

## Field      Engineering and Technology

### **Review, Rollover, and Reinstatement of *Civil Plant Operation and Management, Civil Works and Services, Highway Construction and Maintenance, Infrastructure Civil Engineering, Infrastructure Works, and Pavement Surfacing* unit standards**

<b>Subfield</b>	<b>Domain</b>	<b>ID</b>
Civil Plant Operation and Management	Civil Plant Operation	6465, 6466, 8560, 17309-17317, 19675, 20484, 22275, <b>22276</b> , <b>22278</b> , 22279, <b>22280</b> , 22281, 22282
Civil Works and Services	Civil Construction Supervision	22293, 25833, 6428, 22294
	Civil Construction Works	6476, 17328, 17501, 20477, 20480, 20481, 20485, 22284, 22285, 25396, 25831, 25832
	Civil Infrastructure Health, Safety, and Environment	20866, 20868, 20871, 20872, 20877
Highway Construction and Maintenance	Road Construction	6483, 6486, 12570, 22993, 22289
	Roading Maintenance	11303, 11304, 11306, 11307, 11309-11312, 11316, 11319, 22288, 22291
Infrastructure Civil Engineering	Infrastructure Laboratory	26634-26637, 26639-26643, 26645, 26647, 26648, 26650-26664, 26666, 26667, 26669-26674, 26676-26683
Infrastructure Works	Civil Plant Operation	20625, 23637, 26169
	Generic Infrastructure Works	6477, 20875, 22290, 26788, 27327-27329
	Generic Road Works	12569, 15930, 26787
	Infrastructure Civil Works	20616, 20624, 26785
	Infrastructure Works Equipment	6469, 20628, 27500
	Infrastructure Works Health, Safety, and Environment	26720, 27201
	Infrastructure Works Management	6433, 25871, 25872
	Infrastructure Works Supervision	6451, 26798
	Infrastructure Works Utilities	20474, 20475, 20476
	Bitumen Surfacing	1502
Pavement Surfacing	Chipseal Surfacing	13520
	Asphalt Surfacing	13519, 22277

The Infrastructure ITO has completed the review of the unit standards listed above. The unit standards in **bold** have also been reinstated.

**Date new versions published**

**19 February 2015**

**Planned review date****31 December 2019****Summary**

The review of the unit standards listed above is part of the planned review cycle taking into account the mandatory review of qualifications administered by the Infrastructure ITO and reflecting major changes of classification that resulted in consolidating infrastructure industry unit standards into the *Infrastructure Civil Engineering* and *Infrastructure Works* subfields in 2010.

Unit standards 22276, 22278 and 22280 were designated as expiring in June 2013 with the last date for assessment set at 31 December 2013. The subsequent mandatory review of *Infrastructure Works* qualifications determined that these unit standards reflected specific qualification outcomes and their expiry should not have been instigated. Consequently these standards have been reinstated and reviewed with others in the *Civil Plant Operation* domain.

The review was conducted by infrastructure industry focus groups who concentrated on reviewing unit standards relating to selected qualifications in the mandatory review of qualifications undertaken by the Infrastructure ITO. These groups included industry representatives from employers, providers, the New Zealand Contractor's Federation, Roding New Zealand, private training establishments, and client sector and industry experts.

Each focus group concentrated on making sure that the levels and credits were appropriate and the content of the unit standards was current, relevant, achievable, accurate, and clear. New unit standards were required to fill gaps that emerged through the mandatory review process. As part of the review, all the unit standards were made available for comment on the InfraTrain website, and subsequent responses were taken into account by the subgroups.

The *Pavement Surfacing* sector of the infrastructure industry had indicated that the current qualifications were no longer fit for purpose so took the opportunity to develop new graduate profiles that will service current and future industry needs. This resulted in restructuring the qualification content away from the focus on two industry products (chipseal and asphalt) to *Bitumen Product Manufacturing* and *Bitumen Surfacing Construction*. This enables the proposed new qualifications to include a range of new surfacing products and introduce new technologies as they develop. It eliminates the need to develop new domains based on specific product types. New unit standards were required to reflect this change. It is anticipated that the status of the redundant asphalt, bitumen, and chipseal surfacing unit standards will be reviewed once the qualification review process has been finalised.

Asphalt Surfacing, Bitumen Surfacing, and Chipseal Surfacing standards were reclassified as Bitumen Product Manufacturing, Bitumen Surfacing Construction, and Generic Bituminous Surfacing standards to reflect the changes in the bitumen surfacing qualification pathways.

**Main changes**

- Unit standards in the *Civil Plant Operation and Management*, *Civil Works and Services*, and *Highway Construction and Maintenance* Subfields were reclassified in appropriate

domains in the *Infrastructure Works* subfield, and unit standards in *Pavement Surfacing* were reclassified in *Bitumen Surfacing*.

- Unit standards 22276, 22278, and 22280 were reinstated and reviewed.
- Titles were amended where necessary to reflect changed domains and content.
- Levels and credits were compared for consistency with similar standards and adjusted to better reflect content and notional learning time.
- Purpose statements were amended as required to reflect changed content.
- Entry information was updated in unit standard 12569, and restrictive entry requirements were removed from standards 6433, 6483, 13520, 20866, 20871, 20872 and 22993.
- Explanatory notes were updated and their order was made consistent with other standards in the subfield. Definitions were arranged alphabetically and moved to the end of the explanatory notes.
- Outcomes and evidence requirements, where necessary, were amended to clarify meaning, updated to cover current good practice, and made consistent with similar standards.
- Range statements were amended where necessary to clarify assessment requirements and updated to cover current industry practice.
- The planned review date for *Infrastructure Laboratory* unit standards and the *Infrastructure Works* unit standards was changed to 31 December 2019.
- Last dates for assessment were changed to remove all redundant versions by December 2014 and retain one previous version until December 2017 to allow sufficient time for current trainees to complete.
- New unit standards were developed to fill gaps identified by infrastructure industry sectors for civil plant operation, utilities, civil works, road construction, road maintenance, laboratory, and generic infrastructure works.
- Standard 22285 has been designed expiring and will not be replaced. However, relevant skills and knowledge from this standard have been included in standard 22284.
- Following the reorganisation of bituminous surfacing industry subject areas, new unit standards were developed to reflect current requirements and classifications. These new unit standards are included in the *Infrastructure Works* subfield and focus on understanding the products, processes, surfacing designs, and methods used in the industry. The expiring *Pavement Surfacing* unit standards were burdened with repetitive assessment of basic safety procedures at the expense of understanding the wide range of knowledge and skills now expected of people working in the industry. The new unit standards better match the outcomes of proposed new qualifications in *Bituminous Product Manufacturing*, *Bituminous Surfacing Construction*, and *Core Bituminous Surfacing*.
- Standards from the *Asphalt Surfacing*, *Bitumen Surfacing*, and *Chipseal Surfacing* domains were reclassified as *Bituminous Product Manufacturing*, *Bituminous Surfacing Construction*, and *Generic Bituminous Surfacing*.

**Category C and D unit standards will expire at the end of December 2017**

## Impact on existing organisations with consent to assess

Current consent for			Consent extended to		
Nature of consent	Classification or ID	Level	Nature of consent	Classification or ID	Level
Subfield	Civil Plant Operation and Management	Any	Subfield	Infrastructure Works	Same
	Civil Works and Services	Any	Subfield	Infrastructure Works	Same
		2	Standard	25832	4
		3	Standard	17501, 20480, 25396	4
	Highway Construction and Maintenance	Any	Subfield	Infrastructure Works	Same
		3	Standard	6486	4
Infrastructure Works	3	Standard	20474, 22290, 27327, 27328	4	
Pavement Surfacing	Any	Subfield	Infrastructure Works	Same	
Domain	Asphalt Surfacing	Any	Domain	Bituminous Surfacing Construction	Same
	Bitumen Surfacing	Any	Domain	Infrastructure Works Supervision	Same
	Chipseal Surfacing	Any	Domain	Infrastructure Works Equipment	Same
	Civil Construction Supervision	Any	Domain	Generic Road Works Infrastructure Civil Works	Same
	Civil Construction Works	Any	Domain	Generic Infrastructure Works Infrastructure Civil Works Infrastructure Works Utilities	Same
		2	Standard	6476, 17328, 20477, 25831,	3
		2	Standard	25832	4
		3	Standard	17501, 20480, 25396,	4
	Infrastructure Civil Works	2	Standard	20616, 20624	3
	Infrastructure Works Utilities	3	Standard	20474	4
	Road Construction	Any	Domain	Road Construction	Same
	Roading Maintenance	Any	Domain	Road Maintenance	Same
				Infrastructure Civil Works	
Generic Infrastructure Works	3	Standard	22290, 27327, 27328	4	
Standard	22294	4	Standard	28711	4

## Detailed list of unit standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
<b>A</b>	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
<b>B</b>	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
<b>C</b>	Major changes that necessitate the registration of a replacement standard with a new ID
<b>D</b>	Standard will expire and not be replaced

Engineering and Technology > Civil Plant Operation and Management > Civil Plant Operation

**Engineering and Technology > Infrastructure Works > Civil Plant Operation**

ID	Title	Level	Credit	Review Category
6466	Convey civil construction plant by transporter	3	20	B
17309	Operate a wheeled loader on civil construction sites <b>Operate a wheeled loader on infrastructure works sites</b>	3	20	B
17310	Operate a hydraulic excavator on civil construction sites	3	20	B
17311	Operate a motor grader for earthworks	3	20	B
17312	Operate a motor grader for road maintenance	3	30	B
17313	Operate a motor grader for road construction	3	30	B
17314	Operate a motor scraper on civil construction sites <b>Operate a motor scraper on infrastructure works sites</b>	3	20	B
17315	Operate a self-propelled roller on civil construction sites <b>Operate a self-propelled roller on infrastructure works sites</b>	3	20	B
17316	Operate a bulldozer on civil construction sites <b>Operate a bulldozer on infrastructure works sites</b>	3	20	B
17317	Operate an articulated dump truck on civil construction sites <b>Operate an articulated dump truck on infrastructure works sites</b>	3	20	B
19675	Operate a road saw	2	4	B
22278	Operate a reclaimer stabiliser in civil construction <b>Operate a reclaimer stabiliser on infrastructure works sites</b>	3	20	Reinstate and B
22279	Operate a skid steer in civil construction <b>Operate a skid steer on infrastructure works sites</b>	3	10	B
22281	Operate an excavator for facing and benching	3	5	Reinstate and B

ID	Title	Level	Credit	Review Category
22282	Operate an excavator for rock placement	3	5	Reinstate and B

Engineering and Technology> Civil Plant Operation and Management > Civil Plant Operation

**Engineering and Technology> Infrastructure Works > Infrastructure Works Equipment**

ID	Title	Level	Credit	Review Category
6465	Operate a power-driven rotary broom <b>Operate a power-driven rotary broom on infrastructure works sites</b>	3	6	B
8560	Deliver, stockpile, and spread aggregates with truck and trailer	3	12 15	B
22275	Operate a roadsweeper in civil construction <b>Operate a roadsweeper on infrastructure works sites</b>	3	10	B
22276	Operate a suction cleaning vehicle in civil construction <b>Operate a suction cleaning vehicle on infrastructure works sites</b>	3	6	Reinstate and B
22280	Operate a stabilising spreader in civil construction <b>Operate a stabilising spreader on infrastructure works sites</b>	3	10	Reinstate and B

Engineering and Technology> Civil Plant Operation and Management > Civil Plant Operation

**Engineering and Technology> Infrastructure Works > Infrastructure Works Utilities**

ID	Title	Level	Credit	Review Category
20484	Operate the drill rig for horizontal directional drilling	3	22 15	B

Engineering and Technology> Civil Works and Services > Civil Construction Supervision

**Engineering and Technology> Infrastructure Works > Generic Road Works**

ID	Title	Level	Credit	Review Category
22293	Demonstrate knowledge of pavement stabilisation on civil construction <b>Demonstrate knowledge of pavement stabilisation for road works</b>	4	10 8	B

Engineering and Technology> Civil Works and Services > Civil Construction Supervision

**Engineering and Technology> Infrastructure Works > Infrastructure Civil Works**

ID	Title	Level	Credit	Review Category
25833	Demonstrate knowledge of civil construction material compaction, soil mechanics, and testing devices	4	5	B

ID	Title	Level	Credit	Review Category
6428	Demonstrate knowledge of engineering survey and set-out for civil construction work	4	20	C
22294	Set out levels and positions in civil construction projects	4	10	C
<b>28711</b>	<b>Interpret infrastructure plans and set-out information</b>	<b>4</b>	<b>5</b>	

Engineering and Technology> Civil Works and Services > Civil Construction Works

**Engineering and Technology> Infrastructure Works > Generic Infrastructure Works**

ID	Title	Level	Credit	Review Category
6476	Read and interpret civil construction plans	2	2	B
	<b>Read and interpret infrastructure works plans</b>	<b>3</b>	<b>3</b>	
25832	Use a nuclear density meter to measure compaction of soils, sands, or gravels	2	3	B
		<b>4</b>	<b>5</b>	

Engineering and Technology> Civil Works and Services > Civil Construction Works

**Engineering and Technology> Infrastructure Works > Infrastructure Civil Works**

ID	Title	Level	Credit	Review Category
17328	Demonstrate fundamental knowledge of earthworks	2	5	B
		<b>3</b>		
17501	Demonstrate knowledge of foundation and subgrade on civil construction works	3	5	B
	<b>Demonstrate knowledge of subgrade for infrastructure civil works</b>	<b>4</b>		
20477	Demonstrate knowledge of soil properties for earthworks	2	3	B
		<b>3</b>		
22284	Construct kerb and channel	3	10	B
			<b>8</b>	
22285	Prepare for kerb and channel construction and reinstate site	3	8	D
25831	Describe and hand test road construction materials in relation to compaction	2	3	B
	<b>Describe road construction materials and their compaction</b>	<b>3</b>		

Engineering and Technology> Civil Works and Services > Civil Construction Works

**Engineering and Technology> Infrastructure Works > Infrastructure Works Utilities**

ID	Title	Level	Credit	Review Category
20480	Prepare for horizontal directional drilling operations and restore the site afterwards	3	3	B
	<b>Prepare for horizontal directional drilling operations and disestablish the site afterwards</b>	<b>4</b>	<b>6</b>	
20481	Carry out bore exit and pipe entry tasks for horizontal directional drilling	3	3	D
20485	Provide guidance for horizontal directional drilling	4	25	B
	<b>Provide tracking for horizontal directional drilling</b>		<b>15</b>	

ID	Title	Level	Credit	Review Category
25396	Demonstrate knowledge of strike avoidance and strike response for horizontal directional drilling <b>Demonstrate knowledge of damage avoidance, consequences of damage, and damage response for trenchless installations</b>	3 4	5 4	B

Engineering and Technology> Civil Works and Services > Civil Infrastructure Health, Safety, and Environment

**Engineering and Technology> Infrastructure Works > Infrastructure Works Health, Safety, and Environment**

ID	Title	Level	Credit	Review Category
20866	Work safely with others in the civil infrastructure industry <b>Work safely on an infrastructure works site</b>	3	5 7	B
20868	Demonstrate knowledge of emergency response in the civil infrastructure industry <b>Demonstrate knowledge of emergency response in the infrastructure works industry</b>	3 2	4 3	B
20871	Supervise health and safety requirements on a civil infrastructure worksite <b>Supervise health and safety requirements on an infrastructure works site</b>	4	8	B
20872	Take control of an emergency at a civil infrastructure worksite <b>Take control of an emergency at an infrastructure works site</b>	4	6	B
20877	Demonstrate knowledge of working safely at sites under temporary traffic management	2	1 2	B

Engineering and Technology> Highway Construction and Maintenance > Road Construction

**Engineering and Technology> Infrastructure Works > Road Construction**

ID	Title	Level	Credit	Review Category
6483	Install pipe culverts and structures on road construction works	3	15	B
6486	Construct concrete vehicle crossings	3 4	5	B
12570	Demonstrate knowledge of the materials used in road formation	4	10	B
22993	<b>Install guard rails or wire rope barriers on civil construction works</b>	3	15	B
22289	Prepare and install traffic service poles, signage, and roadside furniture <b>Install traffic service poles, signage, and roadside furniture</b>	3	8 4	B



Engineering and Technology > Highway Construction and Maintenance > Roading Maintenance

**Engineering and Technology > Infrastructure Works > Road Maintenance**

ID	Title	Level	Credit	Review Category
11303	Maintain road by repairing unbound pavement layers	2 3	5	B
11304	Maintain road by repairing chipsealed surfaces	2 3	3	B
11306	Restore pavement using stabilisation techniques	2 3	5 4	B
11307	Maintain road bridge surface and furniture	2 3	5	B
11319	Trim and remove vegetation for roading maintenance <b>Trim and remove vegetation for road maintenance</b>	2 3	2 4	B

Engineering and Technology > Highway Construction and Maintenance > Roading Maintenance

**Engineering and Technology > Infrastructure Works > Infrastructure Civil Works**

ID	Title	Level	Credit	Review Category
11309	Maintain road by manually cleaning and repairing open drainage system	3	7	B
11310	Maintain road subsoil drainage systems	3	3	B
11311	Maintain road drainage structures	3	7	B
11312	Maintain piped stormwater drainage systems in road reserve	3	5	B
11316	Maintain road by installing and refurbishing traffic signs and delineators	3	8	B
22288	Maintain road clear of ice	3	5	B
22291	Maintain road clear of snow	3	5	B

Engineering and Technology > Infrastructure Civil Engineering > Infrastructure Laboratory

ID	Title	Level	Credit	Review Category
26634	Describe civil engineering laboratory aggregate source property tests	4	8	B
26635	Perform civil engineering laboratory aggregate source property tests	4	16	B
26636	Describe civil engineering laboratory aggregate production tests	4	10	B
26637	Perform civil engineering laboratory aggregate production tests	4	18	B
26639	Explain civil engineering laboratory aggregate source property tests	5	18	B
26640	Evaluate and troubleshoot civil engineering laboratory aggregate source property tests	5	14	B
26641	Explain civil engineering laboratory aggregate production tests	5	20	B

ID	Title	Level	Credit	Review Category
26642	Evaluate and troubleshoot civil engineering laboratory aggregate production tests	5	14	B
26643	Describe civil engineering laboratory soil classification tests	4	10	B
26645	Describe civil engineering laboratory soil density and compaction tests	4	8	B
26647	Describe civil engineering laboratory soil strength tests	4	8	B
26648	Perform civil engineering laboratory soil strength tests	4	12	B
26650	Explain civil engineering laboratory specialist soil tests	5	24	B
26651	Evaluate and troubleshoot civil engineering laboratory specialist soil tests	5	18	B
26652	Explain civil engineering laboratory soil classification tests	5	20	B
26653	Evaluate and troubleshoot civil engineering laboratory soil classification tests	5	5	B
26654	Explain civil engineering laboratory soil density and compaction tests	5	12	B
26655	Evaluate and troubleshoot civil engineering laboratory soil density and compaction tests	5	6	B
26656	Explain civil engineering laboratory soil strength tests	5	12	B
26657	Evaluate and troubleshoot civil engineering laboratory soil strength tests	5	6	B
26658	Explain civil engineering laboratory fresh concrete tests	5	10	B
26659	Evaluate and troubleshoot civil engineering laboratory fresh concrete tests	5	10	B
26660	Explain civil engineering laboratory non-destructive testing of hardened concrete	5	10	B
26661	Evaluate and troubleshoot civil engineering laboratory non-destructive testing of hardened concrete	5	10	B
26662	Explain civil engineering laboratory concrete hardness tests <b>Explain civil engineering laboratory concrete strength and density tests</b>	5	10	B
26663	Evaluate and troubleshoot civil engineering laboratory concrete hardness tests <b>Evaluate and troubleshoot civil engineering laboratory concrete strength and density tests</b>	5	10	B
26664	Describe civil engineering laboratory field investigation tests	4	15	B
26666	Explain civil engineering laboratory field investigation tests	5	15	B
26667	Evaluate and troubleshoot civil engineering laboratory field investigation tests	5	15	B

ID	Title	Level	Credit	Review Category
26669	Describe civil engineering laboratory asphalt tests	4	15	B
26670	Perform civil engineering laboratory asphalt tests	4	15	B
26671	Explain civil engineering laboratory asphalt tests	5	20	B
26672	Evaluate and troubleshoot civil engineering laboratory asphalt tests	5	12	B
26673	Describe civil engineering laboratory bitumen or modified bitumen tests	4	15	B
26674	Perform civil engineering laboratory bitumen or modified bitumen tests	4	15	B
26676	Describe civil engineering laboratory bitumen emulsion tests	4	10	B
26677	Perform civil engineering laboratory bitumen emulsion tests	4	12	B
26678	Explain civil engineering laboratory bitumen or modified bitumen tests	5	20	B
26679	Evaluate and troubleshoot civil engineering laboratory bitumen or modified bitumen tests	5	10	B
26680	Explain civil engineering laboratory bitumen emulsion tests	5	8	B
26681	Evaluate and troubleshoot civil engineering laboratory emulsion tests	5	7	B
26682	Explain civil engineering laboratory bitumen sprayer tests	5	10	B
26683	Perform civil engineering laboratory bitumen sprayer tests	5	15	B
<b>28716</b>	<b>Determine, evaluate, and report on precision and bias in civil engineering laboratory proficiency data</b>	<b>5</b>	<b>6</b>	<b>New</b>
<b>28717</b>	<b>Apply mathematical methods to civil engineering laboratory testing</b>	<b>3</b>	<b>4</b>	<b>New</b>
<b>28718</b>	<b>Describe civil engineering laboratory fresh and hardened concrete sampling</b>	<b>4</b>	<b>6</b>	<b>New</b>
<b>28719</b>	<b>Perform civil engineering laboratory concrete sampling</b>	<b>4</b>	<b>4</b>	<b>New</b>
<b>28720</b>	<b>Describe civil engineering laboratory concrete tests</b>	<b>4</b>	<b>8</b>	<b>New</b>
<b>28721</b>	<b>Perform civil engineering laboratory concrete tests</b>	<b>4</b>	<b>16</b>	<b>New</b>

Engineering and Technology > Pavement Surfacing > Bitumen Surfacing  
**Engineering and Technology > Infrastructure Works > Infrastructure Works Supervision**

ID	Title	Level	Credit	Review Category
1502	Demonstrate knowledge of contract documents required for bitumen surfacing supervision	4	15	C
<b>28727</b>	<b>Interpret the requirements of contract documents for infrastructure works supervision activities</b>	<b>4</b>	<b>10</b>	

Engineering and Technology &gt; Pavement Surfacing &gt; Asphalt Surfacing

**Engineering and Technology > Infrastructure Works > Bituminous Surfacing Construction**

ID	Title	Level	Credit	Review Category
13519	Operate an asphalt paving machine	3	20	B
22277	Operate a road mill in civil construction	3	20	B

Engineering and Technology &gt; Pavement Surfacing &gt; Chipseal Surfacing

**Engineering and Technology > Infrastructure Works > Infrastructure Works Equipment**

ID	Title	Level	Credit	Review Category
13520	Operate a truck-mounted roller-spreader on chipsealing works	3	10 12	B

Engineering and Technology &gt; Infrastructure Works

ID	Domain	Title	Level	Credit	Review Category
6433	<b>Infrastructure Works Management</b>	Interpret contract documents for planning an infrastructure works project	5	10	B
6451	<b>Infrastructure Works Supervision</b>	Implement notifiable work requirements on an infrastructure works site <b>Carry out notifiable work and permit requirements on an infrastructure works site</b>	4	5	B
6469	<b>Infrastructure Works Equipment</b>	Maintain small machinery used on an infrastructure works site	1 2	2	B
6477	<b>Generic Infrastructure Works</b>	Identify, hand spread, and assist in compacting materials for infrastructure works	1 2	3	B
12569	<b>Generic Road Works</b>	Demonstrate knowledge of the design, construction, and maintenance of road drainage systems	5	15	B
15930	<b>Generic Road Works</b>	Locate work sites using route data system, maps, and plans	2	3 2	B
20474	<b>Infrastructure Works Utilities</b>	Demonstrate knowledge of forestry earthworks job descriptions	3 4	5	B
20475	<b>Infrastructure Works Utilities</b>	Demonstrate knowledge of forestry earthworks	2 3	4	B
20476	<b>Infrastructure Works Utilities</b>	Carry out forestry earthworks construction <b>Construct forestry roads, tracks, and landings</b>	3	15	B

<b>ID</b>	<b>Domain</b>	<b>Title</b>	<b>Level</b>	<b>Credit</b>	<b>Review Category</b>
20616	<b>Infrastructure Civil Works</b>	Demonstrate knowledge of earthworks in relation to the environment	2 3	4	B
20624	<b>Infrastructure Civil Works</b>	Demonstrate knowledge of bulk earthmoving	2 3	4	B
20625	<b>Civil Plant Operation</b>	Operate a rigid dump truck for bulk earthmoving	3	12 15	B
20628	<b>Infrastructure Works Equipment</b>	Operate a water cart for bulk earthmoving	3	10	B
20875	<b>Generic Infrastructure Works</b>	Demonstrate knowledge of slinging, lifting, moving, and placing loads with an excavator or loader <b>Demonstrate knowledge of slinging, lifting, moving, and placing loads using mobile plant</b>	2	5	B
22290	<b>Generic Infrastructure Works</b>	Demonstrate knowledge of and carry out infrastructure works quality assurance requirements	3 4	5	B
23637	<b>Civil Plant Operation</b>	Operate a telehandler	3	15 20	B
25871	<b>Infrastructure Works Management</b>	Carry out infrastructure works contract estimating, tendering, and related procedures	5	15	B
25872	<b>Infrastructure Works Management</b>	Develop and implement a project plan to deliver on an Infrastructure works contract	5	15	B
26169	<b>Civil Plant Operation</b>	Operate a self-propelled, bladed compactor on infrastructure work sites	3	20	B
26720	<b>Infrastructure Works Health, Safety, and Environment</b>	Describe health, safety, and environmental care at an infrastructure works site	2	2 3	B
26785	<b>Infrastructure Civil Works</b>	Explain field sampling and collect field samples for infrastructure civil works	4	5	B
26787	<b>Generic Road Works</b>	Demonstrate knowledge of road drainage systems	4	6	B
26788	<b>Generic Infrastructure Works</b>	Demonstrate knowledge of drainage for infrastructure works	4	15	B
26798	<b>Infrastructure Works Supervision</b>	Demonstrate knowledge of infrastructure works contracts	5	6	B

ID	Domain	Title	Level	Credit	Review Category
27201	<b>Infrastructure Works Health, Safety, and Environment</b>	Apply factors relating to a contamination incident at an infrastructure works site <b>Mitigate environmental damage caused by a contamination incident</b>	2 3	5 3	B
27327	<b>Generic Infrastructure Works</b>	Handle and install pipes and fittings for infrastructure pipelaying, and carry out follow-up procedures	3 4	20	B
27328	<b>Generic Infrastructure Works</b>	Install structures for infrastructure pipelaying and carry out follow-up procedures	3 4	10	B
27329	<b>Generic Infrastructure Works</b>	Demonstrate knowledge of, and apply, quality assurance practices to own work area in an infrastructure works operation <b>Demonstrate knowledge of and apply quality assurance practices to own work area in an infrastructure works operation</b>	2 3	4	B
27500	<b>Infrastructure Works Equipment</b>	Operate trench compaction equipment for infrastructure works <b>Operate compaction equipment for infrastructure works</b>	2 3	4	B
28678	<b>Generic Bituminous Surfacing</b>	<b>Demonstrate knowledge of environmental protection and safety for bituminous surfacing production and application</b>	4	10	New
28679	<b>Generic Bituminous Surfacing</b>	<b>Demonstrate knowledge of bituminous surfacings and their uses</b>	4	6	New
28680	<b>Generic Bituminous Surfacing</b>	<b>Demonstrate knowledge of materials used in bituminous surfacing</b>	4	6	New
28681	<b>Generic Bituminous Surfacing</b>	<b>Demonstrate knowledge of supply chains and plant and equipment for bituminous binder production</b>	4	6	New
28682	<b>Bitumen Product Manufacturing</b>	<b>Describe quality control for manufacturing bituminous surfacing products</b>	4	6	New

<b>ID</b>	<b>Domain</b>	<b>Title</b>	<b>Level</b>	<b>Credit</b>	<b>Review Category</b>
28683	Generic Bituminous Surfacing	Explain and carry out safety procedures and processes for storage and handling of liquid bituminous products	4	6	New
28684	Bitumen Product Manufacturing	Communicate with relevant parties for producing bituminous materials	4	3	New
28685	Bitumen Surfacing Construction	Describe the purpose and function of plant and equipment used in bituminous surfacing construction	4	6	New
28686	Bitumen Surfacing Construction	Demonstrate knowledge of key components of quality management for a bituminous surfacing site	4	6	New
28687	Bitumen Product Manufacturing	Demonstrate knowledge of bituminous surfacing product manufacturing plants and their processes	4	6	New
28688	Bitumen Product Manufacturing	Demonstrate knowledge of production planning for manufacturing bituminous surfacing products	4	6	New
28689	Bitumen Product Manufacturing	Explain mix design fundamentals for bituminous products	4	6	New
28690	Bitumen Product Manufacturing	Manufacture surfacing products at a bituminous mix plant	4	22	New
28691	Bitumen Product Manufacturing	Demonstrate knowledge of equipment and processes for manufacturing bituminous binders	4	6	New
28692	Bitumen Product Manufacturing	Demonstrate knowledge of production planning for manufacturing bituminous binders	4	6	New
28693	Bitumen Product Manufacturing	Explain the design fundamentals of bituminous binders	4	6	New
28694	Bitumen Product Manufacturing	Produce binders at a bituminous binder plant	4	22	New
28695	Generic Bituminous Surfacing	Demonstrate knowledge of bitumen distributor equipment and blending, and the application of bituminous binders	4	6	New

<b>ID</b>	<b>Domain</b>	<b>Title</b>	<b>Level</b>	<b>Credit</b>	<b>Review Category</b>
28696	Generic Bituminous Surfacing	Demonstrate knowledge of planning for blending and applying bituminous binders with a bitumen distributor	4	6	New
28697	Bitumen Surfacing Construction	Demonstrate knowledge of binder spraying fundamentals	4	6	New
28698	Bitumen Surfacing Construction	Operate a bitumen distributor for blending and applying bituminous binders	4	22	New
28699	Bitumen Surfacing Construction	Demonstrate knowledge of chipseal design fundamentals and treatment selection for chipseals	4	5	New
28700	Bitumen Surfacing Construction	Demonstrate knowledge of equipment and processes for constructing chipseal surfacings	4	6	New
28701	Bitumen Surfacing Construction	Interpret chipseal design instructions and construct chipseal surfacings	4	14	New
28702	Bitumen Surfacing Construction	Complete records and take samples for chipseal construction	4	6	New
28703	Bitumen Surfacing Construction	Demonstrate knowledge of mix design fundamentals and treatment selection for bituminous mixes	4	6	New
28704	Bitumen Surfacing Construction	Demonstrate knowledge of equipment and processes for laying bituminous mixes	4	6	New
28705	Bitumen Surfacing Construction	Interpret paving instructions and construct bituminous mix layers	4	14	New
28706	Bitumen Surfacing Construction	Complete records and take samples and tests for bituminous mix paving construction	4	6	New
28707	Bitumen Surfacing Construction	Demonstrate knowledge of mix design fundamentals and treatment selection for slurry surfacings	4	6	New
28708	Bitumen Surfacing Construction	Demonstrate knowledge of equipment and processes for slurry surfacing	4	6	New
28709	Bitumen Surfacing Construction	Interpret paving instructions and construct slurry surfacings	4	14	New



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28710	Bitumen Surfacing Construction	Complete records and take samples for slurry surfacing construction	4	6	New
28712	Infrastructure Civil Works	Mount a gantry sign	3	5	New
28714	Road Maintenance	Explain pavement failure and restoration	4	3	New
28715	Generic Infrastructure Works	Load, secure, and transport infrastructure works materials, small plant, and equipment	3	2	New
28722	Infrastructure Works Utilities	Confirm alignment and reinstate gravity pipes and structures to correct line and level	4	4	New
28723	Infrastructure Works Utilities	Clean and maintain a pump station	3	5	New
28724	Infrastructure Works Utilities	Demonstrate knowledge of horizontal directional drilling	4	5	New
28725	Civil Plant Operation	Operate a hydro-excavator on an infrastructure works site	3	20	New
28726	Infrastructure Works Equipment	Operate a water-jet for infrastructure works	3	10	New