

INDEPENDENT ENGINEER SUPERVISION OF WORKS

WEEKLY REPORT CW 48

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WEEKLY REPORT

Contents

1	Introduction.....	3
1.1	Purpose.....	3
1.2	Scope	3
2	Activities performed during the week 48/22 (28.11.-04.12.)	4
2.1	Monday	4
2.2	Tuesday	4
2.3	Wednesday.....	5
2.4	Thursday	5
2.5	Friday.....	6
2.6	Saturday.....	7
2.7	Sunday	7
2.8	Current status of works on foundations of the gondola lift.....	9
3	Activities planned for the week 49/22	10
4	HSE.....	10
5	Non-conformities	10
6	Remarks and proposals	11
7	Photos.....	12

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 48/22 (28.11.-04.12.)

2.1 MONDAY

- Bottom station building: Further works on strip foundations.
- 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: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: Further works on strip foundations of the administrative building. Placement of formwork and reinforcement for side walls of the sanitary block.

2.2 TUESDAY

- Bottom station building: Casting of the strip foundations (axes F to H and 1 to 3).
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: Installation of the grounding system.
- Tower W3: Installation of the grounding system.
- Tower S4: No activities.
- Tower W5: Installation of the grounding system.
- 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: Placement of the additional layers of bentonite around the grounding bands. Grounding system test failed.
- Tower S18: Placement of the additional layers of bentonite around the grounding bands.
- Tower S19: Placement of the additional layers of bentonite around the grounding bands.
- Top station: No activities.
- Top station building: Excavations for the strip foundations of the administrative building. Placement of formwork and reinforcement for side walls of the sanitary block.

2.3 WEDNESDAY

- Bottom station building: Further works on the strip foundations.
- Bottom station: No activities.
- Tower R1: Grounding system test passed.
- Tower S2: Installation of the grounding system. Grounding system test passed.
- Tower W3: Installation of the grounding system.
- 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: Placement of the additional layers of bentonite around the grounding bands.
- Tower S18: Placement of the additional layers of bentonite around the grounding bands.
- Tower S19: Placement of the additional layers of bentonite around the grounding bands.
- Top station: No activities.
- Top station building: Excavations for the strip foundations of the administrative building. Placement of formwork and reinforcement for side walls of the sanitary block.

2.4 THURSDAY

- Bottom station building: Casting of the strip foundations (axes B to F, axis 2).
- Bottom station: No activities.
- Tower R1: No activities.
- Tower S2: No activities.
- Tower W3: Grounding system test passed.

- 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: Placement of the additional layers of bentonite around the grounding bands.
- Tower S18: Placement of the additional layers of bentonite around the grounding bands.
- Tower S19: Placement of the additional layers of bentonite around the grounding bands.
- Top station: No activities.
- Top station building: Excavations for the strip foundations of the administrative building.
Placement of formwork and reinforcement for side walls of the sanitary block.

2.5 FRIDAY

- 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: 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: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: Excavations for the strip foundations of the administrative building.

- Remark: Heavy rain obstructed the works.

2.6 SATURDAY

- Bottom station building: Casting of the strip foundations (axes B to F, axes 2 to 4).
- 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: Grounding system test failed.
- Tower S16: No activities.
- Tower S17: Installation of the additional radial grounding bands. Grounding system test failed.
- Tower S18: Installation of the additional radial grounding bands. Grounding system test failed.
- Tower S19: Installation of the additional radial grounding bands. Grounding system test failed.
- Top station: No activities.
- Top station building: Placement of formwork and reinforcement for side walls of the sanitary block.

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.

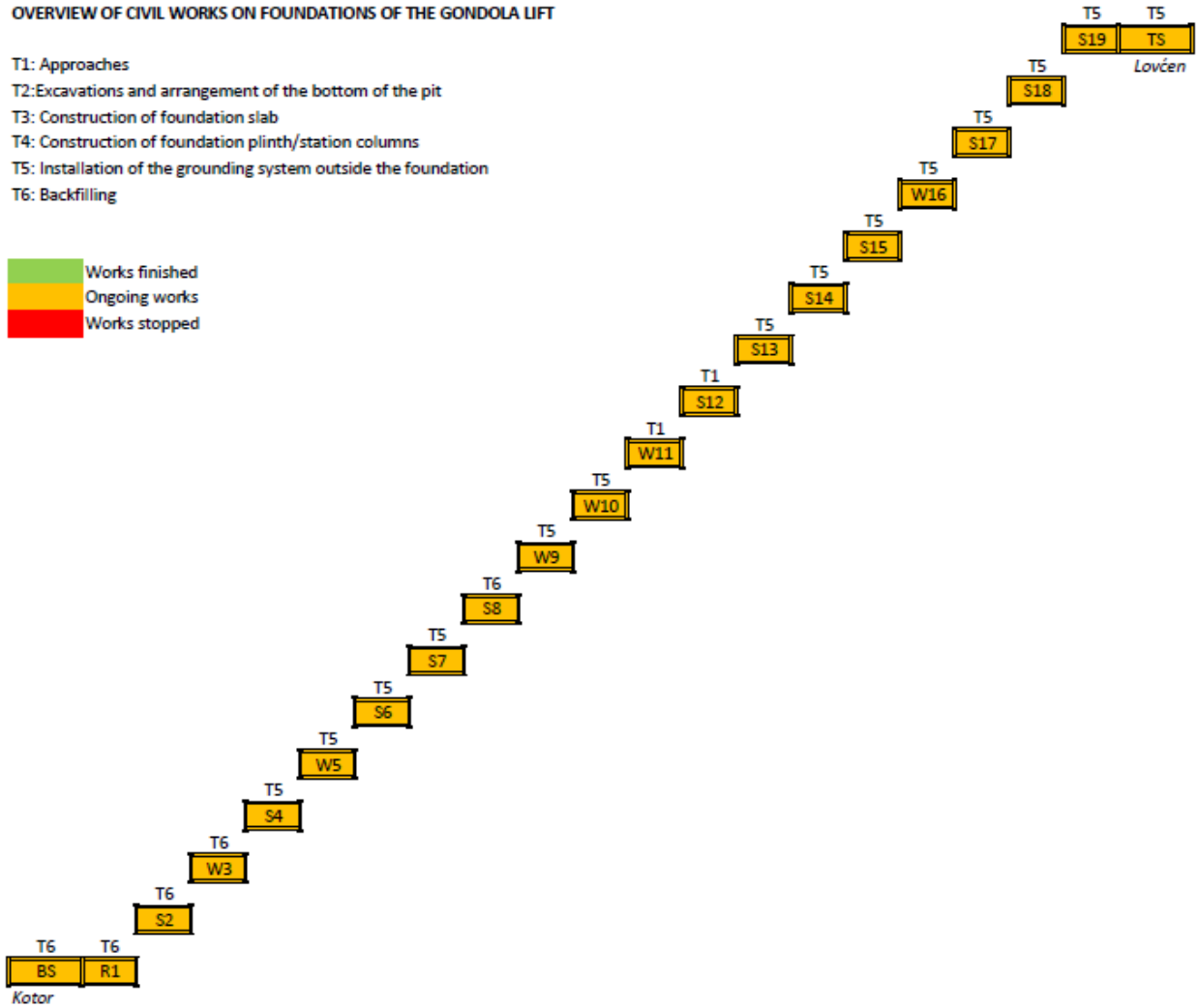
- Tower S14: No activities.
- Tower S15: No activities.
- Tower S16: No activities.
- Tower S17: No activities.
- Tower S18: No activities.
- Tower S19: No activities.
- Top station: No activities.
- Top station building: No activities.

2.8 CURRENT STATUS OF WORKS ON FOUNDATIONS OF THE GONDOLA LIFT

OVERVIEW OF CIVIL WORKS ON FOUNDATIONS OF 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

- Works finished
- Ongoing works
- Works stopped



3 ACTIVITIES PLANNED FOR THE WEEK 49/22

- Bottom station building: Further works on strip foundations. Backfilling. Placement of utilities, casting of the ground slab.
- 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. Excavations for the foundation.
- 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: Works on the improvement and testing of the grounding system. Preparation of platform for the assembly of the tower.
- Tower S17: Works on the improvement and testing of the grounding system. Preparation of platform for the assembly of the tower. Assembly of the tower.
- Tower S18: Works on the improvement and testing of the grounding system. Preparation of platform for the assembly of the tower. Assembly of the tower.
- Tower S19: Works on the improvement and testing of the grounding system. Preparation of platform for the assembly of the tower. Assembly of the tower.
- Top station: Preparation of platform for the assembly of the tower.
- Top station building: Further works on the side walls of the sanitary block. Further works on foundations of the administrative building. Excavations for the restaurant.

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

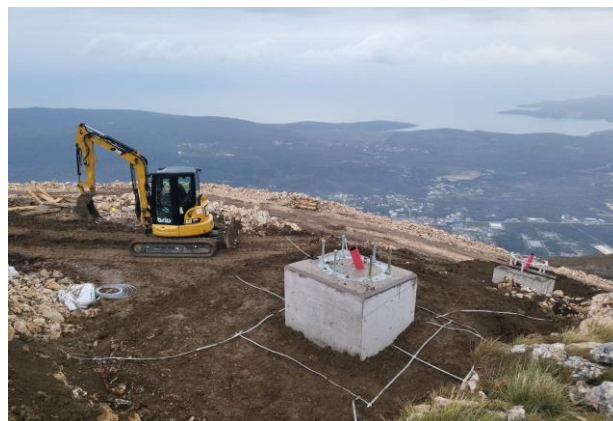


Delivery of components in the storage area



Preparation of the approach to S12





Grounding system installation for towers S17 to S19



Top station

