



Level III Content Outline

Engineering Technician

The candidate for NICET certification at Level III in Highway Construction Inspection should have the knowledge, experience and skills needed to interpret plans and specifications for surface and sub-surface work, pavements, drainage and pipes, structures, and materials (including minor field modifications); apply judgment* to evaluate properties or conditions that are not quantifiable; supervise a team of inspectors on a project of moderate size/complexity; identify anomalies in inspection/test procedures or results; and report team results, noncompliant work, and work completed.

*In this case, "judgment" is defined as an informal cognitive scale derived from many previous exposures to similar and dissimilar properties/conditions, applied to similar and dissimilar purposes and environments, and with each such example determined to be acceptable or unacceptable.

3.1 Soil and Slope Stabilization

(Questions related to these tasks make up 12-22% of the exam.)

- 3.1.1 Inspect roadway soil stabilization. 2, 4, 9, 12
- 3.1.2 Inspect steep slopes and slope stabilization, both temporary and permanent, including support of excavation. 9, 12
- 3.1.3 Inspect water retention and channeling features. 9
- 3.1.4 Inspect installation of permanent geosynthetics and geogrids. 9
- 3.1.5 Inspect reinforced earth and mechanically stabilized embankments and walls. 2, 5, 9
- 3.1.6 Evaluate field conditions relative to core borings. 9
- 3.1.7 Inspect ground improvement procedures. 2, 9

3.2 Roadway Construction

(Questions related to these tasks make up 14-24% of the exam.)

- 3.2.1 Inspect pavement preservation applications for concrete and asphalt roadways. 2, 9
- 3.2.2 Inspect grade tie-ins, drainage, elevations, and transitions for proper functionality through all phases of construction. 9
- 3.2.3 Inspect sanitary sewer lines. 2, 9, 12
- 3.2.4 Inspect water lines. 2, 15
- 3.2.5 Identify potential improvements to work zone traffic control implementation. 4, 9, 10

3.3 Structure Construction

(Questions related to these tasks make up 31-41% of the exam.)

- 3.3.1 Inspect drilled shafts, caissons, and deep and shallow foundations. 7
- 3.3.2 Inspect steel structural components for conformance with erection plans. 9, 14
- 3.3.3 Verify size and type of structural steel connections. 2, 9
- 3.3.4 Inspect implementation of thermal control plans for mass concrete. 1
- 3.3.5 Inspect the delivered condition and handling of pre-stressed concrete beams, boxes, and piles. 9
- 3.3.6 Inspect post-tensioning of concrete components. 9, 13
- 3.3.7 Inspect demolition of structures to verify conformance with plans, specifications, and procedures. 8, 9
- 3.3.8 Inspect construction and removal of falsework to verify conformance with plans, specifications, and procedures. 9
- 3.3.9 Inspect bridge deck construction, including pre-pour inspection. 4, 8, 9
- 3.3.10 Inspect application of paint and coatings. 2, 4, 5, 9
- 3.3.11 Inspect structure preservation treatments. 9, 15

3.4 Traffic Signals, Lighting, and ITS

(Questions related to these tasks make up 8-18% of the exam.)

- 3.4.1 Inspect erection of structures for signals, signage, and lighting. 6, 9, 10
- 3.4.2 Inspect loops and other detection devices for traffic signals and intelligent transportation systems. 9, 11
- 3.4.3 Inspect installation of components and wiring for signals and other traffic management systems, and verify functionality. 9, 10, 11
- 3.4.4 Inspect installation of components and wiring for lighting, and verify functionality. 6

3.5 Reporting and Compliance

(Questions related to these tasks make up 10-20% of the exam.)

- 3.5.1 Review inspection reports from staff for completeness and content, and report work, results, non-conformances, and actions taken. 4, 9
- 3.5.2 Prioritize and coordinate inspection activities of available inspection personnel. 4, 5, 9
- 3.5.3 Verify that temporary erosion and sediment controls and storm water management components are functioning adequately. 4, 9
- 3.5.4 Inspect project activities for conformance with basic OSHA safety requirements. 9, 12