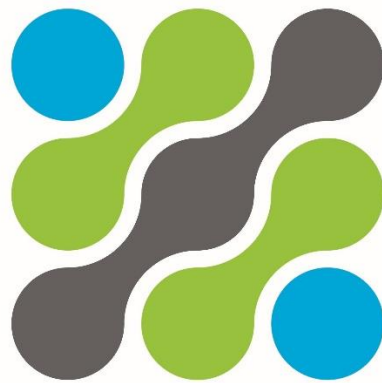


2023

Get Certified

Certified Professional Land Development Engineer

Stay Certified



**Survey
and Spatial
New Zealand**
TĀTAI WHENUA

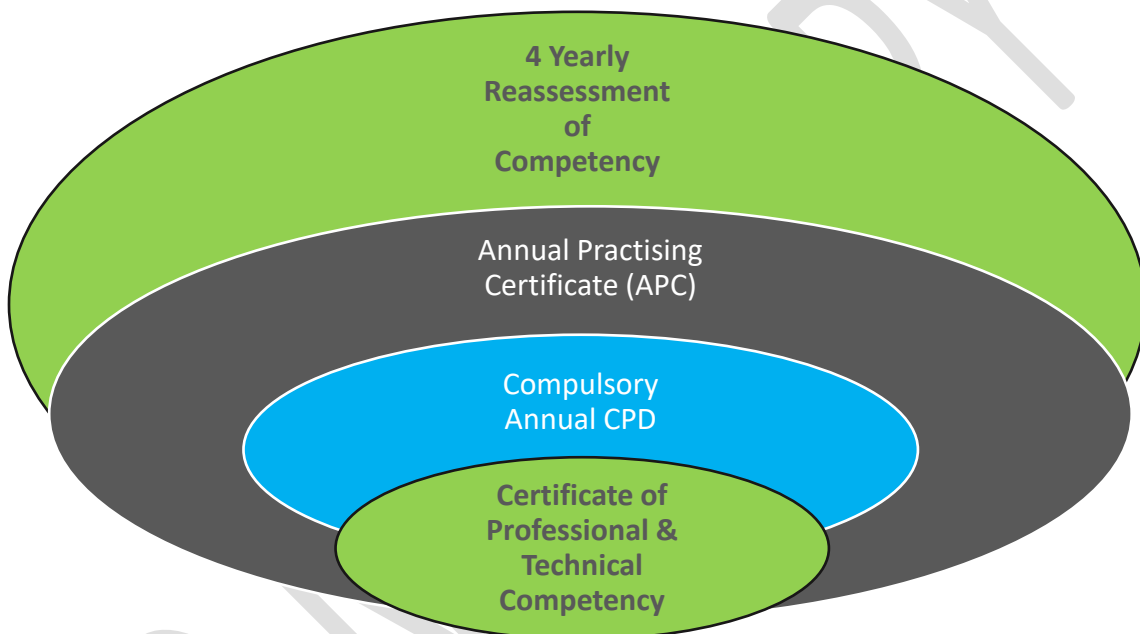
Author: J Albiston – Copyright Survey and
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6/2/2023

Certification Framework Purpose & Vision	2
Key Goals.....	2
Wider Goals.....	2
Get Certified: The Process.....	3
Get Certified – The Assessment of Competency.....	3
Stay Certified: Annual Practising Certificate (APC) and Annual CPD	4
Stay Certified: 4 Yearly Cycle.....	4
Overview: S+SNZ Certified Professional Land Development Engineer	5
Part A: General Professional Competence.....	5
Part B: Technical Competence.....	5
Certification of Professional Land Development Engineering Competence	6
Purpose Statement	6
Competence Standard	6
Summary of Competencies for Land Development Engineering Part A – General Professional Competence:	7
Summary of Competencies for Land Development Engineering Part B – Technical Competence:	8
Competencies for Land Development Engineering Part A: General Professional Competence	9
1. Professional Conduct	9
2. Communication Skills.....	10
3. Good Business Practice.....	11
Competencies for Land Development Engineering Part B: Technical Competence	12
1. Design.....	12
2. Build.....	13
3. Manage.....	14
Appendix One – The CSLB requirements for the LCS – Engineering Principles – Point 7 from the Standards for Licensing Cadastral Surveyors 2020	15

Certification Framework Purpose & Vision

‘To provide a recognised professional pathway for members at all levels by developing, implementing, and maintaining, a Certification Framework and Programs, with clear eligibility criteria, a public register and mandatory CPD, supported by a robust renewal process and quality management system (QMS).’



Key Goals

- To achieve a commitment across S+SNZ membership to an agreed set of professional best practice standards and ethics
- To provide professional certification that all members can pathway into
- To meet the criteria and standards required by Local and Territorial Authorities
- To provide advanced competency for those who choose to specialise

Wider Goals

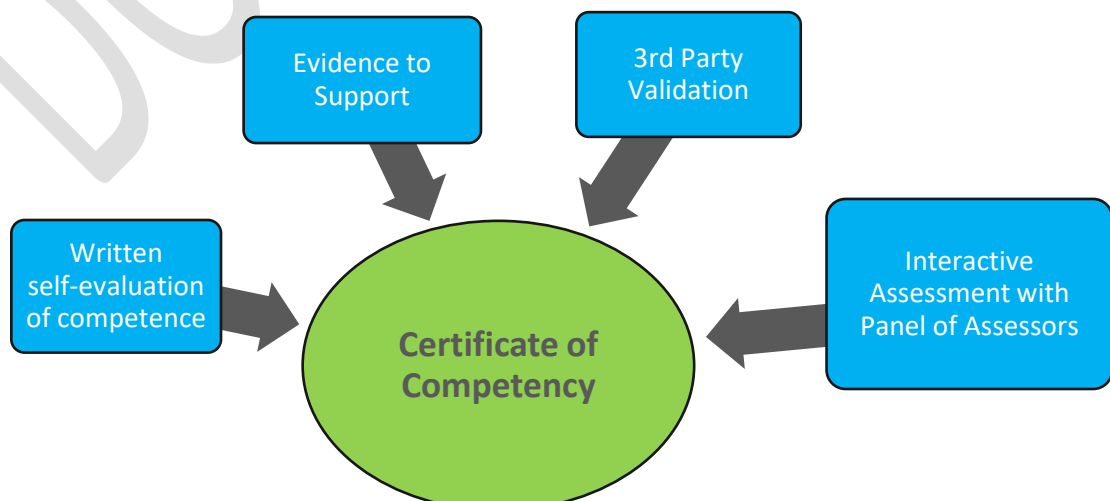
- To set and uphold standards in education, competency, and ethical behaviour
- To enhance public understanding of the role the surveying and spatial sector plays in New Zealand and beyond.

Get Certified: The Process

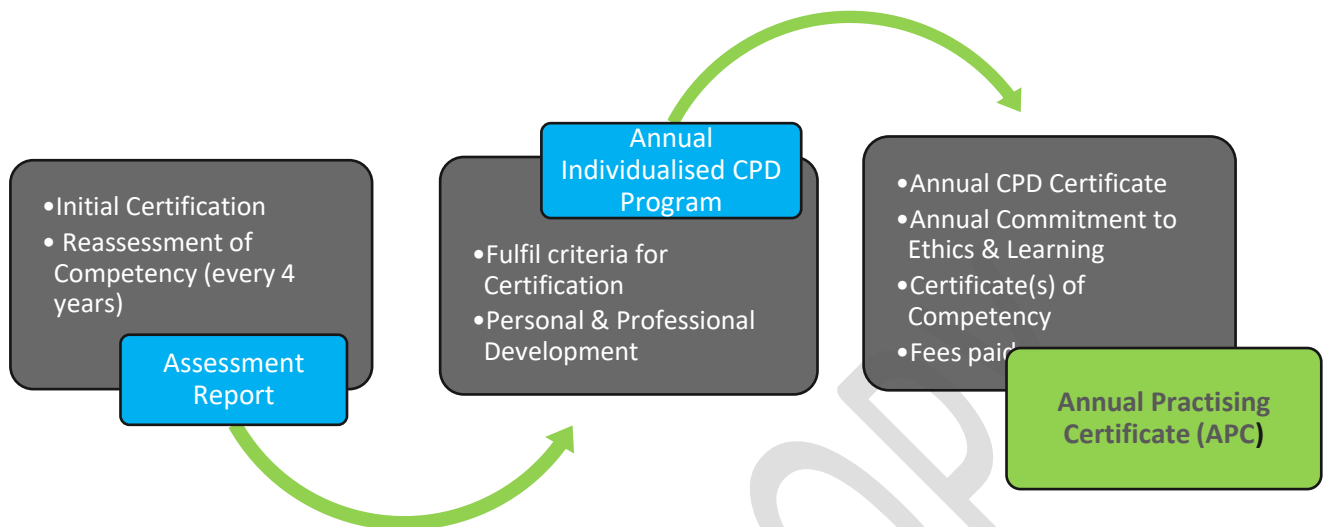


Get Certified – The Assessment of Competency

The Assessment has 2 parts. Part A (General Professional Competence) and Part B (Technical Competence) both have their own set of competencies. These competencies are assessed in 4 different ways as follows:

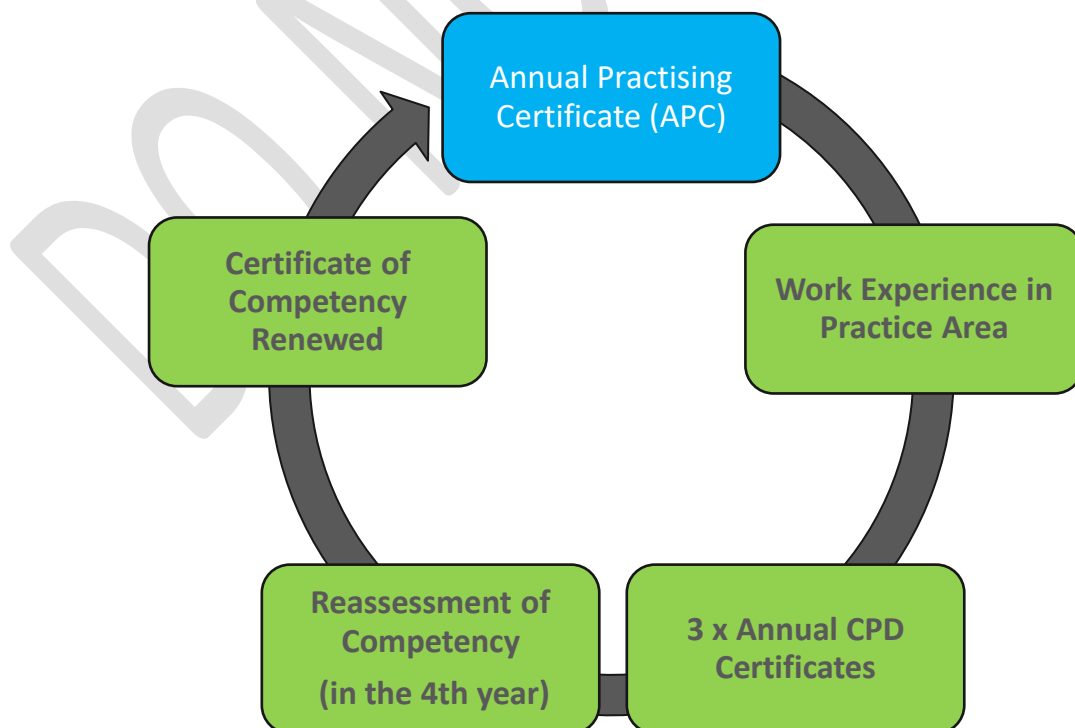


Stay Certified: Annual Practising Certificate (APC) and Annual CPD

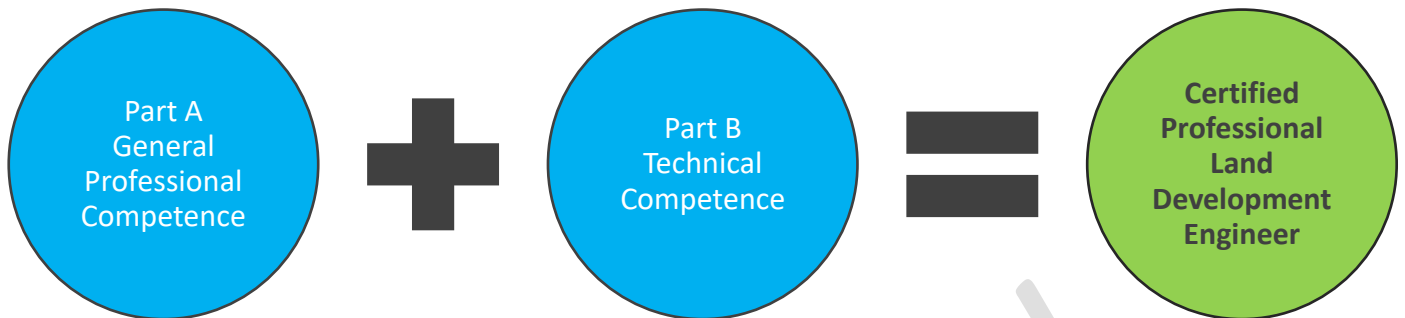


An **Annual Practising Certificate (APC)** is issued upon payment of fees, and where there is a **current Annual CPD Certificate** and **current relevant Certificate(s) of Competency**. As part of annual renewal of the APC, candidates are required to sign an **Annual Commitment to Ethics and Professional Practice Statement**. Certified Professional Engineering Surveyors OR Certified Professional Land Development Engineers who practice without a current **Annual Practising Certificate (APC)** may be referred to a professional conduct committee and subject to a disciplinary process.

Stay Certified: 4 Yearly Cycle

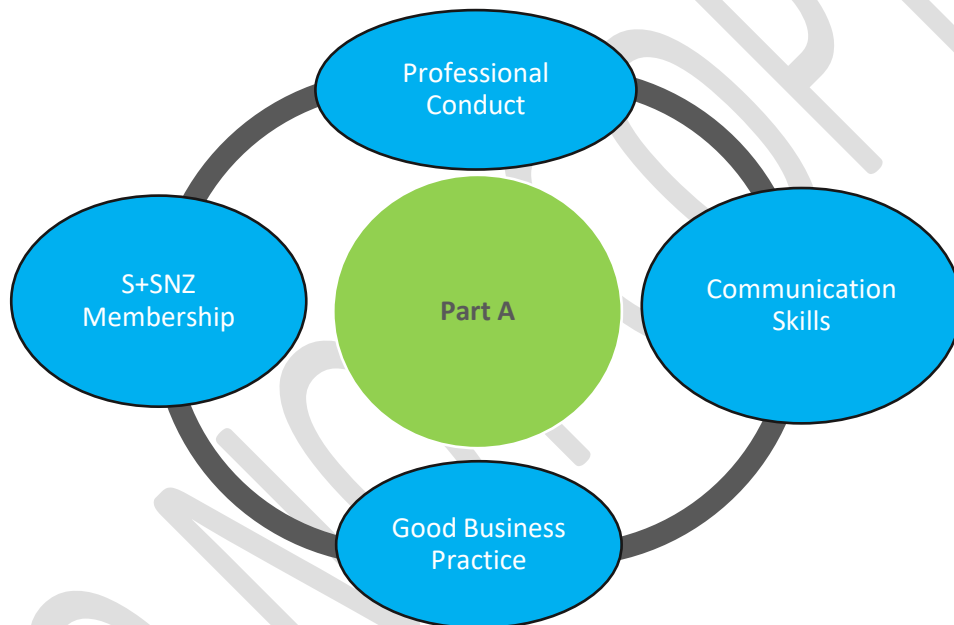


Overview: S+SNZ Certified Professional Land Development Engineer



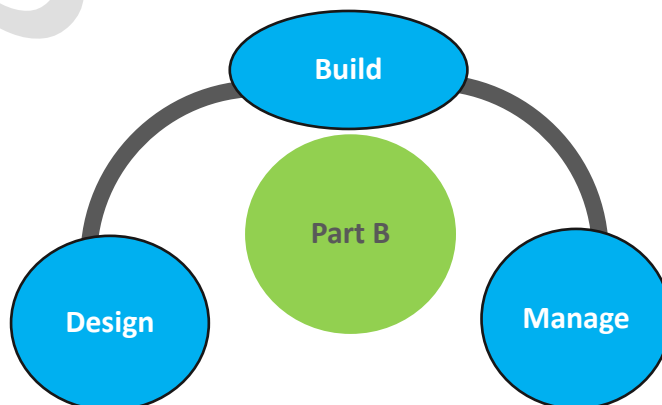
Part A: General Professional Competence

Part A is the assessment of General Professional Competence. It assesses competence in the following areas:



Part B: Technical Competence

Part B is the assessment of Technical Competence in Land Development Engineering. It assesses competence in the following areas:



Certification of Professional Land Development Engineering Competence

Purpose Statement

The Certification of Professional Land Development Engineering Competence is formal recognition by Survey and Spatial New Zealand of those who have been assessed against a defined set of professional and technical competencies which meet the Civil Engineering standards and technical sign off criteria required by Private and Public Asset Owners, Territorial and Local Authorities and other such Entities (as it relates to Land Development).

The Annual Practising Certificate as a **Survey and Spatial New Zealand Certified Professional Land Development Engineer** sets a quality benchmark for the industry to maintain public confidence across the following areas:

- Earthworks, Erosion and Sediment Control
- Access, Roding and Transportation
- 3 Waters (Stormwater Management, Wastewater Management, Potable Water)
- Utilities (Energy and Communication)

Competence Standard

This Certification recognises prior learning and current competency to the standard required to sign (but not limited to):¹

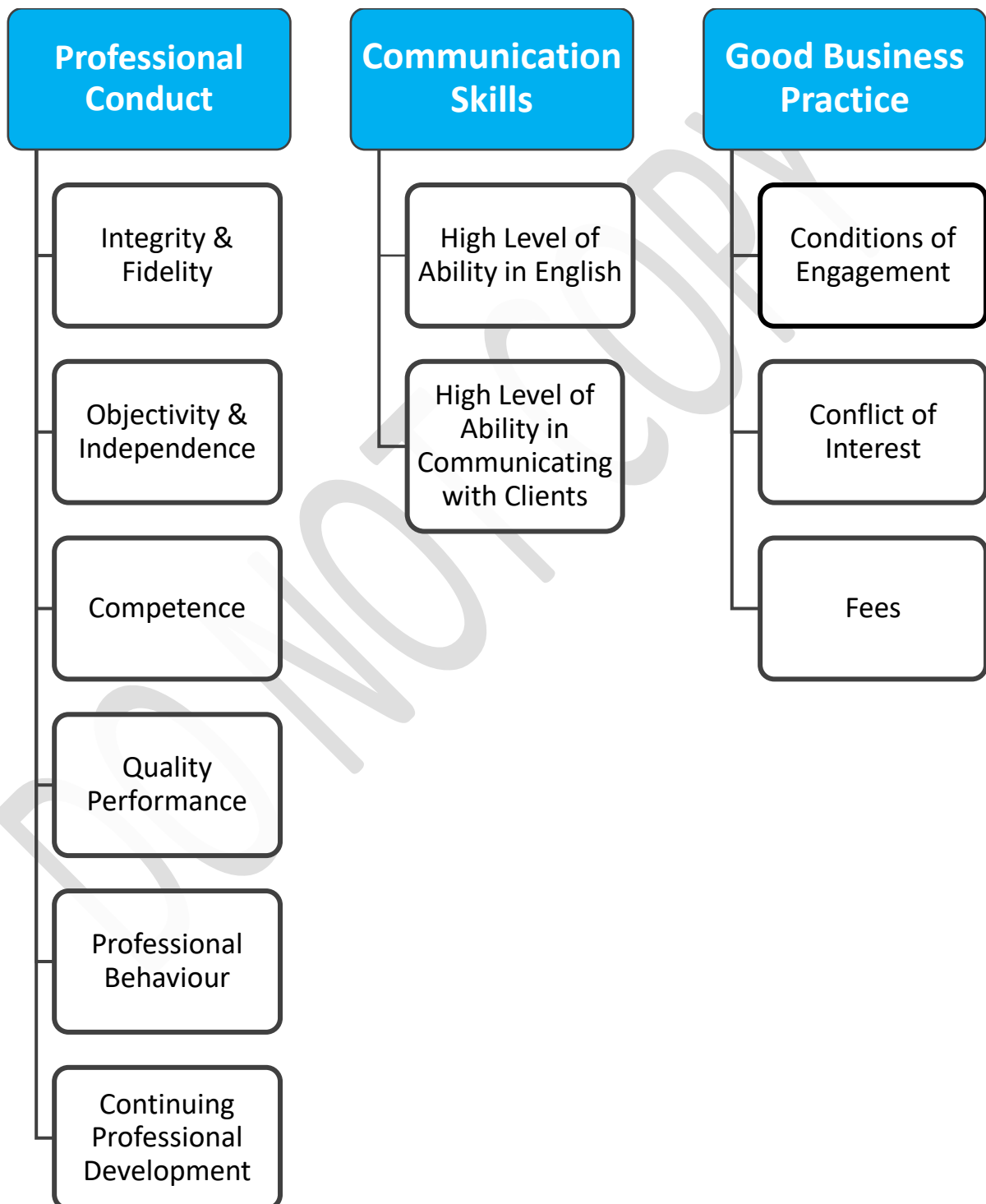
- Engineering Design Certificate of Land Development and Subdivision (Engineering Plan Approval Stage 1 – Design, NZS 4404 Schedule 1A or equivalent)
- Certificate upon Completion of Land Development/Subdivision or equivalent (e.g., Engineering Plan Approval Stage 3 – Completion and Handover, NZS4404 Schedule 1C)
- Engineering Design Certificate of 3 Waters Assets (or any component) - (Compliance Statement Design-CS1 or equivalent)
- Construction Monitoring Certificate of 3 Waters Assets (or any component) – (Compliance Statement Construction Monitoring – CS4 or equivalent)

¹ This Certification assesses to the standards required and recommended by (but not limited to): NZS 4404 (2010), NZS 3910, the Construction Contracts Act 2002 and the Resource Management Act (RMA); specifically, the s223 and s224c RMA process.

Summary of Competencies for Land Development Engineering Part A – General

Professional Competence:

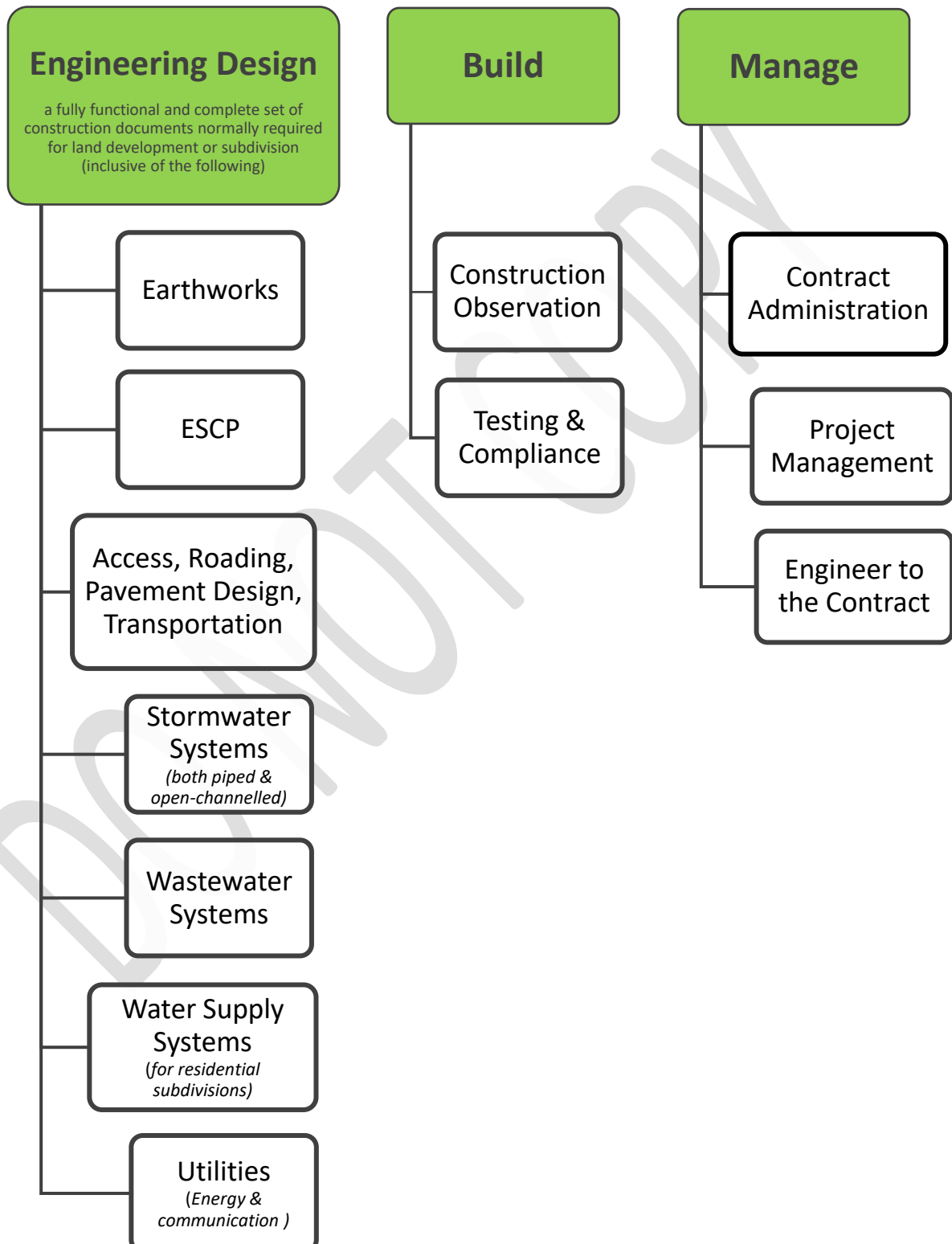
Certified Professional Land Development Engineers must have a foundational knowledge & understanding of + commitment & ability to the following:



Summary of Competencies for Land Development Engineering Part B –

Technical Competence:

Certified Professional Land Development Engineers must have a sound ability in & solid foundational knowledge of the following:



Competencies for Land Development Engineering Part A: General Professional Competence

Professional Conduct, Communication Skills, and Good Business Practice ²

1. Professional Conduct

The competencies required to maintain public confidence and quality assurance in this section require proof and attestation of the commitment and ability to maintain and act in accordance with the following standards of professionalism within area of expertise or specialisation.

1.1 Foundational Knowledge and Understanding

1.1.1 A Foundational Knowledge and Understanding of Integrity and Fidelity including a commitment and ability to:

1.1.1.1 Behave with integrity in all professional and business relationships, with honesty, fair dealing, and truthfulness.

1.1.2 A Foundational Knowledge and Understanding of Objectivity and Independence including a commitment and ability to:

1.1.2.1 Be fair, impartial, and intellectually honest

1.1.2.2 Be objective – not allow prejudice or bias, conflict of interest or influence of others to override

1.1.2.3 Be and be seen to be, independent when undertaking certain types of engagements where real conflict exists.

1.1.3 A Foundational Knowledge and Understanding of Competence including a commitment and the ability to:

1.1.3.1 Perform work to the technical and professional standards expected

1.1.3.2 Have the necessary competence to perform all professional work undertaken

1.1.3.3 Be competent to actively supervise, and be responsible for, work undertaken by direct reports

1.1.3.4 Recognise professional or technical limitations, or inexperience

1.1.4 A Foundational Knowledge and Understanding of Quality Performance including a commitment and the ability to:

1.1.4.1 Perform professional work with due care and diligence

1.1.4.2 Ensure that all professional obligations are completed in a timely manner

1.1.4.3 Ensure that all professional obligations are carried out in accordance with the relevant technical and professional standards appropriate to that work

1.1.4.4 Develop, maintain, and apply systems of professional practice management and effective quality assurance to all aspects of professional work

1.1.5 A Foundational Knowledge and Understanding of Professional Behaviour including a commitment and the ability to:

1.1.5.1 Act in a manner consistent with the good reputation of the profession

1.1.5.2 Refrain from any conduct which might bring discredit to the profession

² Professional Conduct and Communication Skills are Points 8 and 9 from the Standards for Licensing Cadastral Surveyors 2020) (Professional Conduct also includes the Fundamental Principles from the Code of Ethics for S+SNZ Members set down in the S+SNZ Governance Manual) and Good Business Practice (Point 21.3 – A19-24 S+SNZ Policy - Conduct of Members)

- 1.1.5.3 Not place or be placed under any improper obligation
- 1.1.5.4 Refuse to accept any reward that cannot be publicly acknowledged
- 1.1.5.5 Respect the confidentiality of information which may be valuable or sensitive

1.1.6 **A Foundational Knowledge and Understanding of Continuing Professional Development including a commitment and the ability to:**

- 1.1.6.1 Maintain a well-directed, individualised annual CPD program that is relevant to professional, technical and/or management activities
- 1.1.6.2 Take up opportunities for further education in areas relevant to professional activities

1.2 **Ability: Professional Conduct**

Proof and attestation of the commitment and ability to maintain and act in accordance with the standards of professionalism required for Professional Conduct within area of expertise or specialisation MAY include:

- 1.2.1 Emails
- 1.2.2 References (which must include the origin of the references)
- 1.2.3 Client Feedback
- 1.2.4 Quality Assurance Documentation

2. **Communication Skills**

The competencies required to maintain public confidence and quality assurance in this section require proof and attestation of the ability to maintain and act in accordance with the following standards of communication within area of expertise or specialisation.

2.1 **Foundational Knowledge and Understanding**

2.1.1 **A High Level of Ability in English including a commitment and the ability to:**

- 2.1.1.1 Communicate clearly and concisely in English (minimum equivalent standard of IELTS 6.0 or entrance to University in New Zealand)
- 2.1.1.2 Write clear, logical, and unambiguous documents and reports to a professional standard that can be easily understood by the recipient

2.1.2 **A High Level of Ability and Understanding of how to Communicate with Clients including a commitment and the ability to:**

- 2.1.2.1 Keep each client fully informed and advised concerning progress of the engagement
- 2.1.2.2 Inform client of any action required of either the client or the client's other advisors
- 2.1.2.3 Provide further instructions or variation of instructions as appropriate under the circumstances

2.2 **Ability: Communication Skills**

Proof and attestation of the commitment and ability to maintain and act in accordance with the standards of professionalism required for Communication Skills within area of expertise or specialisation MAY include:

- 2.3.1 Email correspondence with a client(s)
- 2.3.2 References (which must include the origin of the references)
- 2.3.3 Client Feedback
- 2.3.4 Quality Assurance Documentation

3. Good Business Practice

The competencies required to maintain public confidence and quality assurance in this section require proof and attestation of the ability to maintain and act in accordance with the following standards of business practice within area of expertise or specialisation.

3.1 Foundational Knowledge and Understanding

3.1.1 A Foundational Knowledge and Understanding of Conditions of Engagement including a commitment and the ability to ensure:

- 3.1.1.1 Every engagement is properly constituted and acknowledged in writing, prior to commencement
- 3.1.1.2 Every acknowledgement contains the details of the instructions received, the date of commencement, the basis for the payment of fees and other matters appropriate to the circumstances
- 3.1.1.3 Variations to the conditions during the term of the engagement are confirmed in writing

3.1.2 A Foundational Knowledge and Understanding of Conflict of Interest including a commitment and the ability to ensure:

- 3.1.2.1 Any conflicting businesses or other interests which could be deemed to be prejudicial to the client are fully declared before accepting or proceeding with any engagement
- 3.1.2.2 Fees or other rewards from two or more sources for the same work are only accepted with full knowledge and consent of all parties

3.1.3 A Foundational Knowledge and Understanding of Fees including a commitment and the ability to ensure:

- 3.1.3.1 All fees charged are fair and equitable and reflect the extent and the circumstances of the work.

3.2 Ability: Good Business Practice

Proof and attestation of the commitment and ability to maintain and act in accordance with the standards of professionalism required for Good Business Practice within area of expertise or specialisation MAY include:

- 3.2.1 Email correspondence with a client(s)
- 3.2.2 References (which must include the origin of the references)
- 3.2.3 Client Feedback
- 3.2.4 Quality Assurance Documentation
- 3.2.5 Fee Proposals
- 3.2.6 Engagement Contracts
- 3.2.7 Terms of Trade / Condition
- 3.2.8 Variations

Competencies for Land Development Engineering Part B: Technical Competence

Design, Build and Manage.

1. Design

The competencies required to maintain public confidence and quality assurance in this section require proof and attestation of the ability to maintain and act in accordance with the following standards of engineering design.³

1.1 Foundational Knowledge and Understanding

Foundational Knowledge required for Engineering Design. To understand:

- 1.1.1 The basic principles of spatial data and how that applies to engineering design (including topography, landform, data sources and systems (including the accuracy thereof), file formats, conversions, other spatial analysis using higher level techniques) and to be able to make correct judgement on the use of such data and associated, through the engineering design process
- 1.1.2 Central and local government legislation and processes that affect land tenure, including the relevance of district and regional plans to subdivision of land.
- 1.1.3 The relevant Central and Local Authority policies, standards, and regulations and how they affect the proposed design.
- 1.1.4 The implication of the Land Transfer Act and property rights on titles, easements, rights of way, access lots, covenants, and other encumbrances.
- 1.1.5 The different types of surveys – unit titles, cross leases, fee simple, Māori – and their purpose in relation to land tenure and subdivision of land.
- 1.1.6 The engineering calculations for earthworks involving cut and fill design, soil volumes, batter slopes, erosion, and sediment controls.
- 1.1.7 Urban and rural roading design, including geometric standards, pavement design, selection of roading materials and basic traffic engineering.
- 1.1.8 The input and output components of storm water modelling and how they relate to land development design
- 1.1.9 The input and output components of wastewater modelling (gravity/pressure) and how they relate to land development design
- 1.1.10 The input and output components of water modelling and how it relates to land development design
- 1.1.11 The consent process relating to land use, subdivision, discharges, and earthworks erosion and sediment controls.
- 1.1.12 The certification process under the relevant Act, including knowledge and experience of how to implement conditions of subdivision resource consent approval

³ (Note – the following competencies are over and above the Engineering Principles required by the CSLB for the LCS. Point 7 from the Standards for Licencing Cadastral Surveyors 2020, only requires an understanding of engineering principles and the ability to interpret existing engineering designs and plans. See Appendix One for the full version of Point 7.

1.2 Ability in Engineering Design

- 1.2.1 To be able to design a fully functional and complete set of construction documents that meet the requirements of a specified Territorial Authority normally required for land development or subdivision (inclusive of the following)
 - 1.2.1.1 Earthworks
 - 1.2.1.2 ESCP (Erosion and Sediment Control Plan)
 - 1.2.1.3 Access, Roding (including pavement design) and Transportation
 - 1.2.1.4 Storm Water Systems (both piped and open channelled)
 - 1.2.1.5 Wastewater systems
 - 1.2.1.6 Water supply systems for residential subdivisions
 - 1.2.1.7 Utilities (Energy and Communication)

2. Build

The competencies required to maintain public confidence and quality assurance in this section require proof and attestation of the ability to maintain and act in accordance with the following standards of construction observation, testing and compliance.

2.1 Foundational Knowledge and Understanding

Foundational Knowledge required for Construction Observation:

- 2.1.1 To have a confident understanding and knowledge of the requirements of the Health and Safety at Work Act 2015 as it applies to safety and design, and the roles and duties of an engineer to contract.

Foundational Knowledge required for Testing & Compliance:

- 2.1.2 To have a confident understanding of s221 and s224c RMA processes including knowledge and experience of how to implement conditions of subdivision resource consent approval as it applies to Land Development.

2.2 Ability: Construction Observation

- 2.2.1 To demonstrate the ability to inspect and report on construction of the following:
 - 2.2.1.1 Earthworks
 - 2.2.1.2 ESCP (Erosion and Sediment Control Plan)
 - 2.2.1.3 Access, Roding (including pavement design) and Transportation
 - 2.2.1.4 Storm Water Systems (both piped and open channelled)
 - 2.2.1.5 Wastewater systems
 - 2.2.1.6 Water supply systems for residential subdivisions
 - 2.2.1.7 Utilities (Energy and Communication)

2.3 Ability: Testing and Compliance

- 2.3.1 To demonstrate the ability to review an As Built survey of completed engineering works
- 2.3.2 To demonstrate an ability to prepare and submit a successful 224c application for the engineering works associated with land development or subdivision across the following areas:
 - 2.3.2.1 Earthworks
 - 2.3.2.2 ESCP (Erosion and Sediment Control Plan)
 - 2.3.2.3 Access, Roding (pavement testing) and Transportation
 - 2.3.2.4 Storm Water Systems (both piped and open channelled)
 - 2.3.2.5 Wastewater systems
 - 2.3.2.6 Water supply systems for residential subdivisions
 - 2.3.2.7 Utilities (Energy and Communication)

3. Manage

The competencies required to maintain public confidence and quality assurance in this section require proof and attestation of the ability to maintain and act in accordance with the following standards of contract administration and project management.

3.1 Foundational Knowledge and Understanding

Foundational Knowledge required for Manage. To have a solid understanding of:

- 3.1.1 NZS 3910 and Construction Contracts Act 2002 (or equivalent)
- 3.1.2 Project management including managing time, cost, risk, and liability (including construction contract insurance) and facilitating clear communication across all parties

3.2 Ability: Contract Administration and Project Management

Evidence and attestation of the ability to:

- 3.2.1 Prepare construction documents (including a schedule of quantities) for a contract for land development.
- 3.2.2 Read and interpret construction programs.
- 3.2.3 Manage the claims process and variations to the contract
- 3.2.4 Conduct Site Meetings and Visits as per the role and duty of an engineer to the contract

Appendix One – The CSLB requirements for the LCS – Engineering Principles – Point 7 from the Standards for Licensing Cadastral Surveyors 2020

1. **Engineering Principles**

(Point 7 from the Standards for Licensing Cadastral Surveyors 2020)

The legislative requirements relating to engineering principles are generally implemented by complying with codes of practice promulgated by local authorities and rules in district and regional plans as they relate to the subdivision of land.

Competency in engineering principles requires an ability to understand the subdivision engineering principles and requirements necessary to comply with regulatory consents for safe, stable, and sustainable subdivision and avoid inappropriate development because of natural hazards, as required by section 106 of the Resource Management Act 1991. This includes:

- an appreciation of the necessary measures to mitigate potential land instability, flooding, and other detrimental effects of earthworks and land development.
- competency in engineering principles also requires understanding of all aspects of access, roading, wastewater and stormwater, water reticulation, and other services as they relate to land subdivision.

1.1 **Understanding**

- 1.1.1. Understand the principles of soil properties, land stability, inundation, and other natural hazards, as they relate to the subdivision of land
- 1.1.2. Understand the principles of earthworks, access, roads, wastewater and stormwater drainage, water supply systems, and the provision of utility services as they relate to the subdivision of land
- 1.1.3. Understand the types of regulatory documents that control the provision of access and services to a subdivision, such as national standards, district and regional plans, local authority codes of practice and other relevant legislation.

1.2. **Ability**

- 1.2.1. Ability to Interpret an engineering design and constructed works to the extent necessary to identify where a design or constructed work may be incompatible with the topography, subdivision consent, existing rights and interests, or existing cadastral boundaries
- 1.2.2. Ability to Correctly define the boundaries of all titles, easements and other rights or restrictions to ensure the proper extent of ownership and protection of rights associated with the constructed works.