

1. TITLE OF THE CERTIFICATE - ET ⁽¹⁾**Diplomeeritud teedeinsener, EKR tase 7**⁽¹⁾ In the original language2. TRANSLATED TITLE OF THE CERTIFICATE ⁽¹⁾**Diploma Civil Engineer in Road Engineering, EstQF Level 7**⁽¹⁾ If applicable. This translation has no legal status.

3. PROFILE OF SKILLS AND COMPETENCIES

Civil engineers in road engineering act as specialists in the planning, design, construction, expansion, reconstruction and demolition of highways and streets, railroad embankments¹ and structures connected to roads.
A civil engineer in road engineering is tasked with developing technical solutions for road construction and the realisation of project solutions. In performing their professional duties, civil engineers in road engineering give consideration to social, economic, environmental, occupational health, occupational safety and ethical aspects, and work with specialists in related fields where necessary.

Civil engineers in road engineering at EQF Level 7 specialise in one of two areas:

- 1) Road construction and upkeep
- 2) Bridge construction² and upkeep

In addition to a specialisation, at least one of the following occupations must be chosen:

For road construction and upkeep:

- a) Preparing road design documentation
- b) Preparing traffic management documentation
- c) Construction activity management (construction)
- d) Construction management
- e) Owner supervision
- f) Road upkeep
- g) Conducting expert analysis of road design
- h) Conducting audits of traffic safety
- i) Project management

For bridge construction² and upkeep:

- a) Preparing bridge design documentation
- b) Construction activity management (construction)
- c) Construction management
- d) Owner supervision
- e) Bridge upkeep
- f) Conducting expert analysis of bridge design projects
- g) Conducting audits of bridges
- h) Project management

^(*)Explanatory note

This document is designed to provide additional information about the specified certificate and does not have any legal status in itself. The format of the description is based on the following texts: Council Resolution 93/C 49/01 of 3 December 1992 on the transparency of qualifications, Council Resolution 96/C 224/04 of 15 July 1996 on the transparency of vocational training certificates, and Recommendation 2001/613/EC of the European Parliament and of the Council of 10 July 2001 on mobility within the Community for students, persons undergoing training, volunteers, teachers and trainers.

More information available at: <http://europass.cedefop.europa.eu/et/home>

Diploma Civil Engineer in Road Engineering, Level 7 is a specialist who is responsible for their own performance and that of others in the work group they manage.

The occupational qualification of Diploma Civil Engineer in Road Engineering, Level 7 entitles the bearer, on a statutory basis, to act as a competent person independently and at their own risk within the limits described as follows:

I MANAGEMENT OF (construction) ROAD CONSTRUCTION ACTIVITY, CONSTRUCTION MANAGEMENT AND ROAD UPKEEP

- a) Highways which are expected to see up to 35,000 cars per day (the main route in the case of crossroads);
- b) Streets which are expected to see up to 70,000 cars per day;
- c) Road subgrades up to 20 m high or hollow ways up to 20 m deep;
- d) Pavement repairs at railway crossings;
- e) Railroad embankments without barriers.

II MANAGEMENT OF BRIDGE² CONSTRUCTION ACTIVITIES (construction), CONSTRUCTION MANAGEMENT AND BRIDGE UPKEEP

- a) Crossovers with regular construction solutions (bridges, viaducts, gantries, wildlife crossings, etc.):
 - That have a maximum height of 20 m above the surface of land or water;
 - That have a single clear opening of a maximum of 100 m;
- b) Culverts without barriers;
- c) Tunnels for foot or road traffic with regular construction solutions in the first or second geotechnical category³.

III PREPARING ROAD DESIGN DOCUMENTATION, OWNER SUPERVISION, PREPARING TRAFFIC MANAGEMENT DOCUMENTATION, CONDUCTING EXPERT ANALYSIS OF ROAD DESIGN AND LEADING DESIGN

- a) Highways which are expected to see up to 35,000 cars per day (the main route in the case of crossroads);
- b) Streets which are expected to see up to 70,000 cars per day;
- c) All roads in wet areas;
- d) Road subgrades up to 20 m high or hollow ways up to 20 m deep, incl. retaining walls;
- e) Retaining walls up to 3 m high;
- f) Roads without interchanges;
- g) Pavement repairs at railway crossings;
- h) Railroad embankments which can carry rolling stock with axle loads of up to 35 t;
- i) Railway buildings with regular construction solutions which may have:
 - sloped railroad subgrades up to 16 m high;
 - railroad subgrades with retaining walls up to 9 m high;
 - sloped railroad hollows up to 20 m deep;
- j) railroad hollows with retaining walls up to 9 m deep;
- k) Wetlands up to 6 m deep.

IV PREPARING BRIDGE DESIGN DOCUMENTATION², OWNER SUPERVISION AND DESIGN MANAGEMENT

- a) Crossovers with regular construction solutions (bridges, viaducts, gantries, wildlife crossings, etc.):
 - that have a maximum height of 12 m above the surface of land or water;
 - That have a single clear opening of a maximum of 60 m;
- b) Construction of bridge pillars up to the 2nd wet area;
- c) Tunnels and culverts up to 15 m wide, 7.5 m below the red line and in the first or second geotechnical category³;
- d) Retaining walls without barriers;
- e) Entrance and exit ramps up to 50 m before and after a bridge;
- f) All railway bridges in accordance with the above-mentioned parameters.

V CONDUCTING EXPERT ANALYSIS OF BRIDGE² DESIGN AND CONDUCTING AUDITS OF BRIDGES

- a) Bridges, viaducts, gantries, wildlife crossings, etc.:
 - That have a maximum height of 20 m above the surface of land or water;
 - That have a single clear opening of a maximum of 60 m;
- b) Up to the 2nd wet area;
- c) Tunnels and culverts without barriers;
- d) All railway bridges in accordance with the above-mentioned parameters.

VI CONDUCTING AUDITS OF TRAFFIC SAFETY

Traffic safety auditing on highways that see up to 35,000 cars per day and streets that see up to 70,000 cars per day.

A.2.1 Mandatory competences in the occupation of civil engineer in road engineering

1. Following the requirements of professional ethics
2. Professional self-improvement
3. Teamwork
4. Applying the principles of environmental protection and energy efficiency
5. Applying specialised knowledge to work
6. Digital competence and language skills

Road construction and upkeep

A.2.2 Road construction and upkeep

1. Conducting and organising work within the limits of competence provided by the occupational qualification level
2. Verification of the high quality and compliance with traffic safety requirements of completed work and their parts

3. Determining the complex compliance/suitability of completed works
4. Arranging the transfer of completed works to the customer

Bridge construction and upkeep

A.2.3 Bridge construction and upkeep

1. Conducting and organising work within the limits of competence provided by the occupational qualification level
2. Quality control of completed works and their parts
3. Determining the complex compliance/suitability of completed works
4. Arranging the transfer of completed works to the customer

A.2.4 Preparing road design documentation

1. Compiling the road design project within the limits of competence provided by the occupational qualification level
2. Collecting and analysing source data
3. Participation in creating plans as an expert
4. Road geometry design
5. Choosing a type of pavement construction or designing pavement construction
6. Drainage system design
7. Traffic management design
8. Preparing and formulating design documentation
9. Collaboration with the design team
10. Construction cost estimation
11. Preparing demolition projects for roads
12. Compiling maintenance and operating instructions
13. Conducting designer's supervision
14. Conducting expert analysis of road design

A.2.5 Preparation of bridge design documentation

1. Compiling the bridge design project within the limits of competence provided by the occupational qualification level
2. Collecting and analysing source data
3. Participation in creating plans as an expert
4. Choosing, calculating and dimensioning the constructive scheme and type of bridge
5. Design of bridge entrance and exit ramps
6. Determining barrier solutions
7. Preparing and formulating the design documentation for the constructional part
8. Collaboration with the design team
9. Preparing demolition projects for structures
10. Construction cost estimation
11. Compiling maintenance and operating instructions
12. Conducting designer's supervision
13. Conducting expert analysis of bridge design projects
14. Conducting audits of bridges

A.2.6 Construction management (construction)

1. Management of construction activity within the limits of competence provided by the occupational qualification level
2. Compiling tenders
3. Planning construction activities
4. Planning construction resources
5. Management of subcontractor procurements and entry into contracts
6. Procurement of construction supplies
7. Organisation of construction activity and temporary traffic during construction work
8. Bridge upkeep (according to specialisation)
9. Road upkeep (according to specialisation)
10. Organising quality control and surveying
11. Preparing construction site transfer documentation
12. Arranging the transfer of the construction site

A.2.7 Construction management

1. Construction management within the limits of competence provided by the occupational qualification level
2. Preparing procurements and compiling procurement documentation
3. Compiling a schedule for construction work
4. Construction cost calculation
5. Design work preparation and organisation
6. Construction work preparation
7. Tender documentation preparation
8. Selecting contractors and preparing contracts
9. Coordinating the construction process as a representative of the customer or contractor
10. Transfer of construction site and taking it into use
11. Warranty period procedures

A.2.8 Owner supervision

1. Performing owner supervision within the limits of competence provided by the occupational qualification level
2. Developing a supervision programme

3. Verifying compliance of design project with requirements
4. Verifying compliance of construction work with contract
5. Quality control and assessment
6. Verifying compliance with safety requirements
7. Verifying required documentation
8. Accepting the building
9. Distribution of information
10. Making proposals
11. Conducting expert analysis of the design project within the limits of competence provided by the occupational qualification level and specialisation
12. Conducting audits of bridges (provided they have the relevant specialisation)

A.2.9 Road upkeep

1. Organising a patrol service and road condition monitoring
2. Organising road maintenance in summer and winter
3. Organising maintenance repairs

A.2.10 Bridge upkeep

1. Organising monitoring of the conditions of bridges and their parts
2. Organising maintenance and repair work

A.2.11 Preparing traffic management documentation

1. Analysing source data from traffic research and preparing research
2. Carrying out traffic research
3. Collecting and analysing the source data for the traffic organisation project
4. Preparing traffic management documentation
5. Modelling traffic management

A.2.12 Expert analysis of design project

1. Conducting expert analysis of the design project related to their specialisation within the limits of competence provided by the occupational qualification level
2. Familiarisation with the project, collecting and analysing source data
3. Determining the volumetric accuracy of the design project
4. Determining the compliance of project solutions with their purpose and requirements
5. Compiling an expert analysis report

A.2.13 Conducting audits of bridges

1. Conducting audits of buildings related to their specialisation within the limits of competence provided by the occupational qualification level
2. Familiarisation with the site, collecting and analysing source data
3. Organising additional studies and tests
4. Performing control calculations and additional measurements
5. Compiling an audit report

A.2.14 Conducting audits of traffic safety

1. Conducting audits of traffic safety within the limits of competence provided by the occupational qualification level
2. Familiarisation with the situation, collecting and analysing source data
3. Assessment of impact on traffic safety
4. Traffic safety auditing
5. Determining road safety
6. Road safety verification

A.2.15 Design management

1. Conducting design management activities within the limits of competence provided by the occupational qualification level
2. Preparing the design contract
3. Assembling the design team
4. Organising the exchange of information
5. Design coordination and quality management
6. Arranging designer's supervision

¹ In this occupational qualification standard, railroad embankments are defined as railway and tramway embankments with their accompanying drainage systems, culverts, slopes, barriers, etc. This term does not include superstructures.

² In this occupational qualification standard, bridges are defined as bridges, viaducts, tunnels, wildlife crossings, gantries and culverts for any type of road (footpaths, bicycle paths, non-motorised transport routes, motorways and railways).

³ as per EVS-NE 1997-1:2006

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE ⁽¹⁾

Designer, person performing owner supervision, construction manager, site manager, consultant, project manager

⁽¹⁾ If applicable

5. OFFICIAL BASIS OF THE CERTIFICATE

Name and status of the body awarding the certificate The occupational certificate that has been issued by the professional council that operates under the activity license issued by a Awarding Body	Name and status of the national/regional authority providing accreditation/recognition of the certificate Occupational Qualification Council approved by a Regulation of the Government of the Republic
Level of the certificate (national or international) Estonian Qualification Framework level 7 European Qualification Framework level 7	Grading scale / Pass requirements passed/fail
Access to next level of education/training Chartered Civil Engineer in Road Engineering, EstQF Level 8	International agreements
Legal basis Occupational Qualifications Act (RT I 2008, 24, 156; 01.09.2008)	

6. OFFICIALLY RECOGNISED WAYS OF ACQUIRING THE CERTIFICATE

In order to obtain a occupational certificate, the applicant has to prove all his/her competencies required by the occupational standard and by the procedure for awarding of occupational qualification established by the body awarding the occupational qualification

More information (including a description of the national qualifications system) available at:
www.kutsekoda.ee