

INDEPENDENT ENGINEER SUPERVISION OF WORKS

WEEKLY REPORT CW 49

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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 49/22 (05.12.-11.12.)

2.1 MONDAY

- Bottom station building: Placement of formwork and reinforcement for the basement walls. Backfilling inside the garage.
- 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: Preparation of the approach road.
- Tower S12: Preparation of the approach road.
- Tower S13: Installation of grounding bands and bentonite.
- Tower S14: Installation of grounding bands and bentonite.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: Preparation of the platform for the tower assembly.
- Tower S18: Preparation of the platform for the tower assembly.
- Tower S19: Preparation of the platform for the tower assembly.
- Top station: No activities.
- Top station building: Placement of formwork and reinforcement for the side walls of the sanitary block. Further works on foundations of the administrative building.

2.2 TUESDAY

- Bottom station building: Placement of formwork and reinforcement for the basement walls. Casting of the elevator shaft. Excavation of the ditch for the fecal canalisation.
- 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: Preparation of the approach road.

- Tower S12: Preparation of the approach road.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: Preparation of the platform for the tower assembly. Pre-assembly in the storage.
- Tower S18: Preparation of the platform for the tower assembly. Pre-assembly in the storage.
- Tower S19: Preparation of the platform for the tower assembly. Pre-assembly in the storage.
- Top station: No activities.
- Top station building: Placement of formwork and reinforcement for the side walls of the sanitary block.

2.3 WEDNESDAY

- Bottom station building: Backfilling inside the garage. Installation of the fecal canalisation pipeline between the axes 3 and 5.
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: No activities.
- Tower S4: No activities.
- Tower W5: Installation of the grounding system .
- Tower S6: No activities.
- Tower S7: Installation of the grounding system.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: Preparation of the approach road.
- Tower S12: Preparation of the approach road.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: Preparation of the platform for the tower assembly.
- Tower S16: Preparation of the platform for the tower assembly.
- Tower S17: Preparation of the platform for the tower assembly. Pre-assembly in the storage.
- Tower S18: Preparation of the platform for the tower assembly. Pre-assembly in the storage.
- Tower S19: Assembly of the tower.
- Top station: No activities.
- Top station building: Placement of formwork and reinforcement for the side walls of the sanitary block. Preparation of the formwork for the ground floor slab of the administrative building.
- Remark: Bad weather conditions obstructed the works.

2.4 THURSDAY

- Bottom station building: Backfilling inside the garage. Testing and backfilling of the fecal canalisation pipeline.
- 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: Preparation of the approach road.
- Tower S12: Preparation of the approach road.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: Preparation of the platform for the tower assembly.
- Tower S16: Preparation of the platform for the tower assembly.
- Tower S17: Preparation of the platform for the tower assembly.
- Tower S18: Preparation of the platform for the tower assembly.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: Placement of formwork and reinforcement for the side walls of the sanitary block. Preparation of the formwork for the ground floor slab of the administrative building.
- Bad weather conditions obstructed the works.

2.5 FRIDAY

- Bottom station building: Backfilling inside the building and inside the garage. Preparation of ditches for the dewatering system.
- 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: Preparation of the approach road.
- Tower S12: Excavations for the foundation.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: Preparation of the platform for the tower assembly.
- Tower S16: Preparation of the platform for the tower assembly.
- Tower S17: Pre-assembly activities.

- Tower S18: Pre-assembly activities.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: Placement of formwork and reinforcement for the side walls of the sanitary block. Preparation of the formwork for the ground floor slab of the administrative building.
- Bad weather conditions obstructed the works.

2.6 SATURDAY

- Bottom station building: Check of modulus of deformation of the backfilled material inside the garage. Preparation of ditches for the rain water dewatering system. Backfilling inside the building up to the ground floor slab level.
- 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: Preparation of the approach road.
- Tower S12: Excavations for the foundation.
- Tower S13: No activities.
- Tower S14: Placement of bentonite layers around the grounding bands.
- Tower S15: Preparation of the platform for the tower assembly.
- 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.
- Bad weather conditions obstructed the works.

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.

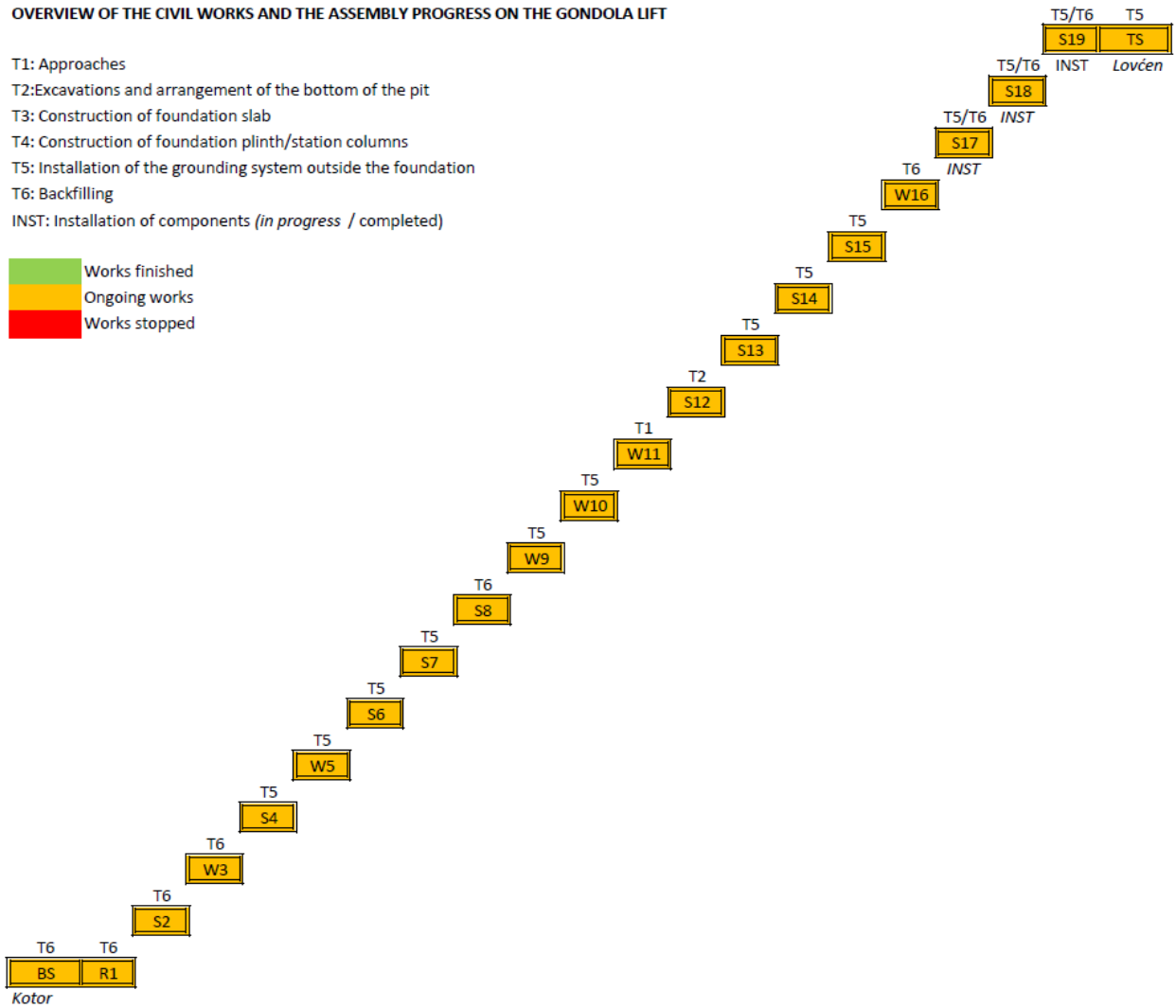
- Tower S6: No activities.
- Tower S7: No activities.
- Tower S8: No activities.
- Tower W9: No activities.
- Tower W10: No activities.
- Tower W11: No activities.
- Tower S12: No activities.
- Tower S13: No activities.
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- 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 FOUNDATIONS OF 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 50/22

- Bottom station building: Casting of the ground floor slab in the building. Installation of formwork and reinforcement for the side walls. Placement of concrete underlay and installation of reinforcement for the ground slab in the garage.
- Bottom station: No activities.
- Tower R1: Assembly of the tower.
- Tower S2: Assembly of the tower.
- Tower W3: Assembly of the tower.
- 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: Preparation of the approach road.
- Tower S12: Excavations for the foundation. Placement of the concrete underlay.
- Tower S13: Works on the improvement and testing of the grounding system.
- Tower S14: Works on the improvement and testing of the grounding system.
- Tower S15: Works on the improvement and testing of the grounding system. Preparation of platform for the assembly of the tower.
- Tower S16: Preparation of platform for the assembly of the tower.
- Tower S17: Works on the improvement and testing of the grounding system.
- Tower S18: Works on the improvement and testing of the grounding system.
- Tower S19: Works on the improvement and testing of the grounding system.
- Top station: Preparation of platform for the assembly of the tower.
- Top station building: Placement of formwork and reinforcement for the ground floor slab in the administrative building. Casting of the sanitary block side walls.

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.
- The grounding system individual resistivity test failed for towers S15, S17, S18 and S19.
- The grounding system combined resistivity test failed for towers S17 to S19.

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.

7 PHOTOS



Bottom station



Delivery of components in the storage area



Tower S13 foundation



Assembly of the tower S19





Top station

