

ENVIROCERT INTERNATIONAL INC.

JOB TASK ANALYSIS REPORT

Prepared by:

ENVIROCERT INTERNATIONAL INC.

3054 Fite Circle, Suite 108
Sacramento, California 95827

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3054 Fite Circle, Suite 108 Sacramento, CA 95827
www.envirocert.org P: (279) 888-6911



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2022 CESSWI STEERING COMMITTEE

Robert Anderson - *P.E. Juris Doctorate, CPMSM, CPESC, CPSWQ, CPISM, CESSWI, QSM, NGICP*

Charles Wilson Jr. - *PLA, CPESC, CPSWQ, CESSWI, CPMSM, QSM, NGICP*

Michael Chase - *CPESC, CPISM*

Mark Goldsmith - *CPESC, CESSWI, QSM*

Mike Kucharski - *CESSWI, CPESC, QSM, NGICP*

Steve Anderson – *CPESC, CESSWI*

Chris Brown – *CPESC, CESSWI*

Gerald Montgomer, - *CPESC, CPSWQ, CESSWI*

Jeffrey John, - *CPESC, CESSWI*

Charles Riling - *CESSWI*

Lisa Miller - *CESSWI*

Ian Gaudreau - *CESSWI*

2015 CESSWI PROGRAM COMMITTEE

Alan Black – *CPESC, CPSWQ, CESSWI*

Robert Anderson - *P.E. Juris Doctorate, CPMSM, CPESC, CPSWQ, CPISM, CESSWI, QSM, NGICP*

Charles Wilson Jr. - *PLA, CPESC, CPSWQ, CESSWI, CPMSM, QSM*

Steve Anderson – *CPESC, CESSWI*

Chris Brown – *CPESC, CESSWI*

Michael Chase - *CPESC, CPISM*

Mark Goldsmith - *CPESC, CESSWI, QSM*

2011 CESSWI PROGRAM COMMITTEE

Francis “Mell” Nevils Jr. - *CPESC, CESSWI*

Jack Faulk - *CESSWI*

Robert Patterson - *CPESC, CESSWI*

Janet Paith - *CPESC, CESSWI, CPSWQ, CPMSM*

Susan Clarke – *CPESC, CESSWI, CPMSM*

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Archie Wright - *CPESC, CESSWI, CPSWQ*

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INTRODUCTION

ECI is an International Non-Profit 501 (c) 6 that administers six (6) Professional Certification Programs and one (1) Certificate of Training in the United States and over twenty (20) countries. ECI has certified over 50,000 professionals over the past forty (40) years. This is the only stormwater and environmental organization that has a demonstrated accreditation compliant program that grants individuals with a Professional Certification.

The CESSWI certification program is intended to ensure certified professionals meet or exceed National requirements, including the United States Environmental Protection Agency's National Pollutant Discharge Elimination System definition of "Qualified Personnel" and also meet or exceed the requirements of regional and local rules, regulations, and ordinances that require qualified personnel. The program is designed to work independently of or in combination with the other ECI certifications and identify individuals with tested and documented skills who can perform construction-oriented erosion and sediment control and stormwater inspections.

DEFINITION

CERTIFIED EROSION, SEDIMENT, AND STORMWATER INSPECTOR (CESSWI)

A Certified Erosion, Sediment, and StormWater Inspector (CESSWI) embraces the science of surface erosion and sediment control. This practice specializes in all aspects of providing complete inspections for erosion and sediment control and stormwater compliance within the rules, regulations, and ordinances of jurisdictions for construction activities.

A BREIF HISTORY OF CESSWI

The CESSWI was established to address the specialization and intricacies associated with field operations and inspections. Preparation of the certification began in 2006 with the hiring of a consultant and the formation of a CESSWI Steering committee made up of Subject Matter Experts (SMEs) from around the world. The certification program was launched in 2007 and the first certifications were awarded in September of 2007.

The CESSWI Certification Council was formed, and the certification existed under ECI as a separate corporation, all with a 501(c) 6, non-profit status. In 2013 the certification councils voted to become Divisions of EnviroCert International, Inc.

A series of CESSWI program updates occurred between 2015 through 2020, to the current program management and structure.

CESSWI REQUIREMENTS

CESSWI™
Certified Erosion, Sediment and StormWater Inspector™

Education

- High School Diploma or GED Required: No
- College Diploma Required: No
- Required Total Professional Experience / Education Credit (min.): 2 years

Education Credit

Associate** (Science, Planning, or Construction Management)	.5 year / .25 year
No degree but Professional License (PE, LA, PG, PH)*	1.5 years
Bachelors Degree** (Science, Planning, or Construction Mgmt. areas)	1 years / .5 year
Graduate (All of the above areas or Law)***	1.25 years

In Training Certification

- In Training Program Offered
- Required Total Experience (min.): .5 year

T

Post-Secondary Education Credit

ECI automatically awards maximum Education Credit for Qualifying Degrees (science, planning, and construction management). Transcripts are required. Education credit is awarded for non-qualifying degrees at the rate of one half (1/2) a Qualifying Degree. Transcripts or ECI approved documentation are required. Education credit may also be awarded for professional licensure without a degree. Verification of license is required. Education credit is not cumulative.

* ECI reserves the right to review various State licensing not listed to determine applicability

** Not all science, planning, and construction management degrees apply to every certification. Non-related degrees will be given half credit

*** Graduate degrees not in the sciences will not receive any additional credit above a Bachelor's

LICENSURE VS CERTIFICATION

ECI Certified Professionals/Individuals shall only perform services within their demonstrated expertise and within the legally designated authority to practice.

Licensure

Licensure is the process by which a federal, state/province, local governmental agency, or municipality grants an individual permission to practice in a particular occupation or profession that is subject to regulation under the government's authority and to refer to oneself as "licensed" or authorized to practice. Jurisdictions adopt "practice acts" which create and empower a board to regulate the profession in the interest of public protection. Within the practice acts are mandates for practitioners to become licensed, usually based upon requirements such as education, examination, experience, and moral character. These requirements, which vary among jurisdictions, establish one's minimum competence to practice the regulated profession safely and effectively. The practice act also establishes the powers of the board, the scope of practice, and the legal requirement to uphold certain professional and ethical standards.

Obtaining a license in order to practice a profession is mandatory, and laws may provide for criminal or administrative penalties for unlicensed practice. Periodic licensure renewal is also mandatory and usually premised upon substantiating required continuing education or professional development.

Certification

Certification is the process by which private organizations recognize individuals for meeting certain criteria established by the private organization in which individuals are recognized for advanced knowledge and skills. It is a form of self-regulation which is voluntary in that it is not required of individuals prior to practice and is without governmental oversight. Practitioners seek certification usually as a form of self-promotion and in an attempt to distinguish one practitioner from another. There is no requirement to be certified and no governmental penalties for failure to achieve or loss of certification recognition. Like licensure, certification is usually granted for a limited period of time and must be renewed based upon criteria set by the private entity.

Certification does not provide a legal mechanism to practice an otherwise governmentally regulated profession but does provide certificate holders to accurately promote the fact that they are certified by the private entity.

STATEMENT OF METHODOLOGY

This report describes the process for and results of a comprehensive Job Task Analysis (JTA) for the CESSWI certification.

The CESSWI certification was developed in 2006 and 2007. A team of Subject Matter Experts (SMEs) was formed along with the hiring of a consultant. The team performed extensive research in the field including a survey of professionals in the construction site inspection field. A General Principles Review Manual was developed using the results of the survey and input from regulatory agencies throughout the US and the SMEs.

Over the years since the development of the certification, the CESSWI Councils and CESSWI Certification Committees performed an annual review of the CESSWI program and conducted multiple small surveys of professionals within the erosion and sediment control and stormwater construction inspection profession.

Preparation for this JTA has been compiled using the approved 2016 General Principles Review Manual and the additional common chapters that have been added.

CERTIFIED EROSION, SEDIMENT, AND STORMWATER INSPECTOR (CESSWI) KNOWLEDGE, SKILLS, AND ABILITIES

A CESSWI should be able to understand, describe and implement (as appropriate) the following concepts:

Section 1: Soil Mechanics and Soil Science Principles

- 1.1 Soil Formation Factors
- 1.2 Soil Formation Processes
- 1.3 Soil Properties Impacting Erosion Potential
 - 1.3.a Soil Classification
 - 1.3.b Soil Erodibility
 - 1.3.c Rainfall Runoff Erosivity Factor “R”
- 1.4 Topography
- 1.5 Geomorphology
- 1.6 Splash, sheet, and rill erosion
 - 1.6.a Detachment
 - 1.6.b Transport Mechanisms
- 1.7 Gully erosion
 - 1.7.a Headcutting
 - 1.7.b Downcutting
 - 1.7.c Widening
- 1.8 Slope movement
- 1.9 Channel erosion
 - 1.9.a Channel Stability

- 1.10 Wind erosion
 - 1.10.a Creep
 - 1.10.b Saltation
 - 1.10.c Suspension
- 1.11 Sediment transport
 - 1.11.a Soil type assessment
- 1.12 Impacts of erosion on soil resources
- 1.13 Impacts on water resources
- 1.14 Impacts on air and fugitive dust

Section 2: Site Climatic Conditions and Rainfall Amounts

- 2.1 Climatic Conditions
 - 2.1.a Isohyetal Maps and Determinations
 - 2.1.b Snow and Snow Runoff Impacts
 - 2.1.c Rainfall Runoff Erosivity Factor “R”

Section 3: Introduction into Hydrology and Drainage Principles

- 3.1 Planning considerations for runoff management
 - 3.1.a Drainage patterns
 - 3.1.b Pre-developed conditions
 - 3.1.c Construction/Project phase conditions
 - 3.1.d Post-construction conditions
 - 3.1.e Internal site conditions
 - 3.1.f Perimeter site conditions
 - 3.1.g Run on water

- 3.1.h Discharge points
- 3.2 Components of the Hydrologic Cycle
- 3.3 Factors affecting runoff
 - 3.3.a Precipitation
 - 3.3.b Time parameters
 - 3.3.c Watershed area
 - 3.3.d Ground cover
 - 3.3.e Antecedent moisture condition
 - 3.3.f Storage in the watershed
 - 3.3.g Soil permeability
- 3.4 Components of precipitation
 - 3.4.a Return period
 - 3.4.b Rainfall distribution, rainfall depth, rainfall intensity
 - 3.4.c Isohyetal map
 - 3.4.d Storm types
 - 3.4.e Risk analysis
- 3.5 Time parameters
 - 3.5.a Time of concentration
 - 3.5.b Travel time
 - 3.5.c Sheet flow
 - 3.5.d Shallow concentrated flow
 - 3.5.e Channel flow
 - 3.5.f Initial abstraction
- 3.6 Soil permeability categories
 - 3.5.a Hydrologic soil groups
 - 3.6.b Disturbed soil profiles

- 3.7 Runoff curve number components
 - 3.7.a Composite curve number or weighted curve number
 - 3.7.b Average runoff condition
 - 3.7.c Cover description
 - 3.7.d Cover type
 - 3.7.e Hydrologic condition
 - 3.7.f Cropping treatment
 - 3.7.g Impervious areas
- 3.8 Runoff characteristics of the hydrograph
 - 3.8.a Runoff volume
 - 3.8.b Peak discharge
 - 3.8.c Discharge
 - 3.8.d Antecedent flow rate
 - 3.8.e Rising limb
 - 3.8.f Falling limb
 - 3.8.g Runoff depth
- 3.9 Runoff estimation methods
 - 3.9.a Rational Method
 - 3.9.b Modified Rational Method
 - 3.9.c Unit Hydrograph
 - 3.9.d Soil cover complex method (SCS/NRCS Method, TR 55)

Section 4: General Permits

4.1 General Stormwater Permitting

Affiliates and other countries will insert their own permitting criteria. Within the United States these will refer to Federal permits only.

4.2 Permits

4.2.a Types of permits

4.2.b Permitting authority

4.2.c Permit Application process

4.2.d Permit application requirements

4.2.d.1 Construction

4.2.d.2 Industrial/Multi-Sector

4.2.d.3 Municipal

4.2.e Permit enforcement and penalties

Section 5: Inspection Fundamentals / Duties

5.1 Compliance

5.2 Inspection Note Taking

5.3 Photos and Videos

5.4 Inspector Support Equipment

5.5 Preconstruction Meetings

5.6 Documentation Inspection

5.7 Field Inspections

5.8 Post Inspection Meeting

5.9 Reporting

Section 6: Inspection Elements for Construction

- 6.1 Pre-Construction Meeting
- 6.2 Documentation Inspection Elements
 - 6.2a Permits
 - 6.2b Plans
 - 6.2.c Reports
- 6.3 Erosion and Sediment Control Plan Review
- 6.4 Construction Entrance Posting
- 6.5 Field Inspection Elements
 - 6.5.a Tracking Controls
 - 6.5.b Site Perimeter Controls
 - 6.5.c Erosion Controls
 - 6.5.d Sediment Controls
 - 6.5.e Runoff and Drainage Controls
 - 6.5.f Good Housekeeping and Material Management Controls
 - 6.5.g Outfall Inspections
 - 6.5.h Final Stabilization Inspections
 - 6.5.i Final Inspections

Section 7: Stormwater Monitoring and Sampling

- 7.1 Requirements
- 7.2 Advanced Planning
- 7.3 Sampling Constituents
- 7.4 Sample Collection and Monitoring Details
- 7.5 Sampling

- 7.5.a Types
- 7.5.b Who must sample
- 7.5.c When to sample
- 7.5.d Where to sample
- 7.5.e Supplies
- 7.5.f Methods
- 7.5.g Data Collection and Recording
- 7.5.h Reporting procedures
- 7.5.i Sample shipping and Chain of Custody

Section 8: Documentation, Communication, and Safety

8.1 Documentation

- 8.1.a Proper methods and procedures
- 8.1.b Proper reporting techniques

8.2 Communication

- 8.2.a Pre-construction meetings
- 8.2.b Post-construction meetings
- 8.2.c How to deal with difficult people
- 8.2.d How to deal with problematic sites
- 8.2.e How to deliver unpleasant findings to appropriate individuals

8.3 Safety

- 8.3.a Risks involved with inspections
- 8.3.b Personal Protection Equipment (PPE)
- 8.3.c Ability to recognize toxic and hazardous substances, proper storage of the same, Material Safety Data Sheets, and response requirements

Section 9: Plan and Site Management

- 9.1 Types of Plans
 - 9.1.a Stormwater Pollution Prevention Plan (SWPPP)
 - 9.1.b Erosion and Sediment Control (ESCP)
 - 9.1.c Stormwater Management Plan / Program (SWMP)
- 9.2 Certifications
- 9.3 Notifications
- 9.4 Components of the Plan
 - 9.4.a Drawings and Maps
 - 9.4.b Legends
 - 9.4.c North Arrow
 - 9.4.d Vicinity maps
 - 9.4.e Management practices
 - 9.4.f Specifications and details
 - 9.4.g Sequencing of construction
 - 9.4.h Topography
 - 9.4.h.1 Slope calculation methods
 - 9.4.i Amendments and updates

Section 10: Management Practices

- 10.1 Categories of Management Practices
 - 10.1.a Site Planning and Management
 - 10.1.b Erosion Controls
 - 10.1.c Sediment Controls
 - 10.1.d Run-Off Controls
 - 10.1.e Good Housekeeping/Materials Management

- 10.1.f Post-Construction Management
- 10.2 Description and Purpose for each management practice
- 10.2 Objectives and Targeted Pollutants for each management practice
- 10.4 Applications and limitations for each management practice
- 10.5 Implementation considerations for each management practice
- 10.6 Inspection criteria for each management practice
- 10.7 Maintenance criteria for each management practice
- 10.8 Potentially associated management practices for each management practice

Section 11: Rules, Regulations, and Ordinances*

**All United States candidates are tested in a separate take-home exam that must be passed prior to taking the certification exam. Affiliates and other countries may provide a separate exam to test applicants on their country's national rules, regulations, and ordinances that must be passed prior to taking the certification exam.*

- 11.1 United States Federal Regulations
 - 11.1.a Clean Water Act
 - 11.1.a.1 Purpose
 - 11.1.a.2 Regulating Authority
 - 11.1.a.3 Section 401 (Water Quality)
 - 11.1.a.4 Section 402 (NPDES)
 - 11.1.a.5 Section 404 (US Army Corp)
 - 11.1.a.6 CZARA
 - 11.1.a.7 Water Quality Standards
 - 11.1.a.8 Enforcement and Penalties
 - 11.1.a.9 Waters of the US (Surface Waters)
 - 11.1.b Surface Mining Reclamation Act
 - 11.1.c USDA Conservation Programs

11.2 State and local regulations

11.3 MS4 programs

11.4 Administrative requirements

11.4.a Permit filing procedures and fees

11.4.b Approval

11.4.c Inspections

11.4.d Enforcement and penalties

11.4.e Project termination

Specific Areas of Practice (SAOP) Descriptions with Task (T) and Proposed Test Objectives

SAOP 1. Rules and Regulations

T1.1. Knowledge of national, regional, local, and other relevant rules, regulations, and ordinances

Understand and apply

- Apply knowledge of the rules, regulations, and ordinances that have been developed to maintain or restore the chemical, physical and biological integrity of adjacent waterways and waterbodies to protect the beneficial uses of surface water
- Understand the progression history of the rules, regulations, and ordinances that have been developed to better understand current rules, regulations, and ordinances

T1.2. Communicate and/or provide information about the practices and methods used to comply with specific rules and regulations

Understand and apply

- Be able to explain the rules, regulations, and ordinances that have been developed to maintain or restore the chemical, physical and biological integrity of adjacent waterways and waterbodies to protect the beneficial uses of surface water

SAOP 1 Proposed Test Objectives (this is a common, separate exam portion, for all candidates that do not currently hold an EnviroCert International, Inc. professional certification.)

- T1.1 U/A – Demonstrate knowledge of the progression history and current rules, regulations, and ordinances
- T1.2 U/A – To demonstrate basic knowledge of current rules, regulations, and ordinances

SAOP 2. Soils Mechanics and Soil Science Principles

T2.1. Soil Formation Factors and Processes

Understand

- Knowledge of the soil formation factors
- Knowledge of the soil formation processes

T2.2. Soil Properties

Understand

- Knowledge of soil classification methods
- Knowledge of soil erodibility
- Knowledge of the Runoff Erosivity Factor “R”

T2.3. Geomorphology

Understand

- Knowledge of geomorphology and how it affects the surface conditions of land

T2.4. Causes and Results of Soil Particle detachment

Understand and apply

- Knowledge of sheet erosion
- Knowledge of rill erosion

T2.5. Causes and Results of Gully Erosion

Understand and apply

- Knowledge of gully erosion

T2.6. Causes and Results of Slope Movements

Understand and apply

- Knowledge of slope movement

T2.7. Causes and Results of Channel Erosion

Understand and apply

- Knowledge of channel erosion

T2.8. Causes and Results of Wind Erosion

Understand and apply

- Knowledge of wind erosion

T2.9. Methods of Sediment Transport

Understand and apply

- Knowledge of sediment transport by water
- Knowledge of sediment transport by wind

T2.10. Impacts of erosion on soil and water resources

Understand and apply

- Knowledge of impacts of erosion on soil resources
- Knowledge of impacts of erosion on water resources

T2.11. Impacts on air of Fugitive Dust

Understand and apply

- Knowledge of fugitive dust and the impact on air

SAOP 2 Proposed Test Objectives

- T2.1 U/A – Demonstrate the knowledge of soil formation factors and processes
- T2.2 U/A – Demonstrate the knowledge of soil classification methods and an understanding of soil erodibility
- T2.3 U/A – Demonstrate the knowledge of geomorphology and how it effects the surface conditions of land
- T2.4 through T2.8 U/A – Demonstrate the knowledge of the causes and results of different types of erosion
- T2.9 U/A – Demonstrate the knowledge of the methods of sediment transport
- T2.10 U/A – Demonstrate the knowledge of the impacts of erosion on soil and water resources
- T2.11 U/A – Demonstrate the knowledge of the impacts on air of fugitive dust

SAOP 3. Site Climatic Conditions and Rainfall Amounts

T3.1. Climate

Understand

- Knowledge of precipitation and wind effects on soil

T3.2. Erosivity

Understand

- Knowledge of Isohyetal Maps
- Knowledge of the Rainfall Erosivity Factor “R”

SAOP 3 Proposed Test Objectives

- T3.1 U/A – Demonstrate the knowledge of the effects of climatic conditions and rainfall on soil
- T3.2 U/A – Demonstrate the knowledge of Isohyetal maps and the rainfall erosivity factor “R”

SAOP 4. Hydrology and Drainage Principles (Please note measures may incorporate considerations of volume and velocity, but these determinations will require the professional oversight or site-specific designs of a registered/licensed professional.)

T4.1. Understand the planning considerations for runoff management

Understand and apply

- Drainage patterns
- Pre-developed, construction/project phase, and post construction conditions
- Internal and perimeter site conditions
- Run on waters
- Discharge points

T4.2. Understand the components of the hydrologic cycle

Understand

- Oceans, seas, and other large bodies of water
- Evapotranspiration
- Atmospheric Storage
- Condensation
- Precipitation
- Runoff
- Groundwater

T4.3. Understand the factors affecting runoff

Understand

- Precipitation
- Time parameters
- Watershed area
- Ground cover
- Antecedent moisture condition
- Storage within the watershed
- Soil permeability

T4.4. Understand how to read results from runoff estimation equations

Understand

- Runoff Curve number components
- Runoff characteristics
- Runoff estimation methods
- Rational Method
- Modified Rational Method
- Unit Hydrograph
- Soil Cover Complex Method (SCS/NRCS Method, TR-55)

SAOP 4 Proposed Test Objectives

- T4.1 U/A – Demonstrate the knowledge of the planning considerations for runoff management
- T4.2 U/A – Demonstrate the knowledge of the components of the hydrologic cycle
- T4.3 U/A – Demonstrate the knowledge of the factors affecting runoff
- T4.4 U/A – Demonstrate the knowledge and understanding of how to read results from runoff estimation equations

SAOP 5. General Permits

T5.1. Stormwater Permitting

Understand

- US ONLY – Components of the Clean Water Act and the NDPES Program
- Regulatory Programs

T5.2. Permits

Understand

- Types of permits
- Permitting authority
- Application requirements
- Permit enforcement and penalties

SAOP 5 Proposed Test Objectives

- T5.1 U/A – This is a separate exam within the United States for all who do not hold a current valid ECI professional certification
- T5.2 U/A – Demonstrate the knowledge of permit types, who is the permitting authority, the typical requirements for permit applications, and the methods of enforcement and penalties

SAOP 6. Inspection Fundamentals and Duties

T6.1. Understanding of inspection fundamentals and the duties of the inspector in relationship to the fundamentals

Understand and apply

- Investigate and report on compliance of the site
- Proper note taking techniques

- The use of photographs and videos during inspections
- What support equipment is needed to perform proper inspections

T6.2. Understanding of proper inspection techniques

Understand and apply

- The role of the inspector at preconstruction meetings
- Methods of documentation inspection
- How to perform field inspections
- The role of the inspector at post inspection meetings
- Proper methods and the requirements for reporting

SAOP 6 Proposed Test Objectives

- T6.1 U/A – Demonstrate the knowledge inspection fundamentals and duties of the inspector
- T6.2 U/A – Demonstrate the knowledge and ability to conduct an inspection using proper inspection techniques

SAOP 7. Inspection Elements for Construction

T7.1. Understand the role of the inspector at the Pre-Construction meeting

Understand and apply

- Knowledge and ability to demonstrate the inspector's role during a preconstruction meeting at a construction site

T7.2. Understanding the elements required for and how to perform documentation inspection

Understand and apply

- Knowledge and ability to review and understand all the required permits for the site
- Knowledge and ability to review and understand all the required plans, including plan updates, for the site
- Knowledge and ability to review and understand all previous inspection reports, corrective action reports, violation reports, and any other reports concerning the site

T7.3. Understanding of erosion and sediment control plan review

Understand and apply

- Knowledge and ability to review and understand all elements of the erosion and sediment control plan and any modifications and updates that have been made to the plan

T7.4. Understanding of construction entrance posting requirements

Understand and apply

- Knowledge and ability to review, understand, and inspect all construction entrance posting requirements

T7.5. Understanding of elements of the site that require inspection

Understand and apply

- Knowledge and ability to review, understand, and inspect all elements of the site that require inspection for erosion and sediment control, to include but not limited to
 - Tracking controls
 - Site perimeter controls
 - Erosion controls
 - Sediment controls
 - Runoff and Drainage controls
 - Good housekeeping and material management controls
 - Outfall controls

T7.6. Understanding of how to perform final inspections

Understand and apply

- Knowledge and ability to perform final stabilization inspections
- Knowledge and ability to perform final site inspections

SAOP 7 Proposed Test Objectives

- T7.1 U/A – Demonstrate the knowledge of the responsibilities of the inspector at preconstruction meetings
- T7.2 U/A – Demonstrate the knowledge and ability to perform complete documentation inspections
- T7.3 U/A – Demonstrate the knowledge and ability to perform complete erosion and sediment control plan inspections
- T7.4 U/A – Demonstrate the knowledge of construction entrance posting requirements

- T7.5 U/A – Demonstrate the knowledge of the elements of the site that require erosion and sediment control inspections and the ability to perform those inspections
- T7.6 U/A – Demonstrate the knowledge and ability to perform final inspections

SAOP 8. Stormwater Monitoring and Sampling (Please note that sampling and monitoring may require a registered/licensed professional, but the inspector must be familiar with the requirements and methodology to be used.)

T8.1. Understand the sampling and monitoring requirements for the site

Understand and apply

- Knowledge of how to read the documents to determine the sampling and monitoring requirements for the site

T8.2. Understand advanced planning for constituents that require sampling and monitoring

Understand and apply

- Knowledge of the constituents that require sampling and monitoring
- Knowledge of advanced planning required to properly perform sampling and monitoring for those constituents

T8.3. Understand details required for sampling collections and monitoring

Understand and apply

- Knowledge and ability (if applicable) to perform sampling collections and monitoring including but not limited to
- Types of sampling and/or monitor
- Who must sample and/or monitor
- When to sample and/or monitor
- Where to sample and/or monitor
- What supplies are required for sampling and/or monitoring

- What methods are required for sampling and/or monitoring
- What data needs to be collected and recorded for the required sampling and/or monitoring
- What recording procedures need to be used
- How to ship samples and the chain of custody requirements

SAOP 8 Proposed Test Objectives

- T8.1 U/A – Demonstrate the knowledge of how to read the documents to determine the sampling and monitoring requirements for the site
- T8.2 U/A – Demonstrate the knowledge of constituents that require sampling and monitoring the knowledge of the advanced planning required to properly perform sampling and monitoring for those constituents
- T8.3.U/A – Demonstrate the knowledge of details required for sampling collections and monitoring

SAOP 9. Documentation, Communication, and Safety

T9.1. Understand the requirements to provide proper documentation for inspections

Understand and apply

- Knowledge of the proper methods and procedures to document inspections.

T9.2. Understand proper reporting techniques and methods

Understand and apply

- Knowledge and ability to properly record results of the site inspections in a clear and understandable manner

T9.3. Understand the communication role of the inspector in meetings

Understand and apply

- Knowledge of the communication role of the inspector during preconstruction, post inspection, and post construction meetings

T9.4. Understand communication techniques in dealing with difficult situations

Understand and apply

- Knowledge of communication techniques with difficult people
- Knowledge of communication techniques with difficult site
- Knowledge of communication techniques to deliver unpleasant findings

T9.5. Understand the risks involved with inspections

Understand and apply

- Knowledge and ability to read the plans and communicate with the contractors to determine risk areas on the site to include but not limited to
 - Steep slopes
 - Trenching
 - Active grading areas
 - Hazardous plant or animal areas
 - Hazardous and toxic substances
 - Ability to read and understand Material Safety Sheets and Spill and Response documents

T9.6. Understand the proper use and types of Personal Protection Equipment required on the site

Understand and apply

- Knowledge of the proper use and types of Personal Protection Equipment

SAOP 9 Proposed Test Objectives

- T9.1 U/A – Demonstrate the knowledge of the proper methods and procedures to document inspections
- T9.2 U/A – Demonstrate the knowledge and ability to properly record results of the site inspections in a clear and understandable manner
- T9.3 U/A – Demonstrate the knowledge of the communication role of the inspector during preconstruction, post inspection, and post construction meetings

- T9.4 U/A – Demonstrate the knowledge of communication techniques with difficult people, with difficult sites, and communication techniques to deliver unpleasant findings
- T9.5 U/A – Demonstrate the knowledge and ability to read the plans and communicate with the contractors to determine risk areas on the site
- T9.6 U/A – Demonstrate the knowledge of the proper use and types of Personal Protection Equipment

SAOP 10. Plan and Site Management

T10.1. Knowledge of the different types of plans and the components of each plan

Understand and apply

- Knowledge of the types of plans used for erosion and sediment control and stormwater management, to include but not limited to
 - Stormwater Pollution Prevention Plan (SWPPP)
 - Erosion and Sediment Control Plan (ESCP)
 - Stormwater Management Plan / Program (SWMP)
- Knowledge of the notifications required to regulatory agencies
- Knowledge of the components of the plans, to include but not be limited to
 - Certifications
 - Drawings and maps
 - Legends
 - North arrow
 - Vicinity maps
 - Management practices
 - Specifications and details
 - Sequencing of construction

- Topography
 - Ability to calculate slopes
- Amendments and updates

SAOP 10 Proposed Test Objectives

- T10.1 U/A – Demonstrate the knowledge different plan types, the required notifications, and the components of the plan(s)

SAOP 11. Management Practices

T11.1. Knowledge of the categories of management practices

Understand and apply

- Knowledge of management practice types
 - Site Planning and Management
 - Erosion Controls
 - Sediment Controls
 - Run-Off Controls
 - Good Housekeeping/Materials Management
 - Post-Construction Management

T11.2. Knowledge of management practices

Understand and apply

- Knowledge of the following elements of management practices
 - Description and Purpose for each management practice
 - Objectives and Targeted Pollutants for each management practice
 - Applications and limitations for each management practice
 - Implementation considerations for each management practice
 - Inspection criteria for each management practice
 - Maintenance criteria for each management practice
 - Potentially associated management practices for each management practice

- Knowledge of the following management practices
 - Site Planning and Management
 - Existing Vegetation
 - Scheduling/Sequencing
 - Tree Protection
 - Erosion Controls
 - Hydromulch
 - Hydroseed
 - Mulching
 - Rolled Erosion Control Products (RECP's)
 - Seeding
 - Sod
 - Soil Binders
 - Surface Roughening
 - Tackifiers
 - Temporary Stabilization (Other than Temporary Seeding)
 - Sediment Controls
 - Baffles
 - Cut Back Curb
 - Fiber Roll/Wattles
 - Sediment Bags
 - Sediment Basin
 - Sediment Trap
 - Sediment Tube Ditch Check
 - Silt Fence
 - Skimmers
 - Stabilized (Construction) Entrance/Exit
 - Straw Bales
 - Temporary Stream Crossing

- Triangular Filter Fabric Dikes
- Turbidity Curtain/Barrier
- Run-Off Controls
 - Diversions
 - Gabions
 - Inlet Protection at Grade
 - Inlet Protection - Block and Gravel
 - Inlet Protection - Filter Fabric
 - Inlet Protection - Gravel Bag
 - Inlet Protection - Stone Collar
 - Outlet Velocity Protection
 - Pipe Slope Drain
 - Retaining Walls
 - Rip-Rap
 - Rock Check Dam
 - Swales
 - Wet Ponds
- Good Housekeeping/Materials Management
 - Concrete Washout Area
 - Dust Control
 - Equipment Maintenance and Cleaning
 - Materials Management
 - Sanitary Waste Management
 - Secondary Containment
 - Stockpile Management
 - Street Cleaning
 - Trash Containment
- Post-Construction Management
 - Final Stabilization/Permanent Ground Cover

- Headwalls/End Walls/Wing Walls
- Multi-Purpose Basin
- Level Spreaders/Flow Spreader
- Permeable Surfaces
- Infiltration Basins/Ponds
- Infiltration Trench
- Bioretention
- Catch Basin Inserts
- Inline Stormwater Treatment Devices
- Sand and Organic Filters
- Vegetative Filter Strip
- Riparian/Forest Buffer
- Dry Detention Ponds
- In Line Storage
- Constructed Stormwater Wetland
- Wet Ponds
- Underground Vault

SAOP 11 Proposed Test Objectives

- T11.1 U/A – Demonstrate the knowledge of different categories of management practices
- T11.2 U/A – Demonstrate knowledge of management practices

SPECIFIC AREAS OF PRACTICE

TABLE OF JOB ROLES

Primary ongoing Erosion and Sediment Control related functions for each job role for the Certified Erosion, Sediment, and StormWater Inspector (CESSWI)

In-House Inspector	Third Party Inspector	Regulatory Inspector
SAOP 1 – T1.1 SAOP 1 – T1.2	SAOP 1 – T1.1 SAOP 1 – T1.2	SAOP 1 – T1.1 SAOP 1 – T1.2
SAOP 2 – T2.1 SAOP 2 – T2.2 SAOP 2 – T2.3 SAOP 2 – T2.4 - T2.8 SAOP 2 – T2.9 SAOP 2 – T2.10 SAOP 2 – T2.11	SAOP 2 – T2.1 SAOP 2 – T2.2 SAOP 2 – T2.3 SAOP 2 – T2.4 -T2.8 SAOP 2 – T2.9 SAOP 2 – T2.10 SAOP 2 – T2.11	SAOP 2 – T2.1 SAOP 2 – T2.2 SAOP 2 – T2.3 SAOP 2 – T2.4 -T2.8 SAOP 2 – T2.9 SAOP 2 – T2.10 SAOP 2 – T2.11
SAOP 3 – T3.1 SAOP 3 – T3.2	SAOP 3 – T3.1 SAOP 3 – T 3.2	SAOP 3 – T3.1 SAOP 3 – T 3.2
SAOP 4 – T4.1 SAOP 4 – T4.2 SAOP 4 – T4.3 SAOP 4 – T4.4	SAOP 4 – T4.1 SAOP 4 – T4.2 SAOP 4 – T4.3 SAOP 4 – T4.4	SAOP 4 – T4.1 SAOP 4 – T4.2 SAOP 4 – T4.3 SAOP 4 – T4.4
SAOP 5 – T5.1 SAOP 5 – T5.2	SAOP 5 – T5.1 SAOP 5 – T5.2	SAOP 5 – T5.1 SAOP 5 – T5.2
SAOP 6 – T6.1 SAOP 6 – T6.2	SAOP 6 – T6.1 SAOP 6 – T6.2	SAOP 6 – T6.1 SAOP 6 – T6.2
SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3 SAOP 7 – T7.4 SAOP 7 – T7.5 SAOP 7 – T7.6	SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3 SAOP 7 – T7.4 SAOP 7 – T7.5 SAOP 7 – T7.6	SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3 SAOP 7 – T7.4 SAOP 7 – T7.5 SAOP 7 – T7.6
SAOP 8 – T8.1 SAOP 8 – T8.2 SAOP 8 – T8.3	SAOP 8 – T8.1 SAOP 8 – T8.2 SAOP 8 – T8.3	SAOP 8 – T8.1 SAOP 8 – T8.2 SAOP 8 – T8.3

In-House Inspector	Third Party Inspector	Regulatory Inspector
SAOP 9 – T9.1	SAOP 9 – T9.1	SAOP 9 – T9.1
SAOP 9 – T9.2	SAOP 9 – T9.2	SAOP 9 – T9.2
SAOP 9 – T9.3	SAOP 9 – T9.3	SAOP 9 – T9.3
SAOP 9 – T9.4	SAOP 9 – T9.4	SAOP 9 – T9.4
SAOP 9 – T9.5	SAOP 9 – T9.5	SAOP 9 – T9.5
SAOP 9 – T9.6	SAOP 9 – T9.6	SAOP 9 – T9.6
SAOP 10 – T10.1	SAOP 10 – T10.1	SAOP 10 – T10.1
SAOP 11 – T11.1	SAOP 11 – T11.1	SAOP 11 – T11.1
SAOP 11 – T11.2	SAOP 11 – T11.2	SAOP 11 – T11.2

EXAM BLUEPRINT

CESSWI Examination Blueprint

The erosion and sediment control (ESC) and stormwater management (SWM) practices focused on in the Certified Erosion, Sediment, and StormWater Inspector (CESSWI) are as follows: Rules and Regulations, Soils Mechanics and Soil Science Principles, Site Climatic Conditions and Rainfall Amounts, Hydrology and Drainage Principles, General Permits, Inspection Fundamentals and Duties, Inspection Elements for Construction, Stormwater Monitoring and Sampling, Documentation, Communication, and Safety, Plan and Site Management, and Management Practices.

Presented below are the weightages for various sections:

Rules and Regulations	0%
This portion of the exam is a common section for all who do not hold a current and valid ECI professional certification and is administered as a separate exam	
Soils Mechanics and Soil Science Principles	0%
Demonstrate the knowledge of soil formation factors and processes	
Demonstrate the knowledge of soil classification methods and an understanding of soil erodibility	
Demonstrate the knowledge of geomorphology and how it effects the surface conditions of land	
Demonstrate the knowledge of the causes and results of different types of erosion	
Demonstrate the knowledge of the methods of sediment transport	
Demonstrate the knowledge of the impacts of erosion on soil and water resources	
Demonstrate the knowledge of the impacts on air of fugitive dust	

Site Climatic Conditions and Rainfall Amounts	0%
Demonstrate the knowledge of the effects of climatic conditions and rainfall on soil	
Demonstrate the knowledge of Isohyetal maps and the rainfall erosivity factor “R”	

Hydrology and Drainage Principles	1–2%
Demonstrate the knowledge of the planning considerations for runoff management	
Demonstrate the knowledge of the components of the hydrologic cycle	
Demonstrate the knowledge of the factors affecting runoff	
Demonstrate the knowledge and understanding of how to read results from runoff estimation equations	

General Permits	4–6%
Demonstrate the knowledge of permit types, who is the permitting authority, the typical requirements for permit applications, and the methods of enforcement and penalties	

Inspection Fundamentals and Duties	12–15%
Demonstrate the knowledge inspection fundamentals and duties of the inspector	
Demonstrate the knowledge and ability to conduct an inspection using proper inspection techniques	

Inspection Elements for Construction	7–9%
Demonstrate the knowledge of the responsibilities of the inspector at preconstruction meetings	
Demonstrate the knowledge and ability to perform complete documentation inspections	
Demonstrate the knowledge and ability to perform complete erosion and sediment control plan inspections	
Demonstrate the knowledge of construction entrance posting requirements	
Demonstrate the knowledge of the elements of the site that require erosion and sediment control inspections and the ability to perform those inspections	
Demonstrate the knowledge and ability to perform final inspections	

Stormwater Monitoring and Sampling	1–3%
---	-------------

Demonstrate the knowledge of how to read the documents to determine the sampling and monitoring requirements for the site
Demonstrate the knowledge of constituents that require sampling and monitoring the knowledge of the advanced planning required to properly perform sampling and monitoring for those constituents
Demonstrate the knowledge of details required for sampling collections and monitoring

Documentation, Communication, and Safety	22–27%
Demonstrate the knowledge of the proper methods and procedures to document inspections	
Demonstrate the knowledge and ability to properly record results of the site inspections in a clear and understandable manner	
Demonstrate the knowledge of the communication role of the inspector during preconstruction, post inspection, and post construction meetings	
Demonstrate the knowledge of communication techniques with difficult people, with difficult sites, and communication techniques to deliver unpleasant findings	
Demonstrate the knowledge and ability to read the plans and communicate with the contractors to determine risk areas on the site	
Demonstrate the knowledge of the proper use and types of Personal Protection Equipment	

Plan and Site Management	9–11%
Demonstrate the knowledge different plan types, the required notifications, and the components of the plan(s)	

Management Practices	32–39%
Demonstrate the knowledge of different categories of management practices	
Demonstrate knowledge of management practices	

APPENDIX A

2022 CESSWI Survey

As a Certified Erosion, Sediment and StormWater Inspector (CESSWI), please provide responses to the following.

1. How many years of professional experience do you have in erosion, sediment and stormwater inspection?

- 0 - 5
- 5 - 10
- Greater than 10

2. What is your area of practice as a CESSWI?

- Construction Inspection
- Industrial Inspection
- Municipality Inspection
- Oil & Gas Inspections
- Green Infrastructure / LID Inspections
- Other (please specify)

3. When acting as an inspector are you considered?

- Regulatory

- Third Party
- Contractor Representative
- Consultant Representative

Other (please specify)

4. Are you a Licensed Civil Engineer (RCE/PE)?

- Yes
- No

Other Professional
Registration/License

5. Do the municipalities and regions you work in require a certification to perform inspections?

- Yes
- No

6. Do you agree that 2 years of knowledge and work experience (education and professional practice) is sufficient for a CESSWI to qualify for the Professional Certification?

- Yes
- No
- Comments:

7. Does the current Professional Scope of Practice adequately list the minimum threshold of knowledge, skills, and abilities for a practitioner?

Please note: Answer “Yes” if your opinion is the Scope is adequate but could possibly include additional data or clarifications and include the additional information in the comment box. If you answer “No,” please provide the basis and supporting data in the comment box.

Yes

No

Comments:

8. Is there an emerging area not covered in the Professional Scope that you feel should be included in the future?

Done

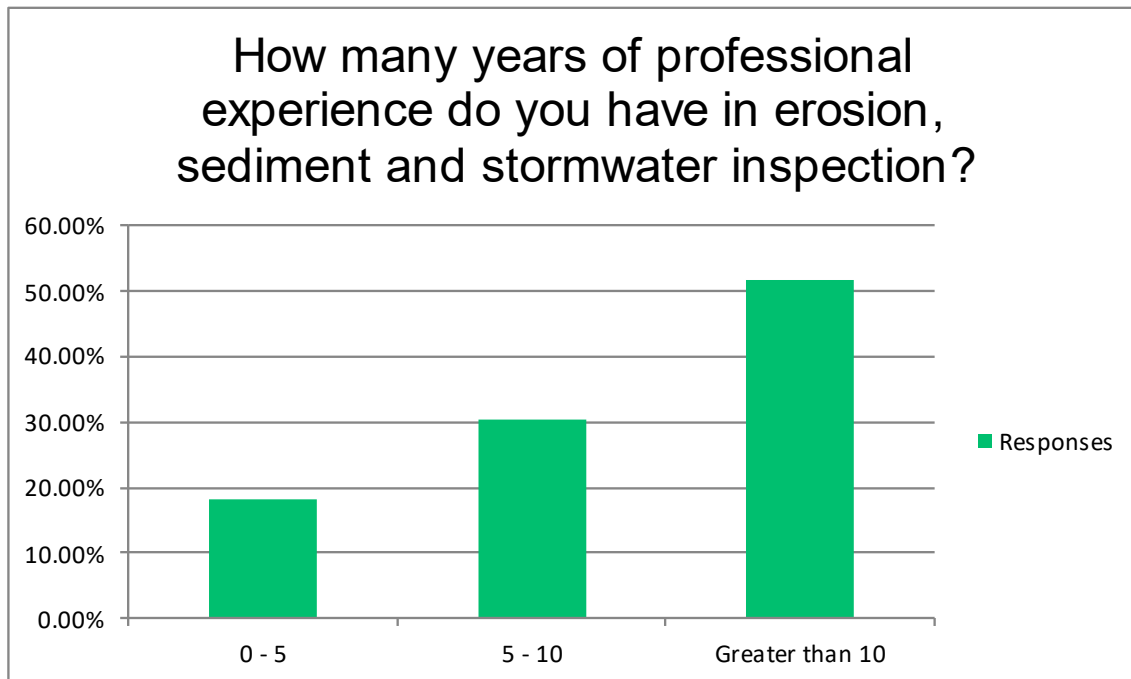
APPENDIX B

2022 CESSWI Survey Results

NOTE: If a written response contained personal information or was irrelevant to the question the responses have been deleted.

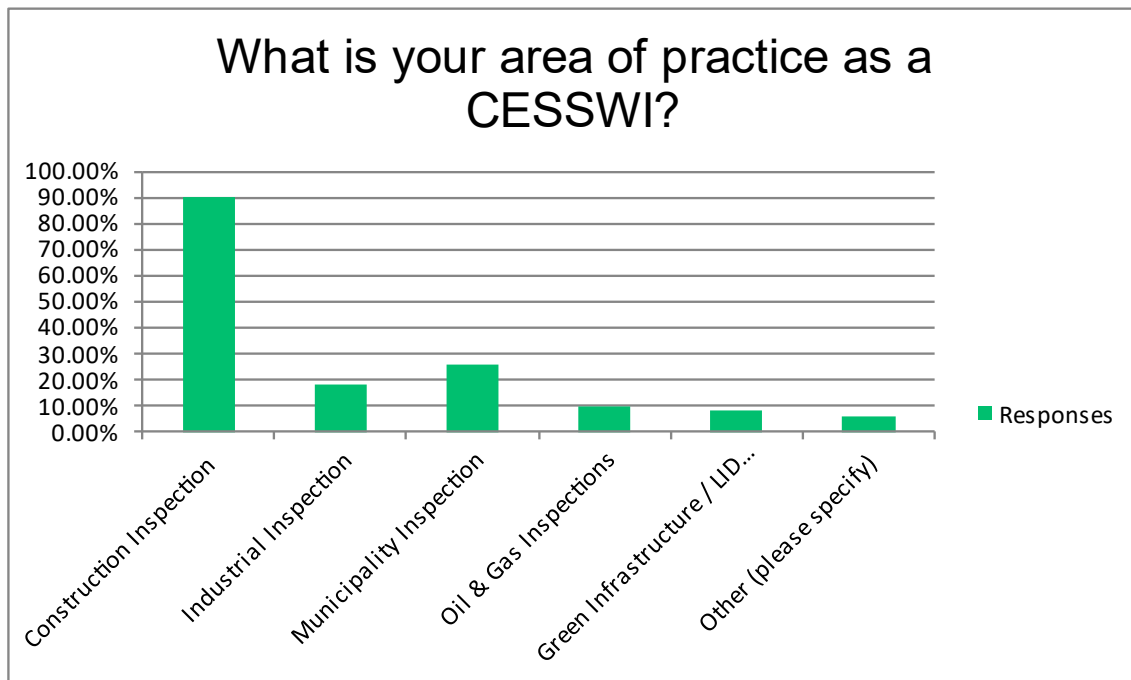
Q1 - How many years of professional experience do you have in erosion, sediment and stormwater inspection?

Answer Choices	Responses	Responses
0 - 5	18.18%	42
5 - 10	30.30%	70
Greater than 10	51.52%	119
	Answered	231
	Skipped	0



Q-2 - What is your area of practice as a CESSWI?

Answer Choices	Responses
Construction Inspection	90.04% 208
Industrial Inspection	17.75% 41
Municipality Inspection	25.97% 60
Oil & Gas Inspections	9.52% 22
Green Infrastructure / LID Inspections	8.23% 19
Other (please specify)	5.63% 13
Answered	231
Skipped	0



Other (please specify)

River hydrology

Ms4 coordinator

subject matter expert,

Construction Management

implementation

Consulting Trainer

environment agency

Forestry

Environmental for Municipality

General Contractor

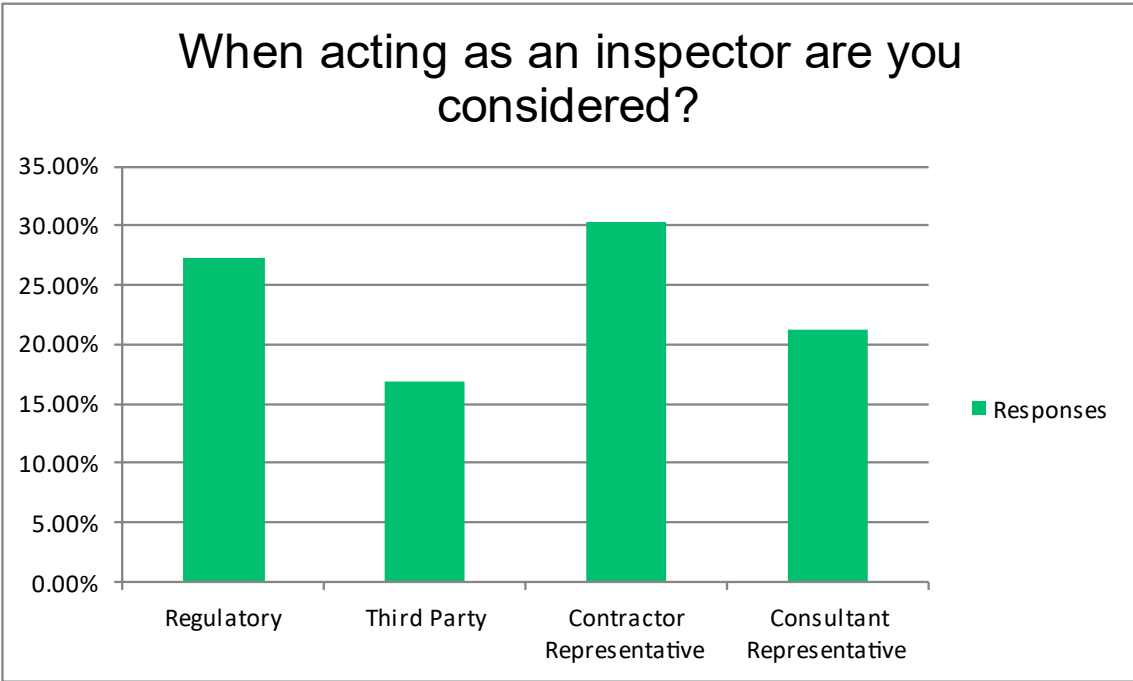
manufacturing BMP's

Factory

Solar Inspections

Q3 - When acting as an inspector are you considered?

Answer Choices	Responses
Regulatory	27.27% 63
Third Party	16.88% 39
Contractor Representative	30.30% 70
Consultant Representative	21.21% 49
Other (please specify)	15
Answered	221
Skipped	10

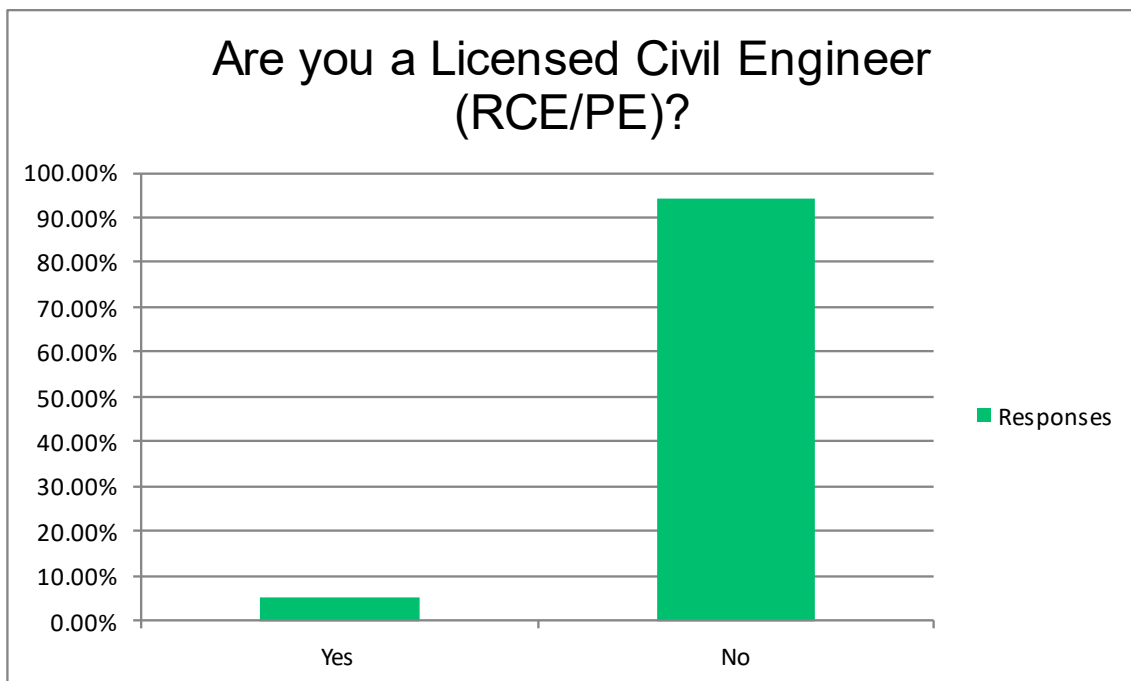


Other (please specify)

Agency Representative
Company representative
Project Owner
Company Representative
I do inspections to prove my agency is in compliance w/the law
try to be all
Government
Project owner representative
QA third party
Municipal Consultant for Code Enforcement, Industrial, Construction
Do not actively inspect
As an AzDOT Inspector a "Regulatory"
ALL THE ABOVE
Work in all arenas
I actually serve in all four capacities depending on contract

Q4 - Are you a Licensed Civil Engineer (RCE/PE)?

Answer Choices	Responses
Yes	5.19% 12
No	94.37% 218
Other Professional Registration/License	32
Answered	230
Skipped	1

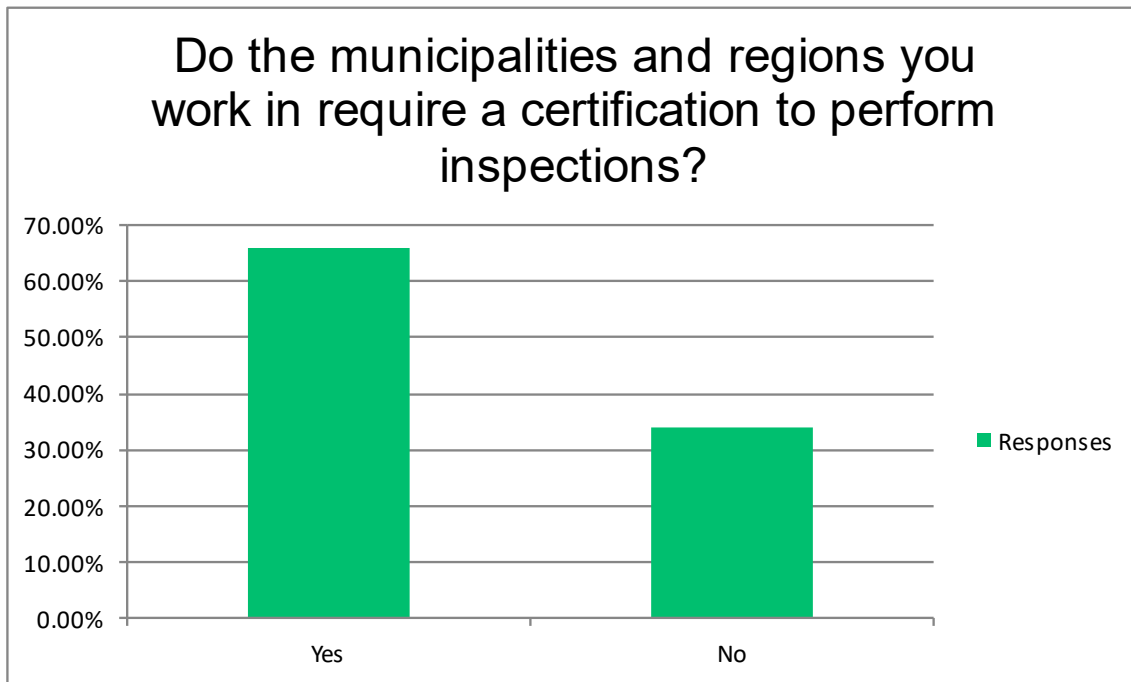


Other Professional Registration/License
CESSWI CERTIFIED

PLA
CPMSM
MDOT certified
California QSP; California Registered Professional Forester; ISA Certified Arborist
CFM
California GC
Cert. Wetland Scientist, Cert. Soil Evaluator
QSP, CESSWI
CPESC, QSD/QSP
Registered Environmental Manager
Environmental Engineer
Registered environmental consultant
Environmental Consultant
Safety and Health Officer
CESCO
QSP
Member of Environmental Engineer (The Institution of Engineers, Malaysia)
CPESC
REGISTERED PRACTITIONER IN MALAYSIA
Certified Public Works Inspector
NH Certified Wetland Scientist, CPESC
Emergency Medical Technician
NACE CIP 2, NC-E&SC/SW, CEPSCI
CPESC
CPESC. CPAWQ. CISEC
Environmental consultant
CESSWI, CPESC, CPSWQ, CPISM-IT
PWS, CWB, CERP
EIT, passed my PE , need to take Seismic and Survey
Certified scheduled waste management
CPESC

Q5 - Do the municipalities and regions you work in require a certification to perform inspections?

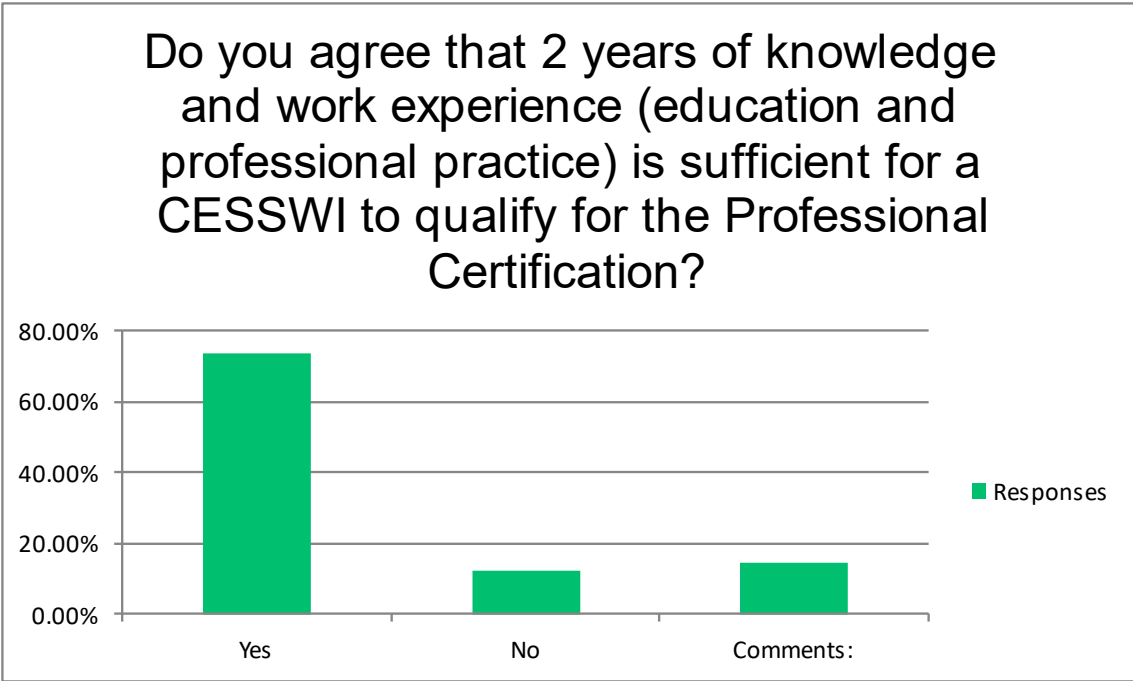
Answer Choices	Responses
Yes	66.09% 152
No	33.91% 78
Answered	230
Skipped	1



Q6 - Do you agree that 2 years of knowledge and work experience (education and professional practice) is sufficient for a CESSWI to qualify for the Professional Certification?

Answer Choices	Responses
----------------	-----------

Yes	73.59%	170
No	12.12%	28
Comments:	14.29%	33
Answered		231
Skipped		0



Comments:

- Anyone that can show competence and pass the exam should be able to qualify.
- With proper training, yes
- Yes, but knowledge of local specifications and design standards are as important. These can vary from state to state or municipality to municipality
- Field experience, with training, but still able to pass the written exams
- I believe 5 years, or more is barely sufficient

Depends on the type of work experience.

In my experience, the technical knowledge for performing inspections and recommending maintenance actions or changes to controls can be achieved with 2 years of experience. The greater challenge is in working with and communicating between owners, owner's reps, contractors, and regulatory staff. Documentation, communication, and problem-solving skills to meet goals from all perspectives is the bigger challenge and this is where experience and working with a mentor is key.

Two years of practical experience in the field definitely helps but having a technical background is also necessary.

Should be education plus two years' experience

After 2 years, one only has basic, introductory knowledge. It takes years to successfully be a good steward of your land.

At least 3 years of ESC experience to enroll this course

No, I believe that there needs to be more involved. Working on different types of projects in the region you live in. Understanding the types of soils and types of erosion that occur in the area is key to understanding the inspection process

As long as the work experience is a full-time position.

At least 3 years

Should be based on numbers of project experience instead of number of years involved.

Depends on level of involvement

Depends on the quality of the work experiences

Would rather see the professional experience over the education. More practical in this area with true experience than education.

It depends on the job scope of personnel and also the type of project i.e., have erosion, sediment and stormwater issue

5 years would be best

Only practical field experience in live environments can actuate the learnedness education provides. Education by itself is not enough. The field experience in dynamic, live construction field environments can provide the requisite experience to meld the two disciplines congruently.

Need at least 3 years

Depends on level of language understanding

I believe 2 years of actual work experience would be more sufficient.

Depend on what the true 2 years of the work experience is that person has done

Depends on the individual and their past work experience.

Minimum, maybe more or more of a combination, 2 ed & 3 work

3 Years is better

2 yrs. education.

I feel that education is important, but two years of work experience is the minimum to being able to fully understand environmental inspections and be considered a professional

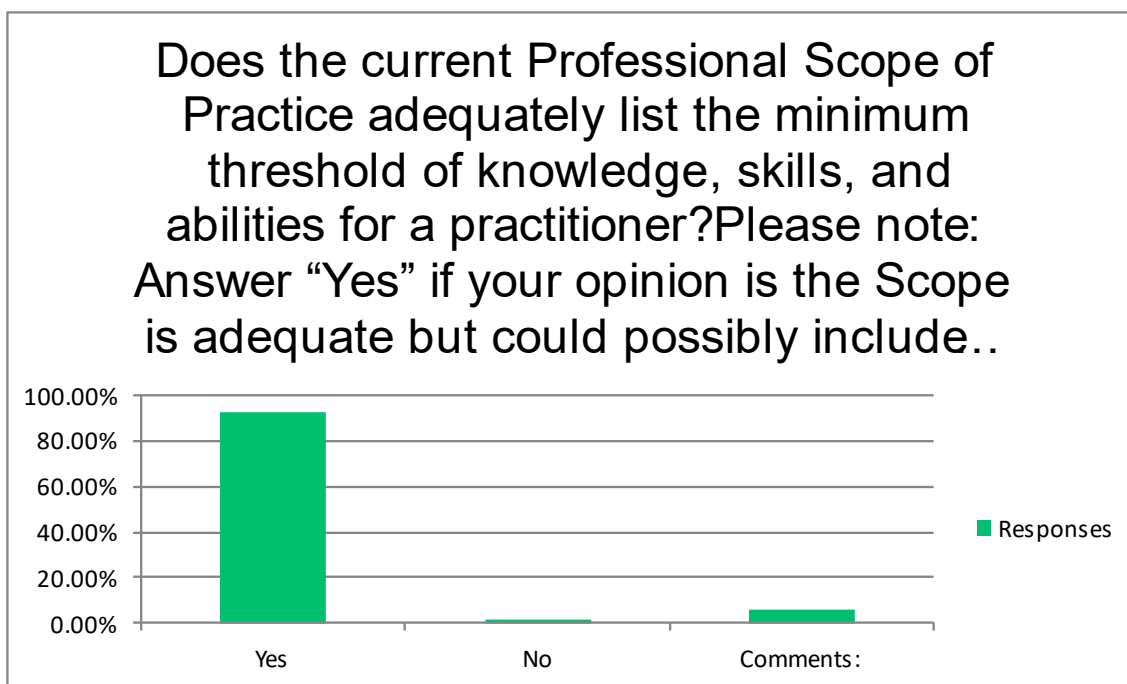
4 years would be better.

Way too long. Should only be about 6 months

I think around 3 Years is ideal

Q7 - Does the current Professional Scope of Practice adequately list the minimum threshold of knowledge, skills, and abilities for a practitioner? Please note: Answer “Yes” if your opinion is the Scope is adequate but could possibly include additional data or clarifications and include the additional information in the comment box. If you answer “No,” please provide the basis and supporting data in the comment box.

Answer Choices	Responses	
Yes	92.48%	209
No	1.77%	4
Comments:	5.75%	13
	Answered	226
	Skipped	5



Comments:

Probably need to develop some reference for possible scenarios that could happen at work site.

does not demonstrate the monitoring details and parameter also how to use turbidity meter

wasn't able to read it

I think more field practice should be needed. Especially the installation of BMPs

I also love you all put in a safety section, often overlooked!

It is imperative that the CESSWI understand the critical path of essential BMPs at sampling points that discharge into environmentally sensitive areas or receiving waters of the State. All BMPs implemented are important, but the ones that mitigate risk of sampling and discharge points should be focused on.

Might need to include language proficiency assessment

Unsure, not currently an active CESSWI.

More for field experience.5yrs

Erosion control requires great skills and experience. Inspection requires abilities to discern what is correct n what is not simply from visual alone. There is no alternative to visual to capture noncompliance instead of relying on measurement reports which are often incomplete or timed wrongly from

In my opinion this new material added to the CESSWI exam including soil infiltration calculations, soil run off calculations, R factor, hydrographs, site hydraulics, pipe hydraulics, etc. are beyond the minimum threshold for stormwater inspectors. All calculations are conducted by CPESC certified individuals and or PEs not CESSWI certified inspectors. Our local regulations even require as much. I believe this is an over complication for the role of the stormwater inspector and their duties in the field.

I think there should be more emphasis on local and state permit requirements and what those permits cover.

Way to broad and should be more localized for each region.

Q8 - Is there an emerging area not covered in the Professional Scope that you feel should be included in the future?

Answered	90
Skipped	141

Responses

Water movement include possible direction, speed and quantity since Flooding always occurred here in Malaysia.
renewable energies

Not at this time.

No

None that I can think of

long term maintenance

EnviroCert is already doing it, but Industrial is going to become an increasingly important part of all inspectors' jobs.

No

No

Can't think of any.

None

River management and hydrology also can be potentially covered in the professional scope for future

No

Documentation of inspections.

Landfill monitoring

None

No

Not to my knowledge

Flood control

no

Field training along with classroom instruction for certification would be helpful.

covers all the practical on site such as reporting and monitoring on sampling on the possible parameters (air, noise, water, vibration, wind) demonstrate the instrument related to take turbidity on discharge water from silt trap

GHG

flood mitigations control

Virtual inspection options/regulatory allowances considering societal diseases keeping us home (drone)

I think it looks good and covers the basis needed.

no

Not at this time that I can see

Just ensure that the inspector has construction experience and can understand what is being done and why and the timing of an item of work.

Regulatory/Permitting/Inspection/Compliance related to renewable energy development. Particularly to do with wind farms. Also ESG (Environment, Social, Governance) and sustainability are emerging areas.

nope

No

Implementation of new and cost-effective ESC

Try to incorporate different regions. One that becomes an inspector should be versed in their knowledge of different areas where some tactics work better and different than others

Drone aided inspections

The Metallosis condition I have metallosis, a condition that I acquired from a failed hip implant. Kaiser of So. Calif. placed the implant in 2008.

Heat stress is a large focus for workers who are working outdoors, maybe boost the Water, Rest, Shade OSHA language for the safety section. Just a thought.

No.

None

How about handling site condition during emergency (e.g.: flood, land slide, silt trap burs). If there any specific guideline / check list to control emergency situation.

Climate change

Environmental sampling e.g.: water quality.

Perhaps could consider including significant pollutants on site, for instance, bulk storage of diesel or use of drone to have better identification of location and downstream conditions on-site during inspection.

Maintained

No

None

no

Element that is specific to the country of concern is among the one scope that could be considered.

none

No comment

Not that I can think of at the moment.

Hilly development area and high risk

No

Some project use water treatment plant (chemical) to treat water from site activities before discharge to public drain. Proposed to include information and knowledge on water treatment plant.

It may be wise to introduce the concept of Pfas/ Pfos regulations as they become further developed and implemented by regulatory agencies.

It is imperative that the CESSWI be aware of all applicable permits besides the Construction General Permit (CGP) and Clean Water Act. Many projects have multiple Fish and Wildlife, Corps of Engineers, Coastal Initiative and biologically sensitive permits that have more rigorous constraints than SWPPP CGPs. One must foresee potential risks that will not only affect the project SWPPP ratings but may initiate non-compliance issues with other permitting agencies that could get the project shut down or the Owner(s) and / or Contractor(s) fined or even result in incarceration for egregious negligence.

No I don't

Soil stability

Encouraging prompt and effective re-vegetation on the disturbed area. Understanding how much veg is enough and telling difference between temp. or perm. veg. Also how to properly install and maintain RECP's. It seems some use those products 'too much' when old fashioned seed & straw & tackifier [or hydroseed/mulch] would suffice.

NA

In general, EnviroCert has so many certifications that all overlap 60-75% that it dilutes the integrity of the program. EnviroCert, as an organization, is out of touch.

Effective communication skills

Not at this time

Not to my knowledge.

no

EPA has a nice online "Construction" Inspector for inspecting the devices. They also list you as the other that replace their training.

Products through Spillbully should be considered. (Spill Containment)

Everything is well covered.

Any newer technologies and methods that are being adopted or mandated by the MS4. It's often hard to find newer mandates/regulations enacted beyond that of the state or EPA by the MS4's.

No

Greater inclusion on green infrastructure and use of swales. Reinforcement on new EPA permit.

No

Politics with municipalities.

Erosion, sediment, and stormwater in the desert areas

Not that I know of.

Not that I can think of

Maybe the intersection of wastewater treatment plants, construction and permitting factors. May already exist?

Unsure, not currently an active CESSWI.

None that I am aware of at this time.

Not at the moment

Not at this time

no

Using drone to conduct inspection

More practical applications & sequence of construction implications on control installation and maintenance.

No

No

No

Post construction water quality device inspection and maintenance

No

No

APPENDIX C

Body of Knowledge

PLACE HOLDER

APPENDIX C

Subject Matter Experts

Robert Anderson - *P.E. Juris Doctorate, CPMSM, CPESC, CPSWQ, CPISM, CESSWI, QSM, NGICP*

Charles Wilson Jr. - *PLA, CPESC, CPSWQ, CESSWI, CPMSM, QSM, NGICP*

Michael Chase - *CPESC, CPISM*

Mark Goldsmith - *CPESC, CESSWI, QSM*

Mike Kucharski, *CESSWI, CPESC, QSM, NGICP*

Steve Anderson – *CPESC, CESSWI*

Chris Brown – *CPESC, CESSWI*

Gerald Montgomery, - *CPESC, CPSWQ< CESSWI*

Jeffrey Johns, - *CPESC, CESSWI*

Charles Riling - *CESSWI*

Lisa Miller - *CESSWI*

Ian Gaudreau - *CESSWI*