

**1XXXXX****Establish irrigation system requirements for commercial use**

<b>Kaupae   Level</b>	4
<b>Whiwhinga   Credit</b>	10
<b>Whāinga   Purpose</b>	<p>The skill standard is for people working in or seeking skills in irrigation system requirements.</p> <p>People credited with this skill standard will be able to conduct detailed site and water source evaluations and develop comprehensive system description that informs the irrigation system design process or irrigation operation process.</p> <p>This skill standard has been developed to align with the New Zealand Certificate in Irrigation System Management (Level 4) or New Zealand Certificate in Irrigation System Design (Level 5).</p>

**Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria**

<b>Hua o te ako   Learning outcomes</b>	<b>Paearu aromatawai   Assessment criteria</b>
1. Apply communication techniques to identify client objectives, constraints, and system preferences.	a. Consult using appropriate engagement and communication techniques.
	b. Record and collate evidence, including key client requirements and constraints.
	c. Assess soil characteristics including water holding capacity and infiltration rates through field tests and incorporate findings into design parameters.
	d. Determine overall water demand by integrating crop needs, soil characteristics, and climatic conditions.
2. Interpret legislative and regulatory frameworks affecting irrigation system design.	a. Describe the relevant national resource management legislation, analysing the implications for irrigation system design and/or operation.
	b. Describe the impact of regional regulatory requirements affecting the design and operation of an irrigation system.
	c. Describe the impact of water resource consent conditions or supply agreements affecting the design and operation of an irrigation system

Hua o te ako   Learning outcomes	Paearu aromatawai   Assessment criteria
3. Interpret site-specific factors including soil, crop, climate, and land management units (LMUs).	a. Demonstrate field-based analysis of soil profiles and their characteristics.
	b. Describe the irrigation requirements and factors of the specific crop type.
	c. Interpret relevant weather and climate data for the site.
	d. Map on to a single drawing the features of a land management unit (LMU) influencing the irrigation system design and operation accounting for soils, crop and climate.
4. Evaluate water source reliability, characteristics, and suitability for irrigation in line with regulatory requirements.	a. Assess water source availability and seasonal variability.
	b. Evaluate water supply characteristics and suitability in relation to irrigation system and crop needs, including compliance with relevant regulatory requirements.
5. Document an irrigation system description that incorporates site characteristics, client needs, and regulatory considerations.	a. Develop a system description including irrigation objectives and key performance indicators, relevant site-specific regulatory considerations.
	b. Outline design or operational assumptions and identified constraints.
	c. Ensure that the system description conforms with the relevant industry codes of practice.

### Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

#### Assessment specifications:

Akōnga/learners must be assessed using naturally occurring activities.

Applicability activities can be assessed against an existing, new or modified irrigation system. The irrigation system is for a commercial agricultural or horticultural property, sports turf surface, landscape, golf course, amenities and wastewater.

All activities and evidence must meet the requirements of accepted industry practice, worksite safety procedures, and any subsequent amendments to legislation.

Evidence for all outcomes must be presented in accordance with; the relevant IrrigationNZ Codes of Practice and any subsequent amendments; available from the Irrigation New Zealand website, <http://irrigationnz.co.nz/>.

Providers must give due consideration to embedding ngā kaupapa (principles) o Te Tiriti o Waitangi when designing delivery activities relevant to this standard. These principles are outlined in [Guidelines for Providers: Embedding Tirohanga Māori](#).

Providers must give due consideration to the needs and values of Pacific peoples and other cultural groups when designing delivery activities relevant to this standard, ensuring practices are inclusive and equitable.

### *Definitions*

*Accepted industry practice* refers to codes of practice and standardised procedures adopted by the irrigation industries as standards for of best practice.

*Land Management Unit (LMU)* Sub-areas within a farm that contain features and conditions that justify being treated separately. Includes physical features, aspect, slopes, soil Prolife Available Water (PAW) and infiltration characteristics, crop types, runoff risk, farm management limitations, etc.

*Water supply characteristics* – physical, chemical, biological

### **Ngā momo whiwhinga | Grades available**

Achieved.

### **Ihirangi waitohu | Indicative content**

#### **Identify client needs**

- Use structured interviews and guided conversations to capture client goals, preferences, risks and constraints.
- Document budget, land use, technology preferences and scalability expectations.

#### **Interpret regulations**

- Relevant national/regional legislation (RMA, regional plans) and site-specific consents.
- Compliance with Irrigation NZ Design Code of Practice and O&M Guideline requirements.

#### **Analyse site factors**

- Collect and interpret soil profiles, climate data and topography.
- Determine irrigation needs using crop type, evapotranspiration rates and growing season data.
- Map and classify LMUs to assign irrigation zones.

#### **Evaluate water sources**

- Assess reliability, quality and regulatory constraints of potential water sources.
- Apply tools and methods for source suitability analysis.

#### **Document system requirements**

- Prepare a concise irrigation design brief integrating client objectives, site analysis and regulatory obligations.
- Follow structure aligned with NZ Piped Irrigation Systems Design Code or Operation Management Guideline.

### **Rauemi | Resources**

Legislation relevant to this skill standard includes but is not limited to:

- Irrigation New Zealand website, <http://irrigationnz.co.nz/>
  - The New Zealand Piped Irrigation Systems Design Code of Practice
  - The New Zealand Piped Irrigation System Performance Assessment Code of Practice
  - The New Zealand Piped Irrigation Systems Design Standards
  - The New Zealand Piped Irrigation Systems Installation Code of Practice
  - The Irrigation New Zealand Guideline for Irrigation Management
  - The Irrigation New Zealand Design Brief Checklist
  - The Irrigation New Zealand Guideline for an Operations and Maintenance Manual
  - Other

- Site specific water resource consent or water supply agreement, weather data (e.g. NIWA), crop descriptions and soil profile data sheets (e.g. SMap)
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- National Policy Statement for Freshwater Management 2014;
- Various Regional Council Land and Water Regulations

and any subsequent amendments or replacements.

### Pārongo Whakaū Kouna | Quality assurance information

<b>Ngā rōpū whakatau-paerewa  </b> Standard Setting Body	Muka Tangata – People Food and Fibre Workforce Development Council
<b>Whakaritenga Rārangi Paetae Aromatawai  </b> DASS classification	Engineering and Technology > Water Industry > Irrigation
<b>Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga  </b> CMR	0052

<b>Hātepe  </b> Process	<b>Putanga  </b> Version	<b>Rā whakaputa  </b> Review Date	<b>Rā whakamutunga mō te aromatawai  </b> Last date for assessment
<b>Rēhitatanga  </b> Registration	<type here>	[dd mm yyyy]	[dd mm yyyy]
<b>Arotakenga  </b> Review	<type here>	[dd mm yyyy]	[dd mm yyyy]
<b>Kōrero whakakapinga  </b> Replacement information	This skill standard will replace Unit standard 28934 Determine irrigation system requirements for a commercial enterprise.		
<b>Rā arotake  </b> Planned review date	31 December 2030		

Please contact Muka Tangata – People Food and Fibre Workforce Development Council at [qualifications@mukatangata.nz](mailto:qualifications@mukatangata.nz) to suggest changes to the content of this skill standard.