

QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

Construction Skill Development Council of India

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List of documents submitted in support of the Qualifications File

1. Career Map of Roads & Runway Construction Occupation - Annexure 1
2. QP CON/Q1004- Annexure 2

QUALIFICATION FILE SUMMARY

| | | | |
|--|--|--|--------------|
| Qualification Title | Supervisor Roads & Runways - QP CON/Q1004 | | |
| Body/bodies which will assess candidates | <ul style="list-style-type: none"> • MCG • Star Projects | | |
| Body/bodies which will award the certificate for the qualification. | CSDCI | | |
| Body which will accredit providers to offer the qualification. | CSDCI | | |
| Occupation(s) to which the qualification gives access | Roads & Runway Construction | | |
| Proposed level of the qualification in the NSQF. | 6 | | |
| Anticipated volume of training/learning required to complete the qualification. | 1000 hrs | | |
| Entry requirements / recommendations. | Preferably Graduate/ ITI (Construction related trade) | | |
| Progression from the qualification. | Engineer Roads- L7, Engineer Civil Structures / Engineer Reinforcement Steel Works- L7 | | |
| Planned arrangements for RPL. | Work is under progress | | |
| International Comparability | Comparable with UK Standard and Australia Standard | | |
| Formal structure of the qualification | | | |
| Title of unit or other component (include any identification code used) | Mandatory/ Optional | Estimated size (learning hours) | Level |
| CON/N1011: Maintain coordination among superior and subordinates | Mandatory | 240 | 6 |
| CON/N1012: Organise equipments and complete preparatory works prior to pavement laying | Mandatory | 224 | 6 |
| CON/N1013: Supervise construction works in flexible and rigid pavements | Mandatory | 228 | 6 |
| CON/N1014: Carry out checks to the completed works in flexible/ rigid pavement | Mandatory | 228 | 6 |
| CON/N9002: Manage workplace for safe and healthy work environment | Mandatory | 80 | 6 |

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum or Qualification Pack.

Give details of the document here:

1. QP CON/Q1004- Annexure 2

SECTION 1

ASSESSMENT

Name of assessment body:

If there will be more than one assessment body for this qualification, give details.

- MCG
- Star Projects

Will the assessment body be responsible for RPL assessment?

Give details of how RPL assessment for the qualification will be carried out and quality assured.

The RPL assessment will be carried out through screening, identifying the skills gaps, provide bridge training to cover the competency gap and then conduct final assessment of the candidates.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

Assessment is done through third parties who are affiliated to CSDCI as Assessment Body. Assessors are trained & certified by CSDCI through Training of Trainers program. The assessment involves two processes. The first process is gathering the evidence of the competency of individuals. The second part of the assessment process is the judgement as to whether a person is competent or not. The assessment plan contains the following information:

- What will be assessed, i.e. the competency based on each NOS
- How assessment will occur i.e. methods of assessment
- When the assessment will occur
- Where the assessment will take place i.e. context of the assessment (workplace/simulation)
- The criteria for decision making i.e. those aspects that will guide judgements and
- Where appropriate, any supplementary criteria used to make a judgement on the level of performance.

The assessment is conducted through theory, viva voce and practical.

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here:

Not Applicable

ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as per the assessment criteria. Insert the required number of rows.

CRITERIA FOR ASSESSMENT OF TRAINEES

Supervisor Roads & Runways

CON/Q1004

Construction Skill Development Council Of India

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on assessment criteria.
5. The passing percentage for each QP will be 70%. To pass the Qualification Pack, every trainee should score a minimum of 70% individually in each NOS.
6. The Assessor shall check the final outcome of the practices while evaluating the steps performed to achieve the final outcome.
7. The trainee shall be provided with a chance to repeat the test to correct his procedures in case of improper performance, with a deduction of marks for each iteration.
8. After the certain number of iteration as decided by SSC the trainee is marked as fail, scoring zero marks for the procedure for the practical activity .
9. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack within the specified timeframe set by SSC.
10. Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

| | | Marks Allocation | | | |
|---|---|-------------------------|---------------|---------------|-------------------------|
| Assessable Outcome | Assessment criteria | Total Marks | Out Of | Theory | Practical Skills |
| CON/N1011: Maintain coordination among superior and subordinates | PC1. identify work activities as per GFC drawing requirements and report to concerned superior | 100 | 6 | 3 | 3 |
| | PC2. provide inputs to concerned engineer regarding time required for completion of identified key activities | | 6 | 3 | 3 |
| | PC3. provide status report/ update to concerned engineer regarding assigned/ completed works | | 5 | 2.5 | 2.5 |
| | PC4. determine requirement of manpower to complete works in accordance with pavement construction work schedule | | 6 | 3 | 3 |

| | | | | | |
|---|--|--------------|------------|-----------|-----------|
| | PC5. ascertain type and capacity of transportation and construction equipments to be used and report to the concerned engineer | | 6 | 3 | 3 |
| | PC6. provide inputs to concerned engineer regarding requirements for manpower, tools, and materials as per work requirements | | 6 | 3 | 3 |
| | PC7. determine method of excavation/ grading, route and mode of transportation of excavated or construction material and take necessary approval from concerned engineer | | 6 | 3 | 3 |
| | PC8. report concerned engineer or departments to obtain electrical power outlets and lighting arrangements | | 6 | 3 | 3 |
| | PC9. determine type and quantity of safety control equipments, arrangements to be used for pavement construction work | | 6 | 3 | 3 |
| | PC10. provide inputs to concerned engineer to plan protective arrangements to be provided to stacked construction materials against rain, storm or unauthorized access | | 6 | 3 | 3 |
| | PC11. brief subordinate workers about scopes and timelines to be adhered for respective activities | | 6 | 3 | 3 |
| | PC12. describe about tools/ equipments to be used in material shifting, excavation and paving operations and safe working procedure for working near the same | | 6 | 3 | 3 |
| | PC13. describe standard procedure of material handling and stacking | | 6 | 3 | 3 |
| | PC14. provide information about hazards and risks involved in working at proximity to vehicle/ heavy construction equipments, vehicular traffic, deep excavated work spots etc | | 6 | 3 | 3 |
| | PC15. provide direction regarding PPEs to be used during lifting and erection operations by respective gangs | | 6 | 3 | 3 |
| | PC16. brief about standard hand signaling procedure to be adhered and use of communication devices during material handling, monitoring vehicular movement | | 5 | 2.5 | 2.5 |
| | PC17. provide direction for reporting procedure to be maintained during activity and under emergency situations | | 6 | 3 | 3 |
| | | Total | 100 | 50 | 50 |
| CON/N1012: Organise equipments and complete preparatory works prior to pavement laying | PC1. prepare indent for required material, tools and tackles as per requirement and instruction | 100 | 6 | 3 | 3 |
| | PC2. ensure proper survey points are available at respective locations for pavement construction | | 6 | 3 | 3 |
| | PC3. check and carry out required measurements to proposed land/ layouts, pavement layers as and when necessary | | 6 | 3 | 3 |
| | PC4. ensure shifting of construction materials from yard to lifting points in accordance with lifting plan | | 6 | 3 | 3 |
| | PC5. ensure installation of lighting arrangements and electrical outlets as per work requirement | | 6 | 3 | 3 |
| | PC6. ensure erection of relevant safety arrangement such as signage, barricading at specified work locations as per work safety plan | | 6 | 3 | 3 |
| | PC7. deal with clients in order to confirm whether the executed work is as per drawing, specification | | 7 | 3.5 | 3.5 |
| | PC8. coordinate with vehicle/ equipment operators to achieve correct sequencing of activities within planned | | 7 | 3.5 | 3.5 |

| | | | | | |
|--|---|--------------|------------|-----------|-----------|
| | time line | | | | |
| | PC9. ensure vehicle movement paths/ ramps are clearly defined, properly leveled/ slopped, compacted, illuminated, provided with adequate signage and free from any potential hazards | | 6 | 3 | 3 |
| | PC10. deploy transportation vehicles and construction equipments at specified work location as per work requirement | | 6 | 3 | 3 |
| | PC11. instruct equipment operators for excavation, excavated soil disposal, earth filling, grading and compaction work | | 7 | 3.5 | 3.5 |
| | PC12. ensure borrow pits, trenches and other excavated spots are barricaded and illuminated properly | | 6 | 3 | 3 |
| | PC13. ensure vehicles and equipments deployed at site comply with statutory requirements | | 6 | 3 | 3 |
| | PC14. ensure efficient use of vehicle/ equipment by achieving targets and free rotational | | 6 | 3 | 3 |
| | PC15. report break down and unsafe condition observed in vehicle to concerned authority | | 7 | 3.5 | 3.5 |
| | PC16. ensure installation of traffic control signage, barriers and their periodical checks | | 6 | 3 | 3 |
| | | Total | 100 | 50 | 50 |
| CON/N1013: Supervise construction works in flexible and rigid pavements | PC1. supervise placing of aggregates and fines for preparation of base course layers | 100 | 10 | 5 | 5 |
| | PC2. ensure correct sequence of material placing and degree of compaction is done as per specification | | 10 | 5 | 5 |
| | PC3. check top level of each finished layers of pavements using appropriate measuring instruments | | 10 | 5 | 5 |
| | PC4. check curves, slopes, edges of pavements as per drawing/ specification | | 10 | 5 | 5 |
| | PC5. check physical condition of construction materials such as bitumen, asphalt, soil, aggregate, fillers as per specification | | 10 | 5 | 5 |
| | PC6. inspect road layers visually for compaction, application of water and co-ordinate with concerned departments for conducting quality checks | | 10 | 5 | 5 |
| | PC7. monitor application of bituminous coatings (prime coat/ tack coat etc.) for flexible pavement | | 10 | 5 | 5 |
| | PC8. monitor laying of binding/ wiring course by pavers ensuring achieved surface is as per drawing/ specification | | 10 | 5 | 5 |
| | PC9. ensure expansion joints are provided at specified locations as per specification in rigid pavement | | 10 | 5 | 5 |
| | PC10. check and ensure that the reinforcement works are as per drawing/ specification <ul style="list-style-type: none"> • diameter of reinforcement bars are as per drawing • spacing of the reinforcement bars are within tolerance limit • number of reinforcement bar is per drawing • length of reinforcement bars are according to drawing and staggered as per specification • reinforcement bars are appropriately bent and bents are free from cracks, shrinks • clear cover provided is as per drawing (use of cover blocks at appropriate intervals) | | 10 | 5 | 5 |

| | | | | | |
|---|---|--------------|--------------|------------|-----------|
| | <ul style="list-style-type: none"> proper tying is provided to the reinforcement meshes and binding wires are of specific gauges bars are clean from dirt, mud, grease or any other unwanted materials according to specification | | | | |
| | | Total | 100 | 50 | 50 |
| CON/N1014: Carry out checks to the completed works in flexible/ rigid pavement | PC1. ensure adequate vibration is done to the wearing coat concrete selecting appropriate vibrating equipment | 100 | 14 | 7 | 7 |
| | PC2. ensure desired surfacing is done post concreting/ asphalt paving work | | 14 | 7 | 7 |
| | PC3. monitor curing of RCC works and conduct necessary arrangements for curing | | 15 | 7.5 | 7.5 |
| | PC4. ensure drainage pipelines are laid, fixed and connected as per specification | | 14 | 7 | 7 |
| | PC5. conduct water leakage tests through the pipeline and suggest remedial measures if leakage observed | | 14 | 7 | 7 |
| | PC6. suggest remedial measures for faulty or damaged paving/ concreting works and ensure its completion as per specification | | 15 | 7.5 | 7.5 |
| | PC7. seek instruction/ suggestion from superior for corrective actions to be taken for unsolved issues and ensure its implementation | | 14 | 7 | 7 |
| | | | Total | 100 | 50 |
| CON/N9002: Manage workplace for safe and healthy work environment | PC1. ensure proper housekeeping at workplace | 100 | 5 | 2.5 | 2.5 |
| | PC2. implement safe handling , stacking methods at workplace / store | | 5 | 2.5 | 2.5 |
| | PC3. insure that health and safety plan is followed by all subordinates | | 5 | 2.5 | 2.5 |
| | PC4. identify any hazard in workplace and notify them to appropriate authority | | 5 | 2.5 | 2.5 |
| | PC5. ensure that all safety and protection installation are correctly placed & adequate | | 5 | 2.5 | 2.5 |
| | PC6. ensure safe access is available at work place for movement of workers & materials | | 5 | 2.5 | 2.5 |
| | PC7. ensure safe use of tools and tackles by the workmen as per applicability | | 5 | 2.5 | 2.5 |
| | PC8. ensure appropriate use of following Personal Protective Equipment (PPE) as per applicability: | | 10 | 5 | 5 |
| | <ul style="list-style-type: none"> Head Protection (Helmets) | | | | |
| | <ul style="list-style-type: none"> Ear Protection | | | | |
| | <ul style="list-style-type: none"> Fall Protection | | | | |
| | <ul style="list-style-type: none"> Foot Protection | | | | |
| | <ul style="list-style-type: none"> Face and Eye Protection, | | | | |
| | <ul style="list-style-type: none"> Hand &Body Protection | | | | |
| | <ul style="list-style-type: none"> Respiratory Protection | | | | |
| PC9. maintain entrances & exit from confined spaces , excavated pits and other location in concurrence with safety parameters or instruction form safety personals. | 5 | 2.5 | 2.5 | | |
| PC10. ensure organizational policies and procedures are followed for health , safety and welfare, in relation to: | 10 | 5 | 5 | | |
| <ul style="list-style-type: none"> methods of receiving or sourcing information | | | | | |
| <ul style="list-style-type: none"> dealing with accidents and emergencies associated with the work and environment | | | | | |

| | | | | |
|--|---|------------|-----------|-----------|
| | <ul style="list-style-type: none"> reporting | | | |
| | <ul style="list-style-type: none"> stopping work | | | |
| | <ul style="list-style-type: none"> evacuation | | | |
| | <ul style="list-style-type: none"> fire risks and safe exit procedures | | | |
| | PC11. follow procedures for accident recording and reporting as per organizational and statutory requirements | 5 | 2.5 | 2.5 |
| | PC12. ensure effective adherence to response to emergency procedures / protocols | 7.5 | 3.75 | 3.75 |
| | PC13. report any case of emergency / risks to the concern people at the construction site | 7.5 | 3.75 | 3.75 |
| | PC14. report any perceived risk hazards to the superiors / concerned EHS | 7.5 | 3.75 | 3.75 |
| | PC15. demonstrate the use of fire protection equipments for different type of fire hazard | 7.5 | 3.75 | 3.75 |
| | PC16. implement control measures to reduce risk & meet legal requirement as per organizational policies | 5 | 2.5 | 2.5 |
| | Total | 100 | 50 | 50 |

SECTION 2

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

Please refer to the attached list of job roles and occupations identified in construction sector. These job roles have been derived through extensive industry interactions facilitated from 10 workshops and various site visits conducted and interaction with 500+representatives from different construction sector organizations all over the country.

What is the estimated uptake of this qualification and what is the basis of this estimate?

As per survey the incremental Manpower Gap between 2008 and 2022 found out to be 473000 under Roads & Runway Construction Occupation

What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

QPs for Job Roles of various related SSC's were studied to ensure that there is no duplicity.

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

Standards department of CSDCI will do periodic review and monitor the industry feedbacks, Training Partners feedback on the qualification and will incorporate them appropriately at the designated revision time.

The revision of this qualification is scheduled after 2 years i.e. 23/08/2017

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

1. List of job roles

SECTION 3

SUMMARY EVIDENCE OF LEVEL

Summary of Direct Evidence:

Justify the NSQF level allocated to the QP by building upon the five descriptors of NSQF. Explain the reasons for allocating the level to the QP.

Generic NOS is/are linked to the overall authority attached to the job role.

Supervisor Roads & Runways QP CON/Q1004

| Process required | Professional Knowledge | Professional Skills | Core Skills | Responsibility | Level |
|--|--|--|--|---|-------|
| <p>The job role is expected to exhibit wide range of technical skills, problem solving skills and resource managing skills related to execute construction of pavements. Individual at this level heads an allocated part of construction by carrying out resource planning, supervising critical activities, ensuring specified safety and quality checks have been carried out to completed/ongoing activities. Moreover, the job holder also monitors performance of subordinates, suggest remedial/corrective measures and coordinates among concerned authorities to achieve assigned work milestones as per applicable safety and quality norms.</p> | <p>The job holder should have thorough and broad knowledge of guidelines/specifications of material and work methods to be adopted, sequence and timelines of each activity/ work progress status, management of resources and planning of activities in co-ordination with superior personnel. Individual should also know applicable quality parameters to be followed in each step of pavement construction and detailed function of paving equipments/machineries used for construction of pavements.</p> <p>The knowledge is acquired by practising domain specific operations in a vast range of application over a long period of time and by studying applicable</p> | <p>The job holder is expected to take part in planning and sequencing construction process of pavements by providing required inputs to concerned engineer, brief subordinate team about applicable quality and safety norms, manage resources, equipments and manpower for assigned tasks, coordinate with concerned authorities for execution of assigned works, suggest and conduct corrective measures/ repairing methods to faulty/damaged works. A range of practical and problem solving skills as mentioned above are required to be demonstrated during various stages of construction process by the job holder.</p> | <p>The job holder is expected to provide instructions to subordinates verbally and in written to meet the work requirement. Individual in this job role collects required data, prepare status/ note sheets, fill up check lists/ quality formats, seeks inputs from superior and subordinates, manage resources by coordinating with concerned authorities, as per agreed plan. The job holder carries out arithmetical and geometrical calculations relevant to conversion of units, material requirement as and when necessary.</p> | <p>The job holder is responsible for own work (ref. professional skills column) and fully responsible for subordinates works. Individual at this job role is expected to check for defects, faults in completed works, suggest or take remedial/corrective actions as per agreed quality norms, oversee lifting and erection works by providing instructions to subordinates and gather inputs from them in order to monitor progress, unresolved issues and ensure timely action by self or concerned authorities. The job holder is also responsible for implementation of prescribed work methodology, applicable quality and safety norms at workplace under supervision.</p> | 6 |

| | | | | | |
|----------------|--|----------------|----------------|----------------|--|
| | documents as required for construction of pavements. | | | | |
| Level 6 | Level 6 | Level 6 | Level 6 | Level 6 | |

OTHER EVIDENCE OF LEVEL [This need only be filled in where evidence other than primary outcomes was used to allocate a level] (**Optional**)

Summary of other evidence (if used): **Not applicable.**

SECTION 4

EVIDENCE OF RECOGNITION OR PROGRESSION

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

Please refer to attached career path as per annexure 1 which clearly define the clear career path.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

1. Annexure 1
 - Overall Career map
 - Career map of Roads & Runway construction Occupation
2. QP CON/Q1004- Annexure 2

Annexure 1

Career Map

