrance Km 13) / FIDIC Conditions of Contract

Albania

Project

Highway earthworks, retaining structures, culverts, hydraulic works

Construction Cost

Total cost: approx. 84m \$

Project Schedule

Design - Construction: 2012- 2014

Project Description

Final detailed designs of permanent open cuts, embankments, mechanically stabilized earth walls, retaining structures, culverts, gabion walls, piles, dewatering-drainage measures, ground improvement, treatment & rehabilitation works

Embankments: Ltotal = 10km, Hmax =50.0m
 Cuts: Ltotal = 7.5km, Hmax =60.0m
 MSEW: Ltotal = 2.5km, Hmax =30.0m
 Pile walls: Ltotal = 0.7km, Hmax =22.0m
 Gabion walls: Ltotal = 1.5km, Hmax = 7.0m
 Culverts: Ltotal =1.0km, Smax = 2x(3.0mx4.0m)

Geology

Mollasic formations (sandstone, siltstone, conglomerates), Quaternary deposits (silt, clay, sand, gravels, limestone and sandstone boulders)}

Our Services

- Detailed geotechnical, structural & foundation designs
- Geotechnical interpretation reports. Evaluation of the in situ conditions, establishment of the foundation profile, the geotechnical engineering properties, the design parameters and loads
- Execution of stability analysis checks under the provisions of International Standards and Guidelines (BS standards, Eurocodes, AASHTO standards), e.g. rotational check, sliding, bearing capacity, settlement, overturning, planar failure, wedge failure etc.
- Detailed dimensioning of the earthworks and structures and determination of the necessary reinforcements, retaining, supports and stabilization measures (strength, bearing capacity, spacing, length, technical specs of material, quality & durability needs)
- Elaboration of technical reports, detailed construction drawings, calculation notes, instrumentation-geotechnical monitoring reports
- Quality, longevity & serviceability assurance of the designed works
- Constructability issues, technical specifications, requirements, construction standards & guidelines
- Designer on site services & Technical Consultancy Services



Construction works

Construction Details

Geogrid reinforcement elements, MSEW facing with Terramesh system or gabions, drainage foundation improvement layers, permanent rockbolts-soil nails, pre-stressed anchors, concrete pile walls, gabion walls, reno mattresses, separation geotextiles, drainage holes, drainage ditches, slope erosion protection geomats, steel wire mesh, thickened hydro seeding, monitoring instruments

Client

JV AKTOR – COPRI (Albania)

Earthworks Designs

Mullet Cut in Segment No 1 of the Tirana-Elbasan Road (Km 0 till Krrabe Tunnel Entrance Km 13) / FIDIC Conditions of Contract

Albania

Project

Detailed geotechnical earthwork designs of "Mullet cut" in Segment 1 of the Tirana – Elbasan Road (from CH. 4+068 to CH. 4+925)

Construction Cost

Total project cost: approx. 11m \$

Project Schedule

Design / Construction: 2012 - 2014

Re-design / Construction 2016 - 2017

Project Description

Final detailed designs of roadway permanent open cut
Ltotal = ~860.0m, Hmax = ~60.0m, Slopes gradient 1:1, 1:2 and 1:3

Open Cut Construction Details

- Cut slope layout and reinforcement of permanent open cut
- Fully embedded reinforced concrete piles
- Permanent fully grouted soil nails and prestressed anchors
- Drainage holes, drainage ditches and trenches, slope erosion protection geomats, gabions
- Monitoring instruments

Our Services

- Detailed geotechnical designs
- Geotechnical interpretation report. Evaluation of the in situ conditions, establishment of the geotechnical profile, the geotechnical design parameters and loads
- Execution of slope stability checks and structural analysis under the provisions of International Standards and Guidelines (Eurocodes)
- Detailed dimensioning and determination of the necessary retaining, support and stabilization measures (bearing capacity, spacing, length, reinforcement requirements of piles, technical specs of materials, quality & durability needs)
- Elaboration of technical reports, detailed construction drawings, calculation notes
- Constructability issues, technical specifications, requirements, construction standards & guidelines, geotechnical instrumentation monitoring
- Designer on site services & Technical Consultancy Services

Client

JV AKTOR – COPRI (Albania)



Mapped slope instabilities, faults and shear zones along Mullet cut, as revealed during construction progress



Already constructed sections of the roadway open cut

Geology

Weathering mantle consisting of sandy - silty clay to silty-clayey sand. Moderate to highly weathered Siltstones and alternations of Siltstones and Sandstones - weak, fractured and disintegrated mollasic formation - deep weathering process, semirock to soil-like material and locally more competent rocky type material.

Client

JV AKTOR – COPRI (Albania)

Cuts, Embankments, MSEW, Culverts, Retaining Structures, Drainage – Hydraulic Works, Ground Improvement Works

Construction of Segment No 3 in Tirana-Elbasan Road (Krrabe Tunnel Exit Km 15.2 till Elbasan city Km 27) / FIDIC Conditions of Contract

Albania

Project

Highway earthworks, retaining structures, culverts, hydraulic works

Construction Cost

Total cost: approx. 86m \$

Project Schedule

Design - Construction: 2012- 2016

Project Description

Final detailed designs of permanent open cuts, mechanically stabilized earth walls, embankments, retaining structures, culverts,

gabion walls, piles, dewatering-drainage measures, ground improvement, treatment & rehabilitation works

Embankments: Ltotal = 10.0km, Hmax = 40.0m

Cuts: Ltotal = 5.0km, Hmax = 60.0m

MSEW: Ltotal = 1.0km, Hmax = 20.0m

Gabion walls: Ltotal = 0.35km, Hmax = 9.0m

Culverts: Ltotal = 0.5km, Smax = 2.0mx2.5m

Geology

Mollasic formations {sandstone, siltstone, conglomerates}, Quaternary deposits (silt, clay, sand, gravels, limestone and sandstone boulders)}

Our Services

- Detailed geotechnical, structural & foundation designs
- Geotechnical interpretation reports. Evaluation of the in situ conditions and establishment of the foundation profile, the geotechnical engineering properties, the design parameters and loads
- Execution of stability analysis checks under the provisions of International Standards and Guidelines (BS standards, Eurocodes, AASHTO standards), e.g. rotational check, sliding, bearing capacity, settlement, overturning, planar failure, wedge failure etc.
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Construction Works

Construction Details

Geogrid reinforcement elements, MSEW facing with Terramesh system or gabions, drainage foundation improvement layers, permanent rockbolts-soil nails, prestressed anchors, concrete pile walls, gabion walls, reno mattresses, separation geotextiles, drainage holes, drainage ditches, slope erosion protection geomats, steel wire mesh, thickened hydroseeding, monitoring instruments

Client

JV AKTOR – COPRI (Albania)