

INDEPENDENT ENGINEER SUPERVISION OF WORKS

WEEKLY REPORT CW 05

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WEEKLY REPORT

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1 INTRODUCTION

1.1 PURPOSE

This document is issued on basis of the Independent Engineer Services contract signed between IPSA Institute, Government of Montenegro and Žičara Kotor - Lovćen Ltd. Podgorica, number 8854 (IPSA Institute), as a report on monitoring and supervision of works on construction of the Kotor – Lovćen Ropeway, on weekly level.

1.2 SCOPE

Overview of site activities is presented for each day of the current week.

2 ACTIVITIES PERFORMED DURING THE WEEK 05/23 (30.01.-05.02.)

2.1 MONDAY

- Bottom station building: Assembly of the steel structure for the Garage. Waterproofing of the walls (Z2 and Z3). Placement of formwork for the slab pos 101, beams along axes 2 and E. Installation of reinforcement for the staircase ST-1 and ST-2.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: Assembly of the tower (finished).
- Tower W5: No activities.
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: Installation of the grounding system.
- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: Cleaning of snow from the approach road.
- Top station building: Excavations for the restaurant.

2.2 TUESDAY

- Bottom station building: Assembly of the steel structure for the Garage. Waterproofing of the walls (Z2 and Z3). Placement of formwork for the slab pos 101.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: Assembly of the tower.
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: Installation of the grounding system.

- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: Cleaning of snow from the approach road.
- Top station building: Excavations for the restaurant.

2.3 WEDNESDAY

- Bottom station building: Assembly of the steel structure for the Garage. Placement of formwork for the slab pos 101. Compaction of soil for the foundations of retaining walls PZ-1 and PZ-2.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: Assembly of the tower (finished).
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: Installation of the grounding system.
- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: Cleaning of snow from the approach road.
- Top station building: No activities.

2.4 THURSDAY

- Bottom station building: Assembly of the steel structure for the Garage. Installation of reinforcement for the slab pos 101. Compaction of soil for the foundations of retaining walls PZ-1 and PZ-2.
- Bottom station: No activities.
- Tower R1: No activities.

- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: No activities.
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: Preparation of the approach for the aerial cable foundation.
- Tower W10: No activities.
- Tower W11: No activities.
- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: No activities.

2.5 FRIDAY

- Bottom station building: Assembly of the steel structure for the Garage. Casting of the slab pos 101. Casting of the foundation for the wall TT00E. Installation of reinforcement for foundations of retaining walls PZ-1 and PZ-2.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: No activities.
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: Installation of the grounding system.
- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: Delivery of components.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.

- Top station: No activities.
- Top station building: No activities.

2.6 SATURDAY

- Bottom station building: Assembly of the steel structure for the Garage. Installation of reinforcement for the wall TT00E. Installation of reinforcement for foundations of retaining walls PZ-1 and PZ-2.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: No activities.
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: No activities.
- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: No activities.

2.7 SUNDAY

- Bottom station building: No activities.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: No activities.
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: No activities.

- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: No activities.

2.8 CURRENT STATUS OF WORKS ON THE GONDOLA LIFT

OVERVIEW OF THE CIVIL WORKS AND THE ASSEMBLY PROGRESS ON THE GONDOLA LIFT

- T1: Approaches
- T2: Excavations and arrangement of the bottom of the pit
- T3: Construction of foundation slab
- T4: Construction of foundation plinth/station columns
- T5: Installation of the grounding system outside the foundation
- T6: Backfilling
- INST: Installation of components (*in progress / completed*)

- Works finished
- Ongoing works
- Works stopped



3 ACTIVITIES PLANNED FOR THE WEEK 06/23

- Bottom station building: Assembly of the steel structure for the Garage. Casting of the ground level walls.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: No activities.
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: Preparation of the approach for the aerial cable foundation.
- Tower W10: No activities.
- Tower W11: No activities.
- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: Assembly of the tower.
- Tower S15: Assembly of the tower.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: Start of the assembly.
- Top station building: Excavations for the restaurant.
- Other: Improvement of the grounding system.

4 HSE

- Personal protective equipment is not used by all workers present on the site.
- No other HSE incidents reported.

5 NON-CONFORMITIES

- There is no time schedule for the power lines and the power sub-station construction.
- Design documents do not provide enough details for the execution of the ground slab and the installation canals around the columns of the ropeway facility at the bottom station.
- Proper details for the execution of the rain water dewatering system for the roof of the garage and the canopy above the boarding area are missing.
- Current solution for the grounding system on most of the tower locations, executed as so far, does not pass the field test upon installation.
- The chosen roof cladding for the garage is not supposed to be installed on roofs with such a small pitch.

6 REMARKS AND PROPOSALS

- The missing schedules should be submitted as soon as possible.
- The grounding system for all towers with failed tests shall be improved in order to keep its resistivity below the prescribed limits. It's up to the Designer to propose proper measures for further reduction of the resistivity.
- Mixing of bentonite with natural soil makes its application for reduction of the soil resistivity less effective. Much better results are usually achieved when the grounding rope or band is embedded in a layer of wet bentonite and then backfilled. We recommend such an approach to be considered for the improvement of the grounding system.
- There should be at least 7 days of dry weather left before the execution of the grounding system on-site tests. Tests on the wet soil trigger wrong results.
- The Main Design of the bottom station needs to be amended in parts relating to the ground slab and the installation canals around the columns of the ropeway facility.
- Further inputs on the improvement of the grounding system are expected from the Designer. An update of the design is deemed necessary.
- Rain water dewatering system for the roof of the garage and the canopy above the boarding area needs to be amended with proper details for the execution.
- Further adjustments of the roof cladding on the garage and canopy at the bottom station are necessary.

7 PHOTOS



Bottom station



Towers S4 and W5



Top station