

ENVIROCERT INTERNATIONAL INC.

JOB TASK ANALYSIS REPORT

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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 CPESC certification represents many disciplines and specialties, such as but not limited to

- Construction and Land Development
- Transportation and Linear projects
- Soil and Water Conservation
- Forestry
- Agriculture
- Mining Activities
- Landfill and Waste Management
- Oil and Gas
- Environmental Biology
- Energy including Geothermal
- Reclamation and Site Remediation
- Watershed Management
- Manufacturing and Product Suppliers
- Education.

CPESC's work to produce site-specific plans and designs that comprehensively address current and potential erosion and sedimentation issues with practices and measures that are cost effective, understandable and that meet environmental and regulatory requirements. CPESC registrants meet educational and practical experience standards, subscribe to the code of ethics, pass a rigorous qualifying exam, and maintain expertise through a continuing professional development program.

CPESC is the only stormwater certification recognized in the EPA Construction General Permit to perform Stormwater Management Plans and SWPPPs.

DEFINITION

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC)

A CPESC embraces the science of surface erosion and sediment control. This practice also specializes in the study and subsequent reduction of the adverse effects of environmental pollutants, whether natural or manmade, as it relates to soil, water, and air.

A BRIEF HISTORY OF CPESC

The CPESC Program was initially proposed in 1977 by individuals working in an area where serious erosion and sediment problems were being created by improper land-development activities. Working with conservation districts, the Central Coast Section of the California Chapter of SWCS (then SCSA) prepared a formal resolution including a model program and presented it to the California Chapter on June 27, 1978. The resolution was originally proposed as a state certification program for E&SC professionals that would have led to a state licensing process. When considering the proposal, it was decided that the legalities involved in establishing and administering a licensing process was far beyond the capabilities of the state chapter. Therefore, the resolution was revised and proposed as a certification process and presented to SCSA's national leaders with endorsements by the California Chapter, the California Association of Conservation Districts, and other individuals and groups having been involved in the process.

At the national level of SCSA, a special ad-hoc committee studied the logistics and costs in creating such a certification process. Based on the recommendations of the committee, the CPESC Program was approved as a national SCSA Program in 1981. Also based on the committee's recommendation, one person from each of the nine SCSA regions was selected to serve on the first CPESC Certification Review Panel which was charged to oversee the program, its policies, procedures, and promotion.

Recognizing the limits of its promotional capabilities, the Certification Review Panel recommended that SCSA help to promote the program, which resulted in the formation of the CPESC Promotion Committee in 1984.

In 1986 the program was confronted with an unexpected insurance problem, the insurance industry indicated that a certification program requiring all applicants to pass an examination was desirable; thus, the changes made by the CRP to adopt application by examination.

A CPESC Council was formed as a replacement of the Certification Review Panel in 1999. In August that year the CPESC Council voted to incorporate, and in November was officially incorporated as CPESC, Inc.

In April 2007, EnviroCert International, Inc. was formed as an umbrella corporation to perform the administration of the Certification programs. Each Certification program became 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 CPESC program updates occurred between 2015 through 2020, to the current program management and structure.

CPESC REQUIREMENTS

CPESC[®] <i>Certified Professional in Erosion & Sediment Control™</i>	
Education <ul style="list-style-type: none"> • High School Diploma or GED Required: Yes • College Diploma Required: No • Required Total Professional Experience / Education Credit (min.): 7 years 	
Education Credit	
Associate** (Science, Planning, or Construction Management)	1 year / .5 year
No degree but Professional License (PE, LA, PG, PH)*	4 years
Bachelors Degree** (Science, Planning, or Construction Mgmt. areas)	4 years / 2 years
Graduate (All of the above areas or Law)***	5 years
In Training Certifications <ul style="list-style-type: none"> • In Training Program Offered • Required Total Experience (min.): 2 years 	

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/certification 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 CPESC certification.

Over the years since the development of the certification, the CPESC Certification Review Panel, CPESC Councils, and CPESC Certification Committees have performed annual reviews of the CPESC program and conducted multiple small surveys of professionals within the erosion and sediment control profession. A comprehensive survey was completed in 2009 and an updated Scope of Practice was released. In 2018 the CPESC Program Committee, comprised of Subject Matter Experts (SME) completed a comprehensive review and updated the Scope of Practice. This report included Specific Areas of Practice (SAOP), Collaborative Practice Areas, Specific Guidelines, and a comprehensive list of Knowledge, Skills, and Abilities (KSAs). In 2019 the CPESC Steering Committee comprised of a different group of SMEs and the Chair of the Program Committee, reviewed, and approved the revised Scope of Practice and the KSAs. The latest surveys were completed in 2022 and results can be found in the appendices.

Preparation for this JTA has been compiled using the approved 2019 Scope of Practice document.

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) KNOWLEDGE, SKILLS, AND ABILITIES

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

SECTION 1: SOIL EROSION AND SEDIMENTATION PROCESSES

- 1.1 Splash, sheet, and rill erosion
 - 1.1.a Detachment
 - 1.1.b Transport Mechanisms
- 1.2 Gully erosion
 - 1.2.a Headcutting
 - 1.2.b Downcutting
 - 1.2.c Widening
- 1.3 Slope movement
- 1.4 Channel erosion
 - 1.4.a Channel Stability
- 1.5 Wind erosion
 - 1.5.a Creep
 - 1.5.b Saltation
 - 1.5.c Suspension
- 1.6 Sediment transport
 - 1.6.a Soil type assessment
- 1.7 Impacts of erosion on soil resources
- 1.8 Impacts on water resources
- 1.9 Impacts on air and fugitive dust

SECTION 2: SITE CLIMATIC CONDITIONS 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: RUNOFF MANAGEMENT

- 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
 - 3.6.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: Estimating Erosion and Sedimentation Rates

- 4.1 Soil erosion caused by water
 - 4.1.a Universal Soil Loss Equation (USLE)
 - 4.1.b Revised Universal Soil Loss Equation (RUSLE and RUSLE2)
 - 4.1.c Isoerodent maps, EPA Low Erosivity Waiver Calculator (LEW) or other methods for Calculating the “R” Factor
 - 4.1.d Soil Erodibility Factor “K”
 - 4.1.e Soil series
 - 4.1.f Soil texture
 - 4.1.g Topographic Factor “LS”
 - 4.1.h Slope length “L”
 - 4.1.i Slope steepness “S”
 - 4.1.j Cover Management Factor “C”

- 4.1.k Practice Factor “P”
- 4.1.l Partial Year Factor “M”
- 4.2 Soil erosion caused by wind
 - 4.2.a Total suspended particulates
 - 4.2.b Silt content
 - 4.2.c Wind erosion equation (WEPS or WEQ)
 - 4.2.d Soil erosion caused in channels
 - 4.2.e Shear stress
 - 4.2.f Permissible tractive force
 - 4.2.g Unit weight of water
 - 4.2.h Depth of flow
 - 4.2.i Direct volume
- 4.3 Gross erosion
 - 4.3.a Sheet and rill
 - 4.3.b Ephemeral gullies
 - 4.3.c Classic gullies
 - 4.3.d Channels
 - 4.3.e Slope movement
 - 4.3.f Sediment yield
 - 4.3.g Modified Universal Soil Loss Equation (MUSLE)
- 4.4 Sediment yield
 - 4.4.a Runoff depth
 - 4.4.b Runoff volume
 - 4.4.c Peak flow rate
 - 4.4.d Soil Erodibility Factor “K”
 - 4.4.e Topographic Factor “LS”
 - 4.4.f Slope length “L”

- 4.4.g Slope steepness “S”
- 4.4.h Cover Management Factor “C”
- 4.4.i Practice Factor “P”
- 4.4.l Sediment Delivery Ratio

Section 5: Establishing and Managing Vegetation

- 5.1 Basic soil properties and attributes that affect soil management and plant growth
 - 5.1.a Soil texture
 - 5.1.b Textural triangle
 - 5.1.c USDA / AASHTO / ASTM soil textures
 - 5.1.d Soil structure
 - 5.1.e Soil horizons
 - 5.1.f Permeability, root development, water infiltration and aeration
 - 5.1.g Bulk density
 - 5.1.h restrictive soil layers
 - 5.1.i Soil fertility and Ph
 - 5.1.j Sources of organic matter
 - 5.1.k Physical and chemical properties of soil organic matter
 - 5.1.l Effects of residue cover
 - 5.1.m Site orientation
- 5.2 Basic plant growth properties of trees, shrubs, grasses, and legumes
 - 5.2.a Perennials, bi-annuals, and annuals
 - 5.2.b Cool-season and warm-season
 - 5.2.c Evergreen and deciduous
 - 5.2.d Understory, mid-story, overstory plants
 - 5.2.e Basic concepts of plant nutrition

- 5.2.f Macro and micro elements
- 5.2.g Difference between fibrous and tap root systems on erosion control
- 5.2.h Legumes and symbiotic nitrogen fixation
- 5.3 Concepts related to vegetation establishment and management
 - 5.3.a Pure live seed (PLS)
 - 5.3.b How soil temperature, soil moisture and seed/soil contact affect seed germination
 - 5.3.c Use purity and germination information to calculate a seeding rate
 - 5.3.d Consequences of seeding earlier or later than optimum
 - 5.3.e Nutrient and soil amendments
 - 5.3.f Soil fertility and chemistry testing and report
 - 5.3.g Sources for nutrients and lime
 - 5.3.h Liming potential of various products
 - 5.3.i Nutrient and lime application methods
 - 5.3.j Planting methods
 - 5.3.k How construction operations affect soil structure and compaction
 - 5.3.l Methods to alleviate soil compaction
 - 5.3.m Mulching materials and application principles
 - 5.3.n Management during establishment
 - 5.3.n Management after establishment

Section 6: Measures to Control Erosion

- 6.1 Measures for soil stabilization for non-concentrated flow
 - 6.1.a Temporary seeding
 - 6.1.b Permanent seeding
 - 6.1.c Sod
 - 6.1.d Mulch

- 6.1.e Shrub and vine planting
- 6.1.f Tree planting
- 6.1.g Topsoil application
- 6.1.h Diversion
- 6.1.i Benching
- 6.1.j Grading
- 6.1.k Soil roughening
- 6.1.l Contouring
- 6.1.m Tracking
- 6.1.n Chemical treatment
- 6.1.o Downdrains
- 6.1.p Rolled Erosion Control Products (RECP)
- 6.1.q Manufactured logs and wattles
- 6.1.r Retaining wall or engineered structures

Section 7: Measures for Concentrated Flows

- 7.1 Channel protection with vegetation
 - 7.1.a Grassed swales/waterways
 - 7.1.b Sod
 - 7.1.c RECP
 - 7.1.d Turf reinforcement mats
- 7.2 Measures that provide channel protection with hard armor
 - 7.2.a Rip rap
 - 7.2.b Concrete
 - 7.2.c Articulated concrete blocks
 - 7.2.d Gabions

- 7.3 Diversion measures
 - 7.3.a Diversions
 - 7.3.b Earth dike
 - 7.3.c Perimeter dike
 - 7.3.d Temporary swale
 - 7.3.e Silt ditch
 - 7.3.f Water bar
 - 7.3.g Bypass pipe
- 7.4 Measures used to protect outlets
 - 7.4.a Rip rap
 - 7.4.b Paved flume
 - 7.4.c Level spreader
 - 7.4.d Scour prevention transition mats
 - 7.4.e RECP

Section 8: Measures to Control Wind Erosion

- 8.1 Measures to control wind erosion
 - 8.1.a Management practices
 - 8.1.a.1 Ridging
 - 8.1.a.2 Soil inversion
 - 8.1.a.3 Stockpile orientation
 - 8.1.a.4 Irrigation
 - 8.1.a.5 Crop residue
 - 8.1.a.6 Vegetation
 - 8.1.a.7 Fabric or poly covers
 - 8.1.a.8 Windscreens

8.1.a.9 Soil binders/dust suppressants

8.1.a.10 Wind fence

Section 9: Measures to Control Sediment

9.1 Common sediment control measures

9.1.a Vegetated filter strip

9.1.b Brush dam

9.1.c Sediment fence

9.1.d Fiber rolls (wattles)

9.1.e Compost berm

9.1.f Sediment basin

9.1.g Outlet design

9.1.h Dewatering filter bags

9.1.i Baffles, turbidity curtains

9.2 Drain inlet protection

9.2.a Products and configurations

9.3 Advanced treatment systems

9.3.a Active

9.3.b Passive

Section 10: Site Planning for Erosion and Sediment Control

10.1 Communications

10.1.a Design team (engineers, hydrologists, landscape architect, etc.)

10.1.b Owner/Developer

10.1.c Contractors

10.1.d Agency regulators

10.2 Site assessment and sensitive resources

- 10.2.a Onsite sensitive resources (wetlands, threatened and endangered species, cultural resources, floodplains)
- 10.2.b Off-site sensitive resources, (with special attention to downstream resources)
- 10.2.c Existing land use
- 10.2.d Existing vegetative/other cover
- 10.2.e Slopes (steepness and length)
- 10.2.f Existing drainage conveyances/patterns
- 10.2.g Contaminated sites
- 10.2.h Receiving water considerations
- 10.3 Procedures and tools for site evaluations of a landscape
 - 10.3.a Topographic map
 - 10.3.b Soil Survey
 - 10.3.c Area calculation for specific area
 - 10.3.d Slope of a landscape
 - 10.3.e Floodplain map
 - 10.3.f Wetland map
- 10.4 Understand unique circumstances of proposed projects
 - 10.4.a Subdivisions and mixed use, commercial/industrial and linear projects (road and utility)
 - 10.4.a.1 Change in vegetative cover
 - 10.4.a.2 Cut and fill slopes
 - 10.4.a.3 Grade changes in other areas
 - 10.4.a.4 Increased storm runoff
 - 10.4.a.5 Increased peak flows
 - 10.4.a.6 Increased soil erosion
 - 10.4.a.7 Increased sediment delivery
 - 10.4.a.8 Increased turbidity

- 10.4.a.9 Potential for increased flooding
- 10.4.a.10 Key elements of low impact developments
- 10.4.a.11 Conservation
- 10.4.a.12 Small scale controls
- 10.4.a.13 Customized site design
- 10.4.a.14 Pollution prevention and education
- 10.4.a.15 Directing runoff to natural area
- 10.4.a.16 Drainage changes during development

10.4.b Forests

- 10.4.b.1 Landing and staging areas
- 10.4.b.2 Permanent and temporary roads
- 10.4.b.3 Stream avoidance and crossings
- 10.4.b.4 Clear cutting
- 10.4.b.5 Reforestation methods
- 10.4.b.6 Temporary and permanent seeding
- 10.4.b.7 Timber stand improvement
- 10.4.b.8 Prescribed fire

10.4.c Surface mines and landfills

10.4.d Farms and ranches

10.5 Components of a plan

- 10.5.a Site plan map
- 10.5.b Written narrative
- 10.5.c Function concept for MPs
- 10.5.d Measures to control erosion
- 10.5.e Measures for concentrated flow
- 10.5.f Measures to stabilize and protect streams

10.5.g Measures to control wind erosion

10.5.h Measures to control sediment

Section 11: Site Management

11.1 Regulatory requirements

11.1.a Amendments to SWPPP

11.1.b Inspections

11.1.c Training

11.1.d Documentation

11.1.e Reporting

11.2 Scheduling of work activities

11.2.a Project schedule and seasonal considerations

11.2.b Coordination among trades

11.2.c Protection of resources

11.2.d Egress points

11.2.e Discharge points and offsite impacts

11.3 Practices for material and waste management

11.3.a Delivery and storage locations

11.3.b Storage area construction

11.4 Stockpile management

11.5 Spill prevention and control

11.5.a Cleanup

11.5.b Disposal

11.5.c Reporting

11.5.d Education

11.5.e Safety

- 11.6 Management of activities having the potential to release pollutants other than sediment
 - 11.6.a Solid waste
 - 11.6.b Liquid waste
 - 11.6.c Hazardous waste
 - 11.6.d Contaminated soil
 - 11.6.e Cement waste
 - 11.6.e.1 Constructed facilities
 - 11.6.e.2 Services
 - 11.6.f Describe sanitary and septic waste
 - 11.6.f.1 Paving and grinding
 - 11.6.f.2 Illicit connections and illegal dumping
 - 11.6.f.3 Vehicle and equipment cleaning, fueling and maintenance
- 11.7 Management of egress points
- 11.8 Water conservation strategies
- 11.9 Dewatering
 - 11.9.a Regulations
 - 11.9.b Plan components and options
 - 11.9.c Equipment
- 11.10 Potable water uses and conservation
- 11.11 Practices and considerations for sampling
 - 11.11.a Non-visible pollutants
 - 11.11.b Sediment and other visible pollutant s
 - 11.11.c Sampling and analysis plan
 - 11.11.d Field equipment
 - 11.11.e Monitoring preparation

- 11.11.f Sample collection, preservation, and delivery
- 11.11.g Quality assurance and quality control (QA/QC)
- 11.11.h Laboratory sample preparation and analytical methods
- 11.11.i Data management and reporting procedures

Section 12: Inspecting Construction Sites

12.1 Regulatory requirements

Affiliates and other countries will insert their own Rules, Regulations, and Ordinances. Within the United States these will refer to Federal Rules, Regulations, and Ordinances only.

12.2 Site plans & specifications (including contract requirements)

12.2.a Able to read & understand construction plans and specifications

12.2.a.1 Identify BMPs specified

12.2.a.2 Identify locations specified for BMP installation

12.3 Installation and maintenance of BMPs

12.3.a Plan and specifications

12.3.b Correct location per site maps

12.3.c Installation appears appropriate for site conditions

12.3.d BMPs need maintenance and repair

12.3.e BMP modification/substitution necessary

12.3.f Additional BMPs appear needed

12.4 Non-Stormwater Discharge Management

12.4.a Concrete Washout Containment

12.4.b Masonry Areas (cement/mortar mixes, granular materials)

12.4.c Process Waters

12.4.c.1 Dewatering operations

12.4.c.2 Cleaning operations

12.4.c.3 Other process waters

- 12.5 Site management
 - 12.5.a Organization (good housekeeping plan)
 - 12.5.b Construction materials management
 - 12.5.b.1 Storage
 - 12.5.b.1.a Location
 - 12.5.b.1.b Proper Containment
 - 12.5.b.1.3 Soil stockpile stabilization
 - 12.5.b.2 Usage
 - 12.5.b.3 Equipment Maintenance/Cleanup
 - 12.5.b.4 Disposal
 - 12.5.c Solid waste management
 - 12.5.d Hazardous waste characterization and management
 - 12.5.e Sanitary waste management (portable toilets)
 - 12.5.f Equipment maintenance (including fueling operations)
 - 12.5.f.1 Location
 - 12.5.f.2 Proper containment
 - 12.5.g Spill response and containment
 - 12.5.g.1 List of expected materials on site
 - 12.5.g.2 Safety Data Sheets (SDS)
 - 12.5.g.3 Spill action plan
 - 12.5.g.4 Reportable quantities list (including agency notification phone #s)
 - 12.5.g.5 Spill kits outfitted based on expected materials list
- 12.6 Documentation requirements
 - 12.6.a Plans and specifications
 - 12.6.a.1 Meet regulatory content requirements
 - 12.6.a.2 Kept up to date

- 12.6.a.2.a Current with construction
 - 12.6.a.2.b Dates of BMP installation noted on plans
 - 12.6.a.2.c MP design/location changes identified
 - 12.6.a.3 Available on construction site
- 12.6.b Permits
 - 12.6.b.1 Posted on site
- 12.6.c Signage
 - 12.6.c.1 Required postings
 - 12.6.c.2 Identification/guidance signage
- 12.6.d Inspection records

Section 13: Regulations*

**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.*

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

- 13.1.b Surface Mining Reclamation Act
- 13.1.c USDA Conservation Programs
- 13.2 State and local regulations
- 13.3 MS4 programs
- 13.4 Administrative requirements
 - 13.4.a Permit filing procedures and fees
 - 13.4.b Approval
 - 13.4.c Inspections
 - 13.4.d Enforcement and penalties
 - 13.4.e Project termination

Specific Areas of Practice (SAOP) Descriptions with Tasks (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 – Apply the 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. Site Assessment and Resource Inventory

T2.1. Ability to observe existing site conditions, assess limitations and develop an inventory of available resources, as well as resources meriting protection or mitigation

Understand and apply

- Knowledge and ability to assess existing site conditions by personal visitation or reading and interpreting existing site conditions reports
- Knowledge and ability to assess site limitations by personal visitation or reading and interpreting existing site conditions reports and develop an inventory of available resources
- Knowledge and ability to assess resources meriting protection and/or mitigation by personal visitation or reading and interpreting existing site conditions reports

T2.2. Ability to perform assessments of subsurface conditions by trenching and drilling to evaluate soil profiles to evaluate soil conditions and limitations, such as seasonal high-water table, soil texture, percent organic matter, depth to bedrock, etc.

Understand and apply

- Knowledge and ability to read and interpret soils reports to properly design, review, install, and maintain management practices

SAOP 2 Proposed Test Objectives

- T2.1 U/A – Demonstrate the knowledge and ability to assess existing site conditions, site limitations, determine resources needing mitigation or protection
- T2.2 U/A – Demonstrate the knowledge and ability to read and interpret soils reports

SAOP 3. Site Planning and Management

T3.1. Development of StormWater Pollution Prevention Plans, local Stormwater Management Plans, and/or Erosion and Sediment Control Plans

Understand and apply

- Knowledge of national, state or province, and local design standards and ordinances
- Knowledge and ability to read and understand site assessments and resource inventories
- Knowledge and ability to schedule work activities to reduce the amount of erosion and sediment
- Knowledge of practices for erosion control, sediment control, runoff and run-on control, material and waste management, stockpile management, spill prevention and control, management of ingress and egress points, grading, water conservation, dewatering, and sampling

T3.2. Develop Cost Estimates for plan implementation and management

Understand and apply

- Knowledge and ability to perform site takeoff and quantity calculations
- Knowledge to research item cost, maintenance cost, and replacement cost of measures and methods used to control erosion, sediment, and runoff and run-on

T3.3. Ability to Incorporate hydrology and drainage designs performed by a Registered/Licensed Professional

Understand and apply

- Knowledge of the components of the hydrologic cycle, including precipitation, time parameters, watershed area, soil permeability, runoff curve numbers, hydrographs, runoff estimation, and ground cover
- Knowledge of the factors affecting runoff during all stages of the project
- Knowledge and ability to determine and apply consideration for managing run-on, on-site runoff, and discharges from the site

- Knowledge to understand hydrology and drainage calculations and designs performed by a registered/licensed professional
- Ability to incorporate drainage designs into erosion and sediment control plans

SAOP 3 Proposed Test Objectives

- T3.1 U/A – Demonstrate the knowledge and ability to understand national, state or province, and local design standards and ordinances, assess existing site conditions, site limitations, determine resources needing mitigation or protection, to schedule work activities to reduce the amount of erosion and sediment, and practices for erosion control, sediment control, runoff and run-on control, material and waste management, stockpile management, spill prevention and control, management of ingress and egress points, grading, water conservation, dewatering, and sampling
- T3.2 U/A – Demonstrate the knowledge and ability to perform site takeoff and quantity calculations and research item cost, maintenance cost, and replacement cost of measures and methods used to control erosion, sediment, and runoff and run-on
- T3.3 U/A – Demonstrate the knowledge of the hydrologic cycle, factors that affect runoff, and the ability to determine, understand hydrology and drainage calculations and designs performed by a registered/licensed professional and apply consideration for managing run-on, on-site runoff, and discharges from the site, and incorporate drainage designs into erosion and sediment control plans

SAOP 4. Predicting Soil Loss

T4.1. Ability to Quantify Predicted Soil Loss, both for a single storm event and on an annual basis

Understand and apply

- Methodology and associated factors that quantify potential soil loss
- Ability to use calculated soil loss for site planning, and implementing systems to reduce the adverse effects of erosion and sediment control discharge

SAOP 4 Proposed Test Objectives

- T4.1 U/A – Demonstrate the knowledge and ability to understand and calculate potential soil loss, and use the results to design and implement systems to reduce the adverse effects of erosion and sediment control discharge

SAOP 5. Runoff Management

T5.1. Select the appropriate practices to properly intercept run-on, convey runoff through, and discharge from the site in a manner that reduces or eliminates the adverse effects of erosion and sediment discharge.

(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.)

Understand and apply

- Drainage patterns during all stages of the site development
- Knowledge of the components of the hydrologic cycle, including precipitation, time parameters, watershed area, soil permeability, runoff curve numbers, hydrographs, runoff estimation, and ground cover
- Knowledge to understand hydrology and drainage calculations and designs performed by a registered/licensed professional
- Ability to incorporate drainage designs into erosion and sediment control plans

SAOP 5 Proposed Test Objectives

- T5.1 U/A – Demonstrate the knowledge and ability to understand and drainage patterns and apply consideration for managing run-on, on-site runoff, and discharges from the site, and incorporate drainage designs into erosion and sediment control plans

SAOP 6. Soil Stabilization

T6.1. Understanding of appropriate soil stabilization techniques and management practices, both temporary and permanent

Understand and apply

- Knowledge of the methods and techniques used to plan and implement both temporary and permanent stabilize soil

T6.2. Understanding of appropriate soil stabilization techniques and management practices used in runoff management

Understand and apply

- Knowledge of the methods and techniques used to plan and implement both temporary and permanent stabilize soil in areas of concentrated flows

SAOP 6 Proposed Test Objectives

- T6.1 U/A – Demonstrate the knowledge and ability to understand methods and techniques used in both temporary and permanent soil stabilization
- T6.2 U/A – Demonstrate the knowledge and ability to understand methods and techniques used to stabilize soil in areas of concentrated flows

SAOP 7. Assessing Soil Fertility and Soil Amendments

T7.1. Understand and interpret the agronomic potential for soils or substrates to develop and maximize establishment of sustainable vegetation for effective erosion and sediment control

Understand and apply

- Ability to read and interpret soil reports to determine the suitability and limitations of site soils

T7.2. Understanding of calculation in determining soil amendments to help in providing prescriptive agronomic measures to produce fertile, stable, and sustainable sites for the establishment of vegetation

Understand and apply

- Knowledge and ability to calculate and specify soil amendments based on soil scientist reports to produce fertile, stable, and sustainable site for the establishment of vegetation

T7.3. Understanding of calculation in determining soil amendments to help in providing prescriptive agronomic measures to produce f sustainable sites for non-vegetated areas (Please note these determinations will require the professional oversight or site-specific designs of a registered/licensed professional.)

Understand and apply

- Knowledge and ability to calculate and specify soil amendments based on soil scientist reports to provide a stable and sustainable site in non-vegetated areas (please note that this

SAOP 7 Proposed Test Objectives

- T7.1 U/A – Demonstrate the knowledge and ability to read and understand soil reports
- T7.2 U/A – Demonstrate the knowledge and ability to calculate soil amendments based on soil scientist reports to produce fertile, stable, and sustainable sites for the establishment of vegetation
- T7.3 U/A – Demonstrate the knowledge and ability to read and interpret a registered/licensed professional report concerning amendments based to provide a stable and sustainable site in non-vegetated areas

SAOP 8. Plant Species Selection

T8.1. Understand and be able to select the type of vegetation capable of providing erosion and sediment control while consistent with the project and site requirements (Please note these determinations may require the professional oversight or site-specific designs of a registered/licensed professional.)

Understand and apply

- Knowledge of the appropriate vegetation with regards to climate, soil moisture, soil chemistry, sunlight, temperatures, and slopes
- Knowledge of native plant communities

T8.2. Understand and be able to select the type of vegetation capable of restoring disturbed lands while consistent with the project and site requirements

Understand and apply

- Knowledge of the appropriate vegetation with regards to climate, soil moisture, soil chemistry, sunlight, temperatures, and slopes
- Knowledge of native plant communities

T8.3. Knowledge and ability to calculate Pure Live Seed when specifying a grass or cover crop

Understand and apply

- Knowledge and ability to calculate and specify the proper quantity of seed based on the purity and percent of germination for a grass or cover crop seed mixture

SAOP 8 Proposed Test Objectives

- T8.1 U/A – Demonstrate the knowledge of plant materials to provide adequate erosion and sediment control cover, especially native plant materials
- T8.2 U/A – Demonstrate the knowledge of plant materials to provide adequate erosion and sediment control cover for the restoration of disturbed lands, especially native plant materials
- T8.3.U/A – Demonstrate the ability to calculate the quantity of seed required to establish the specified cover of a disturbed area

SAOP 9. Erosion and Sediment Control

T9.1. Understand and be able to select the appropriate management practices to reduce or eliminate soil loss as appropriate to the design

Understand and apply

- Knowledge of management practices for non-concentrated flow in relation to the site's physiographic factors, climate, soil type, targeted pollutants, MP effectiveness for pollutant removal, cost, and maintenance requirements.
- Knowledge of management practices for concentrated flow areas including channels, diversions, and outlets in relation to the site's physiographic factors, climate, soil type, targeted pollutants, MP effectiveness for pollutant removal, cost, and maintenance requirements.

T9.2. Understand and be able to select the appropriate measures to control sediment loss and pollutants to reduce or eliminate as appropriate to the design

Understand and apply

- Knowledge of management practices for concentrated flow areas including channels, diversions, and inlet and outlets in relation to the site's physiographic factors, climate, soil type, targeted pollutants, MP effectiveness for pollutant removal, cost, and maintenance requirements.

T9.3. Understand and be able to select the appropriate advanced treatment systems (if required) to control sediment and pollutant release or eliminate sediment and pollutant release as appropriate to the design

Understand and apply

- Knowledge of advanced treatment systems and the required testing and reporting requirements associated advanced treatment systems.

SAOP 9 Proposed Test Objectives

- T9.1 U/A – Demonstrate the knowledge management practices for non-concentrated flow conditions
- T9.2 U/A – Demonstrate the knowledge management practices for concentrated flow conditions
- T9.3 U/A – Demonstrate the knowledge of advanced treatment systems

SAOP 10. Specification of Pollution Prevention Measures

T10.1. Knowledge and ability to provide the requisite specifications for installation and maintenance of management practices to reduce and minimize pollutants of concern

Understand and apply

- Knowledge and ability to provide the requisite specifications for installation and maintenance of management systems

SAOP 10 Proposed Test Objectives

- T10.1 U/A – Demonstrate the knowledge management practices specifications for installation and maintenance

SAOP 11. Observation, Effectiveness Evaluation, and Measure Recommendation

T11.1. Knowledge and ability to establish, observe, and assess protocol(s) for performance of management practices

Understand and apply

- Knowledge and ability to observe and assess performance of management practices

T11.2. Knowledge and ability to provide requisite maintenance thresholds and ensure proper techniques for installation to improve performance and reduce maintenance

Understand and apply

- Knowledge and ability to provide requisite maintenance thresholds and ensure proper techniques for installation to improve performance and reduce maintenance

SAOP 11 Proposed Test Objectives

- T11.1 U/A – Demonstrate the ability to observe, inspect, and assess performance of management practices
- T11.2 U/A – Demonstrate the ability to provide requisite maintenance thresholds and ensure proper techniques for installation to improve performance and reduce maintenance

SAOP 12. Research and Development Related to Erosion and Sediment Control

T12.1. Knowledge and ability to research available technologies and recognize the appropriate applications

Understand and apply

- Knowledge and ability to research available technologies and recognize the appropriate applications

T12.2. Knowledge and ability to discuss and/or develop new technologies and improve existing technologies to minimize or eliminate soil loss and pollutants or concern

Understand and apply

- Knowledge and ability to discuss and/or develop new technologies and improve existing technologies to minimize or eliminate soil loss and pollutants or concern

SAOP 12 Proposed Test Objectives

- T12.1 U/A – Demonstrate the ability to research available technologies and recognize the appropriate applications
- T12.2 U/A – Demonstrate the ability to discuss and/or develop new technologies and improve existing technologies to minimize or eliminate soil loss and pollutants or concern

SAOP 13. Administration of Erosion and Sediment Control Program

T13.1. Knowledge and ability to manage and oversee the development of erosion and sediment control policies and procedures

Understand and apply

- Knowledge and ability to manage and oversee the development of erosion and sediment control policies and procedures

SAOP 13 Proposed Test Objectives

- T13.1 U/A – Demonstrate the ability to manage and oversee the development of erosion and sediment control policies and procedures

SAOP 14. Education of Erosion and Sediment Control Practitioners and Others

T14.1. Knowledge and ability to provide educational information to promote the implementation and to improve the chances of success of the stormwater control plans or programs

Understand and apply

- Knowledge and ability to provide educational information to promote the implementation and to improve the chances of success of the stormwater control plans or programs

SAOP 14 Proposed Test Objectives

- T14.1 U/A – Demonstrate the ability to provide educational information to promote the implementation and to improve the chances of success of the stormwater control plans or programs

SAOP 15. Erosion and Sediment Control Products

T15.1. Knowledge and ability to continue to develop and improve a basic understanding of erosion control products and technologies

Understand and apply

- Knowledge and ability to research available technologies and recognize the appropriate applications
- Knowledge and ability to provide educational information to promote the implementation and to improve the chances of success of the stormwater control plans or programs
- Understanding of limitations of the products

SAOP 15 Proposed Test Objectives

- T15.1 U/A – Demonstrate the ability to research available technologies and recognize the appropriate applications
- T15.2 U/A – Demonstrate the ability to provide educational information to promote the implementation and to improve the chances of success of the stormwater control plans or programs

SPECIFIC AREAS OF PRACTICE

TABLE OF JOB ROLES

Primary ongoing Erosion and Sediment Control related functions for each job role for the Certified Professional in Erosion and Sediment Control (CPESC)

Designer	Reviewer / Regulator	Supplier / Materials	Instructor / Educator
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 1 – T1.1 SAOP 1 – T1.2
SAOP 2 – T2.1 SAOP 2 – T2.2	SAOP 2 – T2.1 SAOP 2 – T2.2		SAOP 2 – T2.1 SAOP 2 – T2.2
SAOP 3 – T3.1 SAOP 3 – T3.2 SAOP 3 – T3.3	SAOP 3 – T3.1 SAOP 3 – T3.2 SAOP 3 – T3.3	SAOP 3 – T3.1 SAOP 3 – T3.2	SAOP 3 – T3.1 SAOP 3 – T3.2 SAOP 3 – T3.3
SAOP 4 – T4.1	SAOP 4 – T4.1		SAOP 4 – T4.1
SAOP 5 – T5.1	SAOP 5 – T5.1		SAOP 5 – T5.1
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 6 – T6.1 SAOP 6 – T6.2
SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3	SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3	SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3	SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3
SAOP 8 – T8.1 SAOP 8 – T8.2 SAOP 8 – T8.3	SAOP 8 – T8.1 SAOP 8 – T8.2 SAOP 8 – T8.3	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 9 – T9.1 SAOP 9 – T9.2 SAOP 9 – T9.3	SAOP 9 – T9.1 SAOP 9 – T9.2 SAOP 9 – T9.3		SAOP 9 – T9.1 SAOP 9 – T9.2 SAOP 9 – T9.3
SAOP 10 – T10.1	SAOP 10 – T10.1	SAOP 10 – T10.1	SAOP 10 – T10.1
SAOP 11 – T11.1 SAOP 11 – T11.2	SAOP 11 – T11.1 SAOP 11 – T11.2	SAOP 11 – T11.2	SAOP 11 – T11.1 SAOP 11 – T11.2
		SAOP 12 – T12.1 SAOP 12 – T12.2	
	SAOP 13 – T13.1		
SAOP 14 – T14.1	SAOP 14 – T14.1	SAOP 14 – T14.1	SAOP 14 – T14.1
SAOP 15 – T15.1	SAOP 15 – T15.1	SAOP 15 – T15.1	SAOP 15 – T15.1

EXAM BLUEPRINT

CPESC Examination Blueprint

The erosion and sediment control (ESC) practices focused on in the Certified Professional in Erosion and Sediment Control (CPESC) are as follows: Rules and Regulations, Site Assessment and Resource Inventory, Site Planning and Management, Predicting Soil Loss, Runoff Management, Soil Stabilization, Assessing Soil Fertility and Soil Amendments, Plant Species Selection, Erosion and Sediment Control, Specification of Pollution Prevention Measures, Observation, Effectiveness Evaluation, and Measure Recommendation, Research and Development Related to Erosion and Sediment Control, Administration of Erosion and Sediment Control Program, Education of Erosion and Sediment Control Practitioners and Others, and Erosion and Sediment Control Products.

Presented below are the weightages for various sections:

SAOP 1 - 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	
SAOP 2 - Site Assessment and Resource Inventory	6-8%
Demonstrate the knowledge and ability to assess existing site conditions, site limitations, determine resources needing mitigation or protection	
Demonstrate the knowledge and ability to read and interpret soils reports	
SAOP 3 - Site Planning and Management	8-10%
Demonstrate the knowledge and ability to understand national, state or province, and local design standards and ordinances, assess existing site conditions, site limitations, determine resources needing mitigation or protection, to schedule work activities to reduce the amount of erosion and sediment, and practices for erosion control, sediment control, runoff and run-on control, material and waste management, stockpile management, spill prevention and control, management of ingress and egress points, grading, water conservation, dewatering, and sampling	
Demonstrate the knowledge and ability to perform site takeoff and quantity calculations and research item cost, maintenance cost, and replacement cost of measures and methods used to control erosion, sediment, and runoff and run-on	

Demonstrate the knowledge of the hydrologic cycle, factors that affect runoff, and the ability to determine, understand hydrology and drainage calculations and designs performed by a registered/licensed professional and apply consideration for managing run-on, on-site runoff, and discharges from the site, and incorporate drainage designs into erosion and sediment control plans

SAOP 4 - Predicting Soil Loss

10–13%

Demonstrate the knowledge and ability to understand and calculate potential soil loss, and use the results to design and implement systems to reduce the adverse effects of erosion and sediment control discharge

SAOP 5 - Runoff Management

9–12%

Demonstrate the knowledge and ability to understand and drainage patterns and apply consideration for managing run-on, on-site runoff, and discharges from the site, and incorporate drainage designs into erosion and sediment control plans sediment control discharge

SAOP 6 - Soil Stabilization

8–10%

Demonstrate the knowledge and ability to understand methods and techniques used in both temporary and permanent soil stabilization

Demonstrate the knowledge and ability to understand methods and techniques used to stabilize soil in areas of concentrated flows

SAOP 7 - Assessing Soil Fertility and Soil Amendments

4–6%

Demonstrate the knowledge and ability to read and understand soil reports

Demonstrate the knowledge and ability to calculate soil amendments based on soil scientist reports to produce fertile, stable, and sustainable sites for the establishment of vegetation

Demonstrate the knowledge and ability to read and interpret a registered/licensed professional report concerning amendments based to provide a stable and sustainable site in non-vegetated areas

SAOP 8 - Plant Species Selection

2–3%

Demonstrate the knowledge of plant materials to provide adequate erosion and sediment control cover, especially native plant materials

Demonstrate the knowledge of plant materials to provide adequate erosion and sediment control cover for the restoration of disturbed lands, especially native plant materials	
Demonstrate the ability to calculate the quantity of seed required to establish the specified cover of a disturbed area	
SAOP 9 - Erosion and Sediment Control	14–17%
Demonstrate the knowledge management practices for non-concentrated flow conditions	
Demonstrate the knowledge management practices for concentrated flow conditions	
Demonstrate the knowledge of advanced treatment systems	
SAOP 10 - Specification of Pollution Prevention Measures	16–20%
Demonstrate the knowledge management practices specifications for installation and maintenance	
SAOP -11 - Observation, Effectiveness Evaluation, and Measure Recommendation	4–6%
Demonstrate the ability to observe, inspect, and assess performance of management practices	
Demonstrate the ability to provide requisite maintenance thresholds and ensure proper techniques for installation to improve performance and reduce maintenance	
SAOP 12 - Research and Development Relating to Erosion and Sediment Control	0%
Demonstrate the ability to research available technologies and recognize the appropriate applications	
Demonstrate the ability to discuss and/or develop new technologies and improve existing technologies to minimize or eliminate soil loss and pollutants or concern	
SAOP 13 - Administration of Erosion and Sediment Control Program	0%
Demonstrate the ability to manage and oversee the development of erosion and sediment control policies and procedures	
SAOP 14 - Education of Erosion and Sediment Control Practitioners and Others	3–5%

Demonstrate the ability to provide educational information to promote the implementation and to improve the chances of success of the stormwater control plans or programs
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SAOP 15 - Erosion and Sediment Control Products	3–5%
Demonstrate the ability to research available technologies and recognize the appropriate applications	
Demonstrate the ability to provide educational information to promote the implementation and to improve the chances of success of the stormwater control plans or programs	

APPENDIX A

2022 CPESC Survey 1

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

- ☐ 0 - 5
- ☐ 5 - 10
- ☐ >10

2. Are you a Registered/Licensed Civil Engineer?

- ☐ Yes
- ☐ No

3. Do you hold an inspection certification?

- ☐ Yes
- ☐ No

4. What is your area of practice?

- ☐ Design
- ☐ Regulator
- ☐ Municipality
- ☐ Manufacturer / Supplier
- ☐ Inspector
- ☐ P.E.
- ☐ Other (please specify)

5. Do the municipalities and regions you work in allow Erosion and Sediment Control Plans to be prepared by a CPESC?

- ☐ Yes

- ☐ No
- ☐ Other (please specify)

6. Do the municipalities and regions you work in require a Registered/Licensed Civil Engineer to prepare Erosion and Sediment Control Plans?

- ☐ Yes
- ☐ No
- ☐ Other (please specify)

7. As a CPESC are you ever hired by a Registered/Licensed Civil Engineer to assist in preparations of erosion and sediment control plans?

- ☐ Yes
- ☐ No

8. Without additional credentials for inspections, does a CPESC certification qualify you to do inspections?

- ☐ Yes
- ☐ No

Please explain your answer.

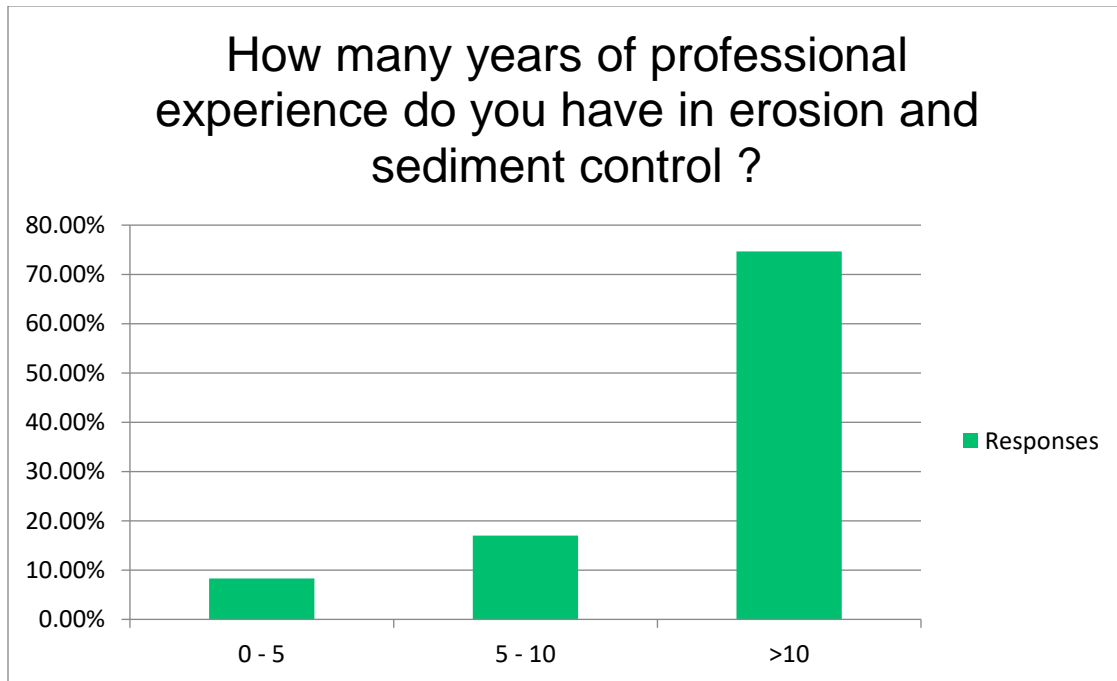
APPENDIX B

2022 CPESC Survey 1 Results

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

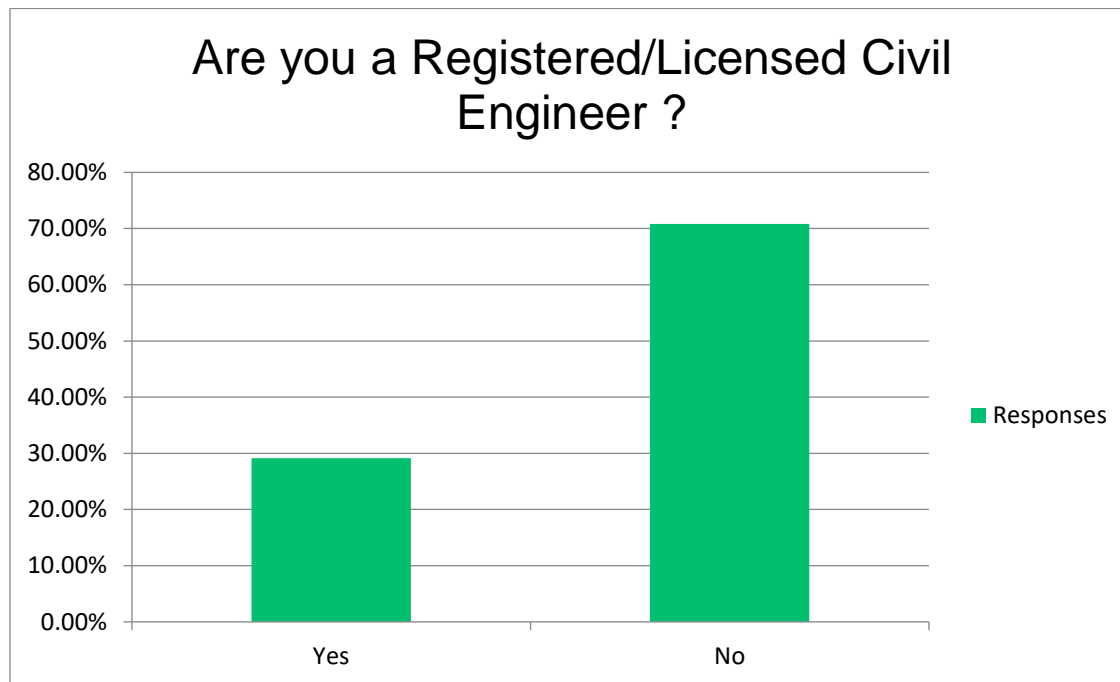
Q1 - How many years of professional experience do you have in erosion and sediment control ?

Answer Choices	Responses	
0 - 5	8.32%	43
5 - 10	17.02%	88
>10	74.66%	386
	Answered	517
	Skipped	1



Q2 - Are you a Registered/Licensed Civil Engineer ?

Answer Choices	Responses	
Yes	29.15%	151
No	70.85%	367
Answered		518
Skipped		0



Q3 - Do you hold an inspection certification?

Answer Choices

Responses

Yes	53.09%	275
No	46.91%	243
Answered		518
Skipped		0



Q4 - What is your area of practice?

Answer Choices	Responses	
Design	45.56%	236
Regulator	11.39%	59
Municipality	16.80%	87
Manufacturer / Supplier	1.93%	10
Inspector	40.35%	209
P.E.	22.39%	116
Other (please specify)	31.66%	164
	Answered	518
	Skipped	0



Other (Please Specify)

Working on design under the Registered/Licensed Professional Landscape Architects (PLAs) for public works projects.

18 yrs. Municipal S.W. Regulatory and 7 yrs. consult/design

Environmental Scientist

Construction

Site Restoration Planning and Implementation

maintenance
working with county government (water resources) and environmental consulting.
civil construction
Environmental consulting
Project Manager
Non-Traditional MS4
Construction
trainer
Program Director
Consulting
Construction Stormwater
Consultant
Director of Compliance Services
Consultant
Consulting
design contractor
Consultant
P.Eng.
In field installation advice
Regional Utility Company
transit - operations and construction
Contractor
P.E in Canada
Environmental Scientist
Providing advice within Transport for New South Wales
ESC Consultant (and former ESC Regulator)
Civil infrastructure management
State agency technical expert
Consultant to agencies and private companies
Program and Tech associate, Field Observations
Environmental Management
Project Manager
Graduate Student
state
Watershed Forester
Landscape Architect
General Construction

Site based ESC expert advice
 Soil Science and Wetland Science
 Consulting
 Contractor
 Write SWP3s
 Steep Slope Stabilization Specialist
 Consultant
 Contractor Compliance Officer
 Chairman of the Board of Directors of a four county Soil and Water Conservation District
 Environmental Manage
 Construction - Stormwater, Erosion/Sediment Control Coordinator
 Project Management
 Environmental Professional
 Builder
 Consultant
 Environmental Biologist
 Legal assistance
 Soil and Water Conservation Technician-design of Erosion Control Practices
 Professional Landscape Architect
 Regular ESC monitoring & reporting: training, advice
 Environmental Co/Erosion/Sediment you
 Construction
 Landscape Architect
 installer
 Wetland/soil science (consultant)
 Contractor in erosion control and excavation
 Consultant
 Planner
 Construction
 Consultant
 Contractor
 Consultant for Construction Contractor
 Environmental approvals and compliance
 Design, supervise installation, inspect , certify erosion control plans
 Environmental engineering and science
 Administrator
 Construction

Soil conservation
site operator
Construction
Environmental studies and permitting.
Assist with Design and Construction compliance with California CGP
Oversee design-build projects for contract and permit compliance
design as it relates to SWPPP origination
Academia
chemical engineer by training and have performed environmental engineering for 49 years.
Subject matter expert for utility construction
Contractor
Instructor
NEPA
Superintendent
Government
Consultant
Reviewer
Civil Engineering: QSD/QSP - SWPPP - LID Design/Reports
Installation
County
Environmental Impact Assessment Biologist
Project Management/Contractor
Contractor
Environmental consulting
encourage BMPs on forest harvests and inspect what is done for cost share payments
Tennessee, Level 2 EPSC
compliance
Developer
Construction
Soil Erosion, Soil Health, Water Quality, Erosion & Sediment Control
Stormwater management (quantity/quality)
DOT statewide quality assurance
Development
Geologist
Review of Erosion Control practices
earth & utility contractor
Contractor

Field Engineer
permitting
Planner
Contractor
Consultation
ESC Inspector
consultant NPDES permits
Wetland Scientist
Consultant
Environmental Compliance Director now, field inspections, reviews, and audits. Also write SOPs and processes for division.
Contractor
Takeoff and project management
Professional land manager/land reclamation/land restoration
Project Management/ environmental restoration
compliance manager for homebuilder
Consultant
Training
Consultant
County Soil and Water Conservation staff member
Compliance Management, Consultant
Private Consultant
Developer
contractor
Educator/ consultant
field project supervisor
PLS
contractor
NPDES for developer/builder
Government, Federal and State
Consultant/reviewer
environmental consultant
Project management
NPDES Permitting
Construction Manager
Solid Waste Consulting
Inspector
Engineering geology

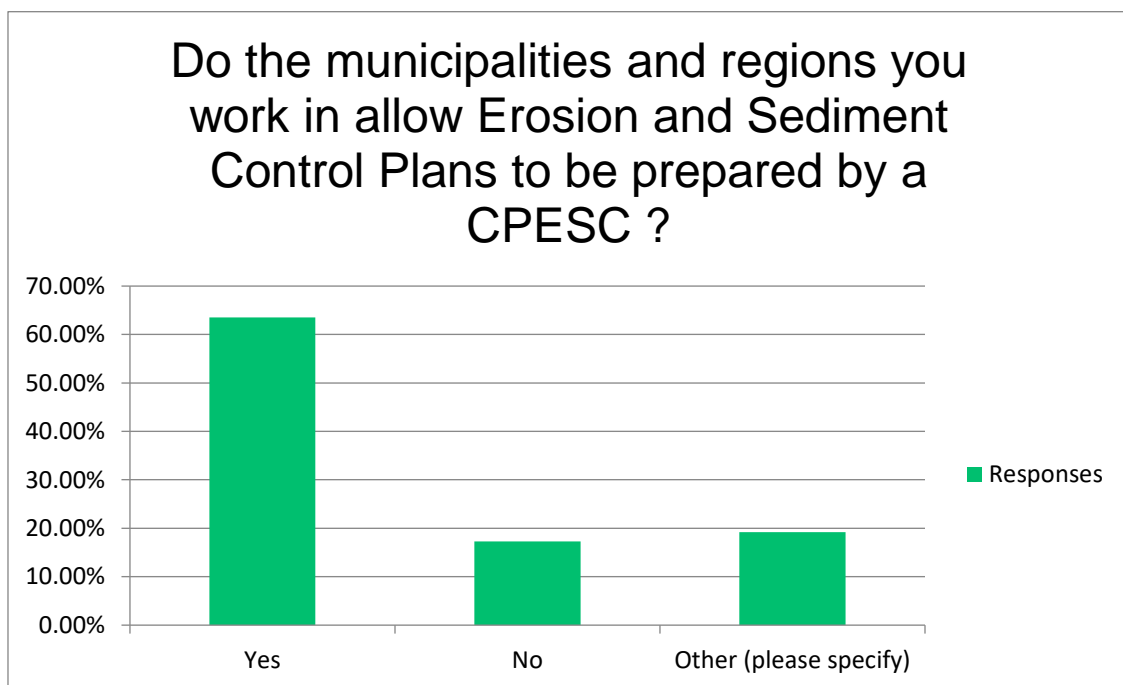
Contractor
NPDES (MS4) Permit Coordinator
Industry liaison
Contractor
Owner of Civil Engineering and Land Surveying Company
Consulting
Aviation-airport development/owner
Consultant
SWPPP narrative prep, stormwater permitting and compliance
Environmental Consulting and Engineering
Contractor and SWPP Plans

Q5 - Do the municipalities and regions you work in allow Erosion and Sediment Control Plans to be prepared by a CPESC ?

Answer Choices

Responses

Yes	63.50%	327
No	17.28%	89
Other (please specify)	19.22%	78
Answered		515
Skipped		3



Others (Please Specify)

CPESC has been working under the Registered/Licensed Professional Landscape Architects (PLAs) for public works projects.

For small sites that do not require a SWPPP (< 1 acre in size)

For individual lot development, a certified plot plan is required, but in some cases the erosion control plan can be completed separately.

CPESC (or another credential) is required in addition to state required training

Yes, if there is limited liability due to the limited size and scope of the project.

CPESC may be the underlying cert. Must have QSD

allow, yes. Require, no

Can be done by anyone who has received the in-house training, being a CPESC or not.

In many regions it is mandatory for the ESCP to be prepared and/or certified by a CPESC.

As a PE, I prepare the E&SC plans as part of the grading plans, which are required by most municipalities.

yes, with local educational class requirement

Yes, but it is not required

Varies and depends on which regulation applies. In California a CPESC can become a Qualified SWPPP Developer and prepare a SWPPP with exhibits.

INDOT requires the preparer of plans be a Professional Engineer and a CPESC

I don't think there are any requirements for ESC plans

There is no requirement for them to be CPESC to prepare the plans

Most do unless engineering calculation required.

QSD

Without a valid state PE certification, I don't believe so

yes, but a PE seal is required for many plans with structural BMPs

SESC plans are usually included in construction plan sets and those typically have to be signed and sealed by a PE but if it were strictly a SESC plan I am sure review agencies would accept a CPESC.

I believe so but most are done by the engineering firm of the developer

QSD

Generally, they are prepared by PEs

Depends on jurisdiction, but mostly require P.E.

primarily civil engineers at consulting firms

Yes, if the site doesn't have a sediment basin

The ESCP or WPCD associated with a SWPPP is allowed, but I'm not sure if they allow CPESC to do the ESCPs that some municipalities require as part of the improvement plan submittals.

It varies some specify CPESC

Yes, but they do not always require it.

GAEPD does. Not all municipalities

In California you must have a different cert. QSD Qualified Stormwater Developer

Most, but not all, allow preparation by a CPESC

Sometimes PE required

CESCL (Washington)

In California it would be a QSD which requires an underlying certification such as a CPESC or equivalent.

Yes, but has to be approved by PE

Some regions

Some municipalities

The erosion and sediment control plans are part of the larger submittal that requires a PE or architect stamp.

always stamp as a PE

DOT allows CPESC to do narrative work. Requires PE sign off/supervise on calculations, structures etc.

INDOT Level 1 Site Plans - Yes, INDOT Level 2 Site Plans - No

CPESC is predecessor for QSD here in California. QSD can generate SWPPPs.

"plans", yes...SWPPPs, no

many locations allow it, some do not.

permitted to modify/ improve when needed

Yes, but need sealed by PE

I work in the southeast region in Tennessee, Alabama, Georgia, and South Carolina. All of the states allow me to prepare plans except for SC.

Georgia: Yes, Alabama, Florida, Texas, North/South Carolina (Unknown): I have inquired with no response from State DEP Departments

Allow to be prepared? Sure, but not stamped and certified. That must be performed by a PE.

NHDOT requires a CPESC and PE stamp DOT SWPPPS/EC plans and also requires a CPESC or CESSWI to conduct inspections

Yes and no- plans requiring any calculations can't be sealed by a CPESC in NC, but simple plans with perimeter measures can be. I think farm plans can also be sealed by a CPESC in NC.

CPESC can design EC plan but must be approved by others. CPESC not recognized alone.

Most are prepared by a PE and there are some that are CPESC

most municipalities require a P.E.

Yes, but is not required

Not required...most are prepared by a non CPESC PE.

Needs to be a QSD in California. CPESC can qualify to prepare ESC Plans.

If there are engineering calculations as part of the ESC, they must be stamped by P.E. but otherwise a CPESC could.

Not all

State of California also requires QSD/QSP certification

Yes, but firms prefer to have the PEs on staff prepare and signoff E&S design

Yes, in Rhode Island.

PE stamp is required.

plans must be sealed by PE

Some do, we work all over the US

Depends on area of USA we are working

Other than California, yes

in CA you need a QSD license to prepare a SWPPP per CGP

Yes, but must be signed and sealed by a PE.

They can do a RES project but nothing that would need a PE stamp for a commercial/nonresidential

Structural Controls are required to be designed by a PE

Yes, with the exception of plans with structural BMPs such as sediment basins

Require both a PE and CPESC

The municipalities and regions don't require you to have a CPESC, but it looks better when you are going after jobs to have one on staff.

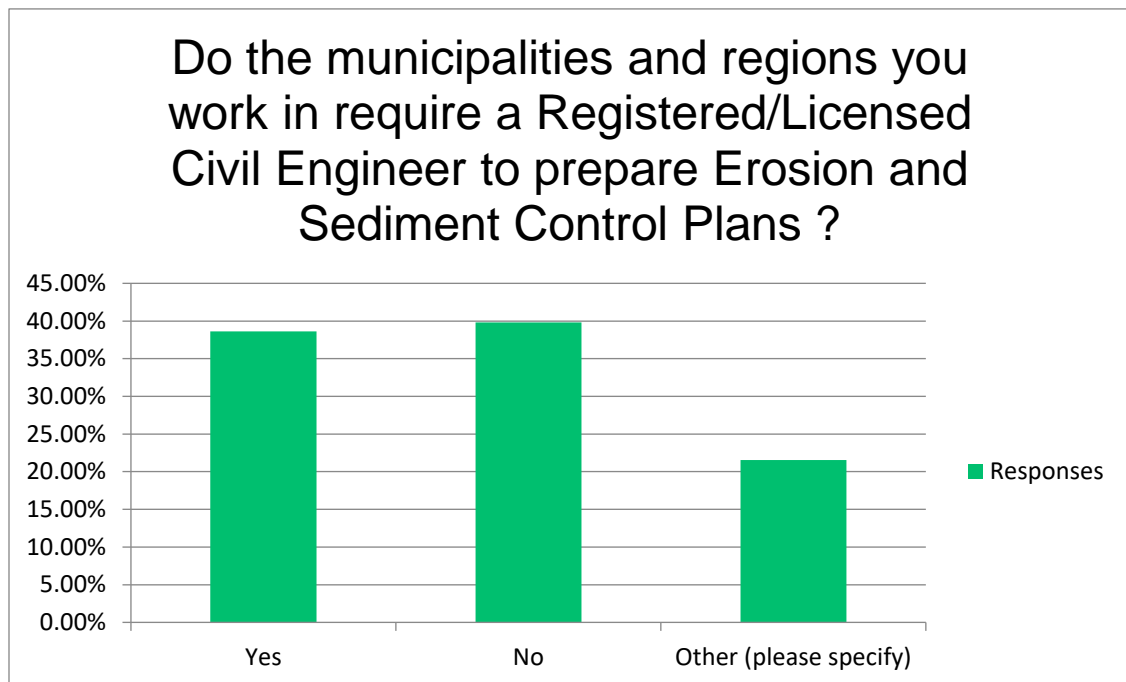
Any disturbances less than one acre may be stamped by CPESC

Some do, some don't

1.

Q6 - Do the municipalities and regions you work in require a Registered/Licensed Civil Engineer to prepare Erosion and Sediment Control Plans ?

Answer Choices	Responses	
Yes	38.64%	199
No	39.81%	205
Other (please specify)	21.55%	82
	Answered	515
	Skipped	3



Others (Please Specify)

For public works projects, the State Law requires Erosion & Sediment Control Plans as a part of the Registered/Licensed Professional Landscape Architects (PLAs) disciplines.

San Antonio, Tx -P.E. or CPESC stamped SWPPP

Yes, sometimes it is specified in project conditions
requirements vary based on project type, region, etc.

depends on size of lot. CPESC for over 1Ha

some elements (i.e., large basins to be signed off by RPEQ)

No. Unless there is hydraulic routing involved in the design, then a PE is required.

Parts of SWPPP that are engineering BMPs

Specify design by PE or CPESC

Options include Either a standalone CPESC accreditation or a PE with a few years of ESC planning experience (but ideally with CPESC accreditation)

A CPESC or someone with a Level 2 State certification can prepare the narrative and design. For any measure requiring hydraulic/hydrologic analyses, a registered/licensed engineers is required.

Either CPESC or Licensed Engineer

P.E. would need a QSD

No required. But PE's usually do them.

Some regulatory authorities require sites defined as 'high risk' to have certain hydraulic calculations certified by a registered civil engineer, however the CPESC signs off on the overall ESCP. In 'medium risk' scenarios the CPESC certification is accepted on its own.

Occasionally. Typically depends on scale of work and/or contractual requirements

Varies and depends on which regulation applies. In California a CPESC can become a Qualified SWPPP Developer and prepare a SWPPP with exhibits.

INDOT requires the preparer of plans be a Professional Engineer and a CPESC

The plans need to be reviewed/stamped by a PE but no requirements for designed

Sometimes, but not most

either CPESC or PE

Engineer Seal required for engineering calculations

Under review of an Engineer

sometimes, especially when structural BMPs for safety reasons

Surveyors, Landscape Architects, CEs, and those with state certifications

SESC plans are usually included in construction plan sets and those typically have to be signed and sealed by a PE but if it were strictly a SESC plan I am sure review agencies would accept a CPESC.

for industrial yes; construction, no

CPESC is allowed but as an exception

CPESC, PE, or LA

Both yes and no

State Department of Transportation only

For Low/Medium Risk sites they do

Landscape Architects also

They can also design plans

Yes, if the site has a sediment basin

ESCP submitted along with the engineer's plan set are usually stamped by a PE

they are required to sign off certain aspects like spill ways, fill embankments greater than 2m, etc.

Only for structures (i.e., basins etc.)

For Indiana's DOT, it depends on the complexity and potential for environmental impact of the project. Riskier projects require a PE and CPESC

Some do, others don't

can be a P.E. or CPESC

Occasionally, but not the regular practice. Typically, it is following the CGP in CA.

Some regions

Sometimes, depends on the size of the project

Yes. However, the PE usually relies heavily on the CPESC for EPSC plans preparation.

CPESC or a Civil Engineer

INDOT Level 1 Site Plans - Yes, INDOT Level 2 Site Plans - No

Varies

Not in forest management

Yes, if hydrology and hydraulic calculations are required

Only of Engineering is required!

SWPPP are usually included with my PE design documents

Some agencies do, majority allow CPESC/QSD to develop.

"plans", yes...SWPPPs, no

Some do, some do not.

Plans can be prepared by EITs

Erosion and Sediment Control Plans are prepared by licensed landscape architects

permitted to modify/ improve when needed

depends on the municipality

Only SC in the region I work in requires a PE to prepare plans, the others just state that main structural controls (sediment basins) have to be certified by a PE.

Georgia: Yes, Alabama, Florida, Texas, North/South Carolina (Unknown)

either designation is allowed

Varies by municipality. Some require PE, others allow other professionals with CPESC.

PE/Registered surveyor/Licensed landscape architect/some CPESC- it is dependent on the complexity of the plan

they can be prepared by others but must be reviewed & sealed by PE

Some municipalities do

If there are engineering calculations as part of the ESC, they must be stamped by P.E. but otherwise a CPESC could.

Not all

CPESC or P.E. with experience in ESC

Yes, in Massachusetts

Most of them do but some allow CPESC

Depends on area of USA we are working

Yes and No. They require a PE stamp on some plans but not others.

Structural Controls are required to be designed by a PE

No, but must be signed and sealed by a PE.

PE or CPESC

Only if there are structural BMPs such as sediment basins

The engineers need to stamp them

Require both a PE and CPESC

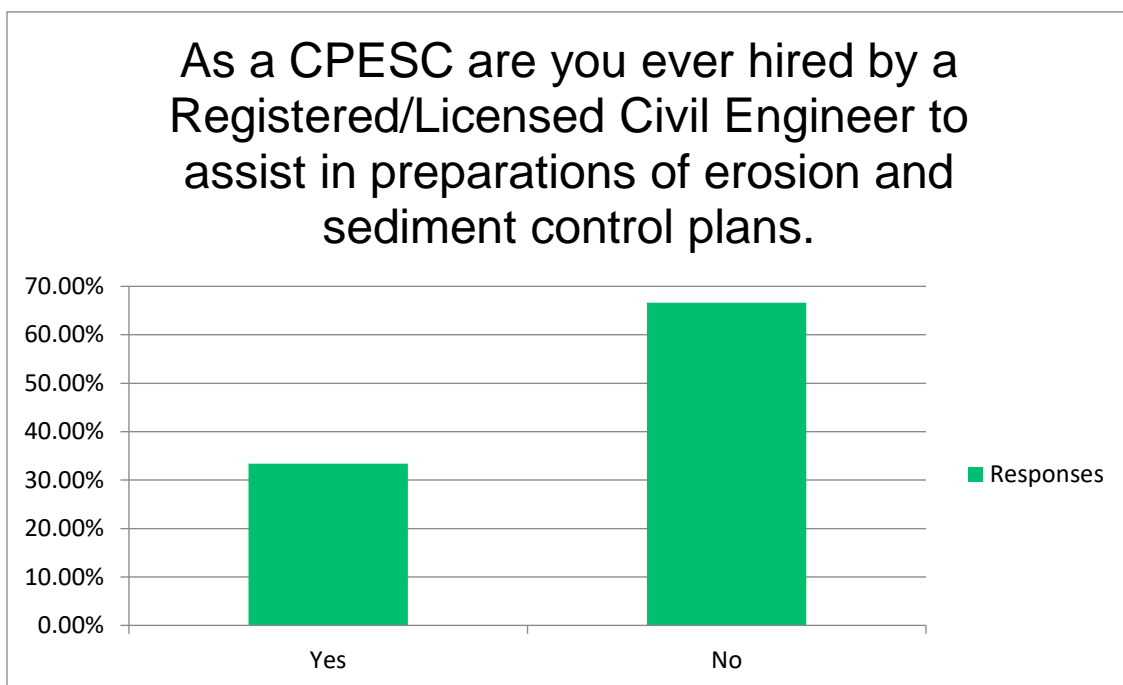
Depends on client, but often not a requirement. ESC Plans sometimes not even required.

Some - in relation to detention facilities specifically

The municipalities and regions don't require you to have a registered/licensed civil engineer to prepare the plans, but one has to sign and seal the plans after review.

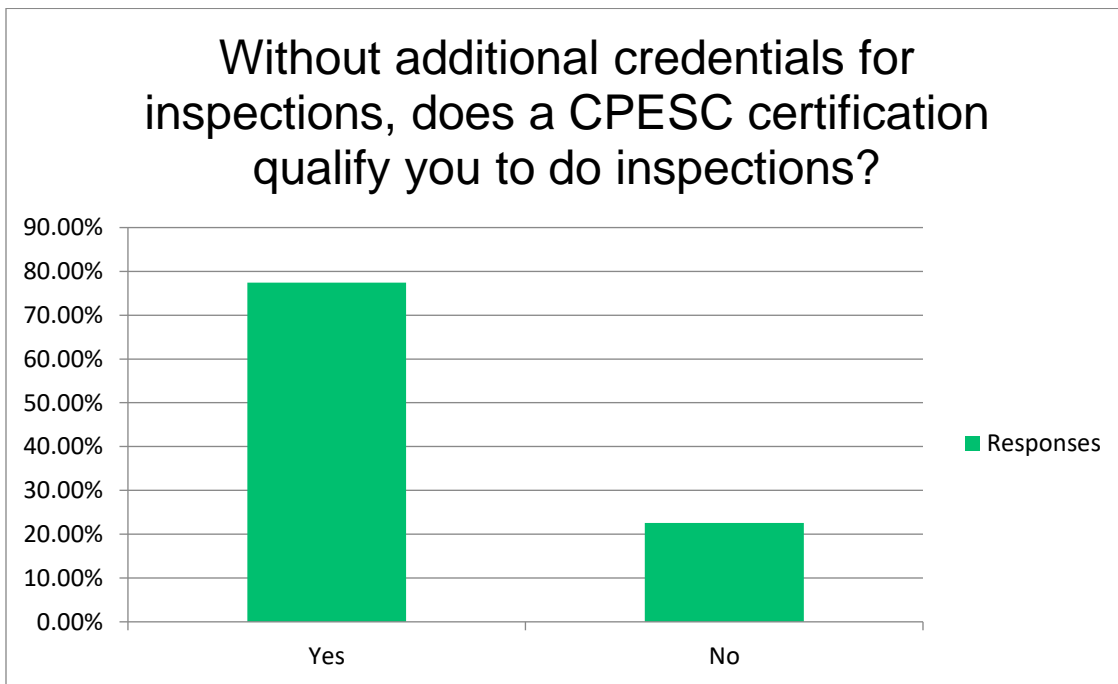
Q7 - As a CPESC are you ever hired by a Registered/Licensed Civil Engineer to assist in preparations of erosion and sediment control plans.

Answer Choices	Responses	
Yes	33.40%	172
No	66.60%	343
	Answered	515
	Skipped	3



Q8 - Without additional credentials for inspections, does a CPESC certification qualify you to do inspections?

Answer Choices	Responses	
Yes	77.43%	391
No	22.57%	114
Please explain your answer.		188
	Answered	505
	Skipped	13



Please Explain Your Answer

In CA CPESC is considered a higher level of certification which also encompasses inspection knowledge.

The CPESC with long design experience should be able to.

CPESC in Central TX has higher credential than Inspector

Yes, I am able to review on site erosion and sediment controls and amend if needed.

Only for those sites that do not require a SWPPP which requires a QSP

The state of Oregon requires erosion and sediment control monitoring to be conducted by persons certified in an approved ESC approved program, which includes the CPESC certification.

The regional regulators recognize my certification and experience as sufficient qualifications to do inspections.

I also have CESSWI.

CPESC required for some ESC inspections on Govt. jobs (AU)

This varies from county to county, but this designation is widely recognized and is the accepted standard for qualified professionals that complete ESC inspections. In British Columbia a CESCL is qualified for inspections as well.

you need to understand how an inspections work, what are the project's requirements, what to look for when inspecting BMPs, how to coordinate and communicate the recommendations, etc.

In Canada, inspector certification is not required for inspections

We have a statewide inspector certification that most use not CPESC

GA requires a state certification

GA requires a GSWCC Level 2 certification for insp.

Inspection skills are not part of the scope of practice for CPESC.

In Ohio it allows me to perform weekly and monthly site inspections.

In California, CPESC is an underlying certification to obtain both the combination Qualified SWPPP developer and practitioner.

in GA I need a state level training.

Some municipalities in my area (northeast Ohio) require CPESC and do not allow CESSWI certified folks to complete inspections. However, we are seeing more each year allow CESSWI or CPESC.

Yes, CPESC would consider acceptable for municipal ESC compliance inspections.

In some instances, yes. INDOT however has their own specific certification process

CPESC (or another credential) is required in addition to state required training

As a CPESC, required to know the design, performance, and reporting requirements for ESC

The Tennessee Construction General Permit states that a CPESC can perform inspections, the narrative portion of SWPPP's, and Site Assessments

CPESC is good for design or inspections while inspector certification does not necessarily qualify you for design

We can inspect all facilities except for permanent volume BMP's

I can inspect as a QSP-designee but should get the QSP to do inspections.

The State of Maine has their own certification program, however; they recognize CPESC's as adequately trained.

PE rules

I am able to perform quality insurance inspections and assist with SWPPP reviews as part of my job.

Transport for NSW allows CPESC to carry out site inspections without any additional training.

the ESC inspection 'skill set' required to competently and professionally inspect construction-phase ESC is not rocket science or much different to other forms of compliance work. ~~If someone is competent enough to become a CPESC then they should be capable of inspecting and assessing ESC compliance against relevant standards without any additional certification or specific training.~~

Not required for role.

As a requirement of CPESC certification, a CPEAC must know not only where to locate practices but also how to select the proper practice, how they are meant to function, how to maintain them, and why they fail if they fail. If a CPESC knows these concepts, the individual is qualified to inspect them.

Anybody can inspect, the CPESC is not required

In California a CPESC can become a Qualified SWPPP Practitioner and conduct inspections

CPESC Certification is design specific

The specific Tennessee class is required for inspections.

Some states require a CPESC or other cert. for inspections

CPESC certification is above and beyond what is required for timber harvest inspections.

Depends on the agency

Councils will employ those who have sufficient experience to undertake inspections, they don't have to be CPESC

In California an inspector needs to be a QSP or be "supervised" by one.

my CPESC certification allows me to do inspections but I have kept my CESSWI certification because some companies may be looking for CESSWI due to local requirements that don't list CPESC as an option.

Some require CESSWI, but others don't

In most circumstances, the answer is "Yes". However, there are some areas and clients that require additional certifications

CPESC is the ultimate Certified Professional for performing inspections.

The CPESC provides underlying certification criteria for the Qualified SWPPP Developer / Practitioner (QSD/QSP) in the State of California.

some. NHDES allows CPESC to do environmental monitoring during construction for NH DES Alteration of Terrain Permits.

The CPESC gives an inspector a good, basic foundation for performing inspections.

there are no real requirements to be an inspector in PA

currently not in Virginia, state cert only

Colorado has state training requirements for performing inspections. A CPESC may write a SWMP.

CPESCs are classified as Qualified Credentialed Professionals

My P.E. Takes precedent over CPESC.

It does in my mind.

Georgia requires a GSWCC certification

I am able to prepare SWPPPs and associated Construction Duration Inspection reporting without the sign off of others due to my CPESC certification.

The inspector must be registered as a QSP in Calif.

In eastern Australian states, CPESC qualification is all that is required to conduct inspections.

Inspect areas we work

CPESC only seems to be known by other environmental specialists and not wider industries in NZ

Regulatory agency (DEQ) lists CPESC as qualified

In certain municipalities, a CPESC or PE can inspect

Here in province of Quebec CPESC is not well known but a lot of people know me as somebody with experience in erosion and sediment control

It is assumed that if you are a CPESC you have the qualifications to do all erosion control functions including design and inspection.

not in Michigan or several other states

Requires a certified environmental officer with a CESSWI or CISEC

In California, one must be a QSP, or you can work under a QSP if trained by a QSP.

not under new EPA Construction General Permit

Must be QSD/QSP

California requires an additional QSD cert.

Requirements for inspection of ESC measures on my project only specify that the inspector needs ESC training.

CPESC is seen as the appropriate qualification

Occasionally engineering qualifications are required (RPEQ in Qld Australia)

The QSP is required

Need a GA inspection certification.

In the State of California, you need to work under a QSD.

If you are qualified to design, you should be qualified to inspect

The CPESC certification is one of the highly distinguished certs for inspectors

We understand the intended purpose of BMPs and are well qualified to identify and help address issues

Our state CGP recognizes this certification to perform inspections and write SWPPP's

most entities follow KDHE/EPA general permitting/regulations including design and inspections

CPESC is not required in Ohio.

Both Iowa and Illinois do not define who is and who is not qualified for inspections. They only state the person must be qualified.

Yes, because it was an underlying requirement to obtain the QSP/QSD.

Staff also must obtain certifications from VA DEQ

Most places require CESSWI or CIESC

Depends on what type of inspection it is.

If a certified inspector is not available, then the certified designer of the E&SC plan can do the inspections.

I believe that it would qualify me to prepare and review plans and inspect sites using the plans vs site conditions.

The City I work for requires some form of inspector certification

While you have to understand the inspection for CPESC, most wouldn't consider it adequate for certifying inspections

state has no requirements

If one can design one can inspect

Need QSD/QSP to perform inspections

Regulations and municipal ordinances say so

I work for conservation district, so we issue and inspect sites for Chapter 102 NPDES permit compliance.

Accreditation is desired but not required to inspect in most regions of Canada, with exceptions where CISEC or other certs have been promoted.

INDOT requires an INDOT Level 2 status (CPESC, CESSWI...)

Based upon court decisions in California inspectors should have PC 832 certification and be a QSD or QSP

I thought that was part of being a CPESC; to be able to complete inspections.

In Oregon a CPESC is list as a qualified inspector.

Indiana Dept of Transportation requires CPESC for road improvement projects.

Sometimes additional certifications are required

Permit requires "trained" individuals.

I believe additional training should be required to perform site inspections. CPESC cert falls a little short for that.

Other certifications are more aligned with inspection. CPESC is more in line with BMP selection and site planning.

My situation does not require additional certifications for inspections. Experience and CPESC certification provide a sufficient background and knowledge to perform the necessary inspections for the DOT.

Wisconsin has a WISECI certification, however it is much simpler to obtain than the CPESC. Many at DNR are aware of this as being an "overqualification".

Jobsites (some) we work on allow us to perform inspection

on the job experience prepared me to conduct inspections

For the state of Alaska, both the ADEC and DOT accept a CPESC certification to fill all roles.

State trains and licenses Storm Water Operators

In NY, CPESC, PE, LSA and Soil Scientist are qualified inspectors. People with a 4-hour NYSDEC approved training class can perform inspections under the supervision of one of those credentialed titles.

If I can prepare a plan (design) that's approved I'm the best to inspect the work

CPESC addresses a NC Dept of Transportation certification to perform NPDES inspections on DOT projects

CA requires a QSD/P certification.

Some states allow it

State of AL recognizes CPESC

It allows to do inspections in all municipalities I have encountered

Only SC in the region I work in requires me to have an additional certification to conduct inspections.

The certification alone no. Require State Certification for all states currently working: Alabama, Florida, Georgia, North/South Carolina, Texas

In Maryland you must have your MDE Responsible Personnel Card

I have many years' experiences in civil engineering inspections and for the past 10 years my CPESC has allowed me to do both

I understand the intent of the design and proper installation and function of the prescribed measures, therefore am capable of doing inspections to confirm status and effectiveness.

the exam was comprehensive and covered all required components of inspections, with the additional content that helps with greater understanding of the planning and design of projects.

I am both a CPESC and a PE

NYSDEC allows CPESC to both prepare ESC plans and then do inspections per GP-20

If one has the ability to design a SWP3, then they should have the ability to inspect a site.

If you can design a plan, you can inspect it.

Calif approves a CPESC to become an approved QSP.

If you know enough to pass the CPESC you should know enough to inspect a site.

Most states where training is required, the CPESC cert typically meets the minimum requirements

Based on my field experience and knowledge of stormwater, I believe the CPESC Certification is applicable.

In NH, currently they want a CPESC vs and NPDES certification; however, that will change.

I do not do inspections but do site assessments & technical assistance/project management

No specific requirements for what a qualified professional is in Louisiana.

Minnesota has its own certification for inspectors and SWPPP designers

SWPPP inspections yes

CPESC can be used as an underlying cert for the QSP, which is needed to do inspections.

Basic Inspection practices must be adhered to! NICET

Not where QSP is required

From Texas CGP: Personnel conducting these inspections must be knowledgeable of this general permit, the construction activities at the site, and the SWP3 for the site.

Required by certain clients and municipalities

Need to meet training requirements

APDES Permit expressly allows CPESC, CPSWQ or CISEC to perform inspections

There are some requirements in my area that the inspector must be qualified.

Montana requires a "SWPPP Administrator" cert

License is required (PE, PLS, LA, Architect) to seal plan sets for submittal in NC. CPESC is not required for inspections at the State level, but many local municipalities require it or something similar.

State of California also requires QSD/QSP certification

I am assigned inspection duties as part of our government group processes.

I would consider this certification to meet the EPA requirements of a qualified inspector.

PA allows for design and inspection by an individual trained in E&S. Permits however do require a PE seal, so I can prepare the designs and documents, but final seal does need to be a PE for permitting.

In Ohio Erosion and Sediment control inspections can be conducted by "qualified personnel" according to the Ohio EPA CGP. The CGP does not give a subject definition for this term and in practice it is interpreted loosely.

CPESC are Qualified Inspectors in New York

In SC CEPSCI is required.

Alaska stormwater regulations allow CPESC to perform inspections.

state and local guidelines specify licensed PE

Depending on where you're working in NC, you also need NCDOT E&SC certification(s)

In most areas. Still need various credentials for various areas

I just find that having the CESSWI or CISCEC Certificates really helps CPESCs have an advantage with hands-on understanding of best practices for each type of BMP.

yes I can inspect for compliance with the SWPPP

In the NYSDEC SPDES General Construction Permit, a CPESC is designated as a "Qualified Professional" as is a P.E. and a RLA

I have both so I am not sure because I have never relied only on the CPESC for inspections

California requires their certs along with others.

CPESC allows inspections without state training

The state of Arkansas does not require certification for conducting storm water and/or erosion & sediment control inspections.

Some municipalities require CPESC or other certification to complete their inspection and/or plan review approvals.

CPESC is regarded as a Qualified Credentialed Professional in my area and does not require additional credentials

With CPESC Certification and years of practice and experience I am allowed to do inspection work.

In Maryland you must have one of the local certifications to qualify for inspection services.

In Canada, inspectors are sometimes CISEC inspectors. Most of the time the inspector is not certified, however, a CPESC signs off on design. I don't think a CPESC needs to sign off on inspections

CPESC is considered a Qualified Credentialed Professional and meets all the necessary requirements and is actually a step above the basic inspector certification.

Live in Canada (BC), so there are generally no regulated requirements, it is normally up to client.

Alabama allows Professional Geologists, Soil Scientists, CPESCs to do inspections.

Within the jurisdictions that I work, CPESC is considered appropriate certification to conduct inspections.

Washington and Oregon require a Certified Erosion Control Lead certification.

Municipal bylaws identify CPESC as a candidate for esc supervisor roles which includes inspection/monitoring scope

CPESC or Inspection credentials are not required by any municipality I work in. They require a registered engineer.

Typically, yes, but not always as some counties in IL require separate certification.

I am able to do inspections on behalf of the airport

CPESC allows me to provide input during design, oversee design, implementation of the plans, and coordinate inspection.

Need to be a QSP

In CA CPESC is the underlying certificate for the QSP

CA requires an underlying certificate. You will also need a QSP certificate in CA to conduct inspections.

CPESCs are not tested on inspections when they earn the certification and need to work with a qualified inspector if they do not have an inspection certification

APPENDIX C

2022 CPESC Survey 2

1. *How many years of professional experience do you have as a CPESC?*

- ☐ 1 - 5
- ☐ 5 - 10
- ☐ Greater than 10

2. *What is your primary area of expertise and practice?*

- ☐ Design
- ☐ Regulatory
- ☐ Municipal
- ☐ Manufacturer
- ☐ Academic
- ☐ Building / Development
- ☐ Supplier
- ☐ Legal / Planning
- ☐ Inspector or Related

3. Do you believe that inspection activities require specialized training or additional certifications?

☐ Yes

☐ No

Comments

4. Do you believe that a CPESC has the necessary skillset to observe/inspect/advise installation of BMP's installed on a construction site?

☐ Yes

☐ No

Comments

5. Do you believe that a CPESC has the necessary skillset to observe/inspect/advise in regard to the field performance of BMP's installed on a construction site?

☐ Yes

☐ No

Comments

6. Do you believe that a CPESC has the necessary skillset to observe/inspect/advise on the maintenance of BMP's installed at a construction site?

☐ Yes

☐ No

Comments

7. As a CPESC have you provided design measures and services for any of the following:

- ☐ Post-Construction/LID/GI
- ☐ Wetland design
- ☐ Industrial
- ☐ Municipal
- ☐ Oil and Gas
- ☐ Mining and Land Reclamation
- ☐ Active and Passive Treatments
- ☐ Dewatering Ponds
- ☐ Temporary or Permanent Ponds (any types are applicable where water impoundment is greater than 3 feet)

8. As a CPESC have you provided field inspection and/or conformance observations for any of the following:

- ☐ Post-Construction/LID/GI
- ☐ Wetland design
- ☐ Industrial
- ☐ Municipal
- ☐ Oil and Gas
- ☐ Mining and Land Reclamation
- ☐ Active and Passive Treatments
- ☐ Dewatering Ponds
- ☐ Temporary or Permanent Ponds (any types are applicable where water impoundment is greater than 3 feet)

9. Do you believe that a CPESC has the necessary skillset to qualitatively and quantitatively determine water quality of discharge from a construction site?

☐ Yes

☐ No

Comments

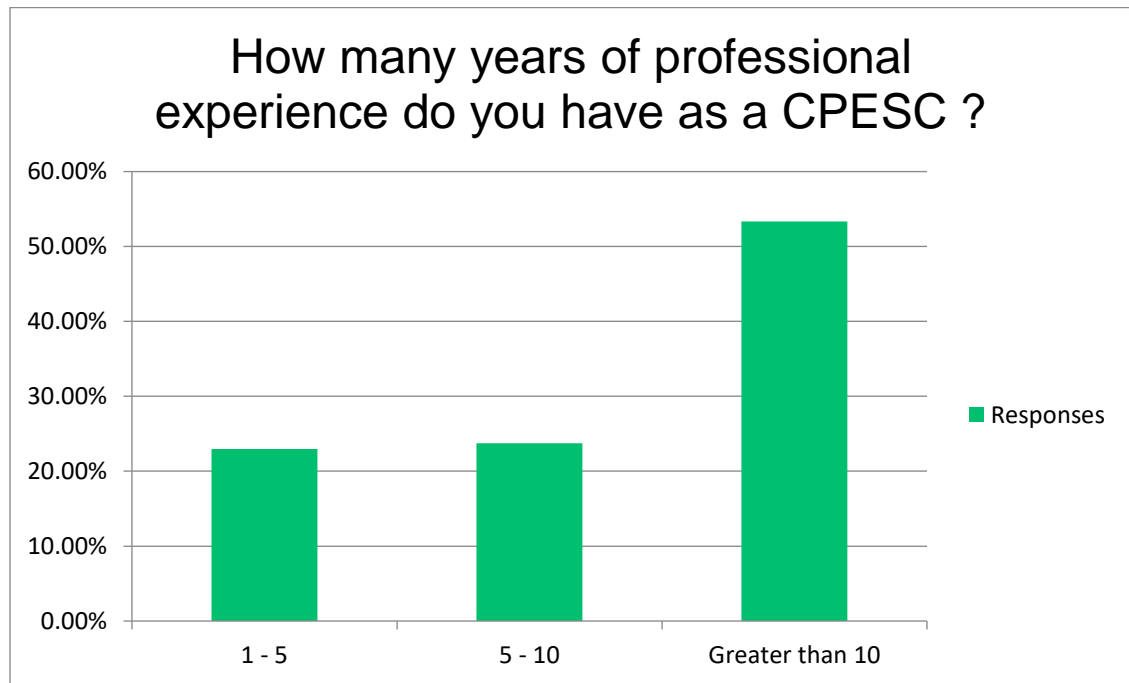
APPENDIX D

2022 CPESC Survey 2 Results

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

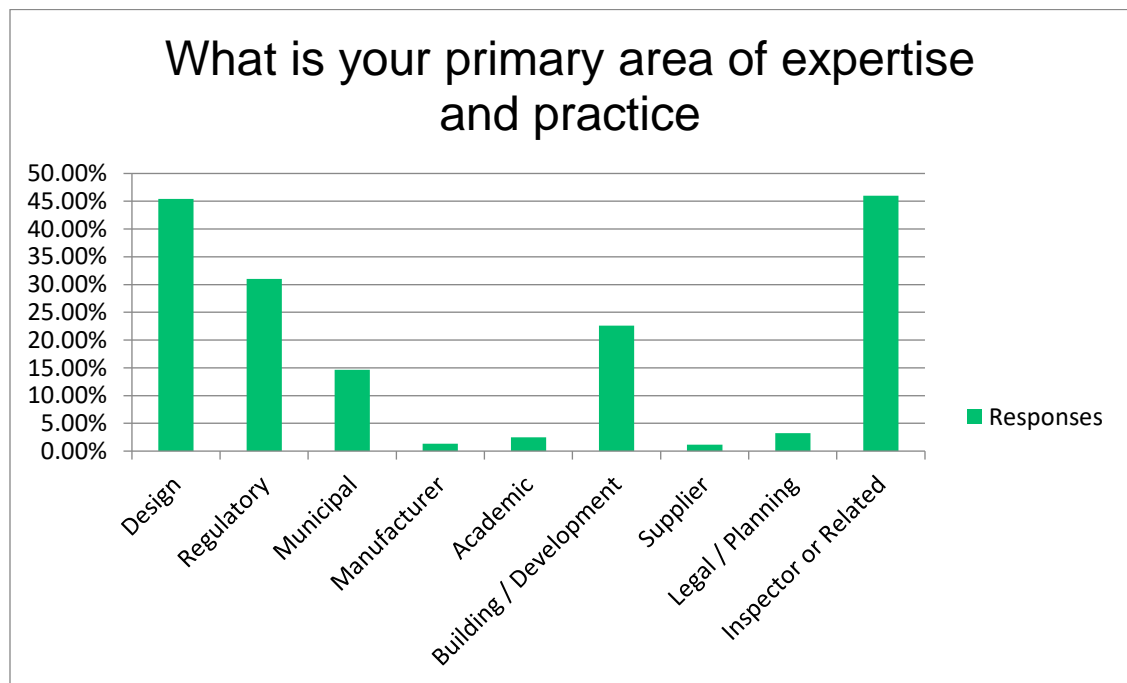
Q1 - How many years of professional experience do you have as a CPESC ?

Answer Choices	Responses	
1 - 5	22.96%	121
5 - 10	23.72%	125
Greater than 10	53.32%	281
	Answered	527
	Skipped	0



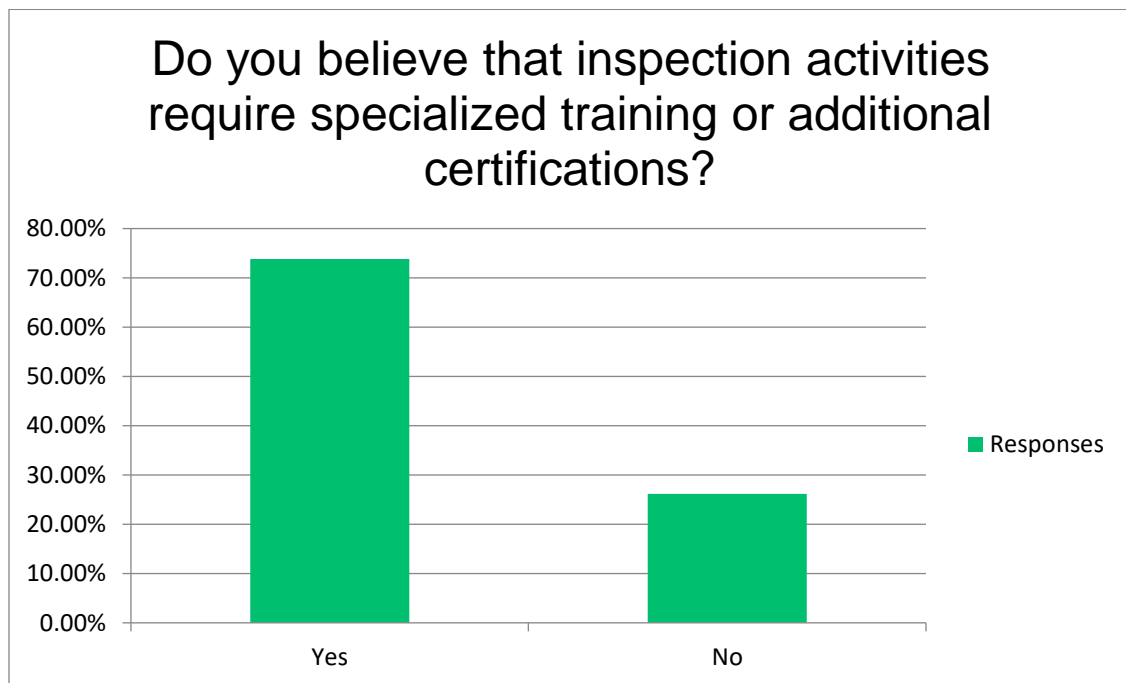
Q2 - What is your primary area of expertise and practice

Answer Choices	Responses	
Design	45.44%	239
Regulatory	30.99%	163
Municipal	14.64%	77
Manufacturer	1.33%	7
Academic	2.47%	13
Building / Development	22.62%	119
Supplier	1.14%	6
Legal / Planning	3.23%	17
Inspector or Related	46.01%	242
Answered		526
Skipped		



Q3 - Do you believe that inspection activities require specialized training or additional certifications?

Answer Choices	Responses	
Yes	73.81%	389
No	26.19%	138
Comments		113
	Answered	527
	Skipped	0



Comments

CPESC or insp. cert adequate along with Continuing Ed.

Inspection is related to construction and how it meets design and regulatory standards.

Specialized training would be useful to see actual examples in the field. Experience in seeing real world application of what is on the plans. Probably additional certification not necessary.

too many "practitioners" believe that only common sense is needed. Granted common sense is a stepping off point, but due to the "litigious" society that we live in, training needs to be specialized and continuous.

A CPESC holder has obtained multiple years in field experience. By this point should have seen and had training on bmp installation.

Experience is enough

If the installations being inspected fall within the area of practice for the inspecting CPESC then that is reasonable.

not for a CPECS

Inspectors need to understand how to properly evaluate and document conditions. They also should understand there are multiple inspection perspectives, including regulatory compliance inspections and inspections to assess performance and maintenance needs.

But not much - a simple amount of training is usually enough to get people to look for the important regulatory items

At least training

yes, benefits from specialized training.

Ensuring compliance is a special skill. Not just know what BMPs are required but mainly how to ensure contractors comply (lowest bidder). In the lowest bidder scenario, this is highly governed by the financial aspect.

relevant Soil Water Conservation Certifications

specialized training or solid on the job experience

But you need experience both on the installation of controls and what control is best suited to the various situations. It is not all theory.

Municipal requirements are ever changing and evolving

it depends on the infrastructure being used, but I believe a good inspector is one that come with relatable field experience, and is not something that can just be learned from a book

Additional certification no, but inspection related training is a must

Not an additional certification, but specialized training is required.

additional inspection training similar to CESSWI would be beneficial

To a certain degree, yes. However, a lot of training/learning happens as you complete multiple inspections.

There are some unwritten rules that apply to spot inspections. There are safety rules for working on construction sites that a CPESC should be aware of.

You need to understand what is required and why from erosion and sediment control to understand if the correct approaches have been used on a particular site.

I don't believe additional certifications are required. I am very comfortable inspecting sites to ensure compliance with designs

Generally , no. However, there may be specific areas that would need specific training.

CPESC accreditation and experience are adequate. Experience is more important than a certificate.

The existing training could benefit from device specific discussions around design and performance specialized trainings.

CESSWI does a better job. Inspection should be covered in more detail for CPESC.

Specialized training may be required for some inspections

While I believe that they need specialized training I do not believe they need additional certifications

Both regulatory knowledge and field practical training is needed

training on how to take field samples would be helpful

QSP certificate in California

Specialized Training

Specialized training with an experienced mentor

maybe not additional certifications, but a separate certification

I think an inspector should be trained, but I don't think a certification is necessary in most cases.

I don't think any additional certification should be required per se but training for sure.

Construction experience or knowledge is essential.

There are different items to be aware of in EPSC design versus construction EPSC inspections. EPSC inspections include frequency, SWPPP field modifications, rainfall monitoring, reporting, documentation, communication channels, etc. You can be the best EPSC designer as a CPESC however, that doesn't mean you know how to inspect BMPs.

Some CPESC's with no construction experience have a hard time with risk.

At a minimum, inspectors should have training on the permits and hands on training for installs/inspections.

This answer, and the next several, come with an implied prefix of "Generally speaking", since individuals, experience, and requirements differ.

No extra training or certification if CPESC is held. Require field experience for a portion of the 7-year experience to apply for CPESC if you feel this is an issue.

Specialized training, which you generally obtain as part of the experience prior to obtaining your cert, but no additional certs should be necessary.

Certifications are useful in identifying or confirming whether the applicant truly has the required knowledge and/or experience to perform the job.

I 100% believe that a truly qualified inspector should be certified and/or licensed, with either certifications that increase in technical difficulty as experience increases (consider the building inspection certification process, or the progression from CESSWI to CPESC) or hold one 'top level' certification (such as CPESC).

If the person doing the inspection is not a CPESC, an understanding of the purposes of the BMPs and the specification requirements is critical.

A lot of the regulations as it relates to NPDES are easily misunderstood; even the regulators make mistakes w/ over and under-regulating.

training yes. no on additional certifications

Each State requires different inspection requirements. Always read the State General Construction Permit to assure that you answer all questions required of that permit.

People need to be trained at a minimum. The certification ensures that the inspector is continuing their education

Specialized training, yes. Additional certification, no.

Most locals and state projects require certifications by some agency. I am in favor of a certification requirement for SWP3 inspectors.

CPESC doesn't test for nor list inspection as scope of practice.

I think this is potentially a yes if, depending on the nature of the inspection. I would think a minimum number of years of experience would also be sufficient in many instances

I believe specialized training in erosion and sediment control for your geographic area is important.

If one is qualified and certified for design, they should understand how that is applied in the field. In fact, understanding field application of their knowledge makes them a better designer.

Not necessary but training is helpful

I think not a formal certification but a level of understanding and knowledge behind what is being inspected and looked at - yes. Experience is more important than any training.

Construction experience is necessary in my area

knowledge of soil science and regulations is important

Every State is different... some have adequate requirements, some don't.

You really need a good understanding of how things look in the field vs on paper

Requires training, yes, but I am not sure what is meant by specialized training.

Just training

Unless there are very stringent regulatory requirements that prompt for specialized training or additional certifications.

They are good for keeping up with local code changes

Or an additional competency level. Inspectors SHOULD be more qualified than those prescribing.

You need to have experienced boots on the ground for sure in order to understand it

In British Columbia the university and college programs do not have mandatory courses on erosion and sediment control or inspection of BMPs. If I graduated university and did not complete the BC-CESCL and the CPESC I would feel completely satisfied that I know enough to audit ESC works. Some of the education is there but not quite there. Plus, it means you have a professionally trained person who is trained specifically for that task.

Not if a CPESC, if not, then yes

To me the CPESC is geared towards the design of SWPPPs. Inspections need to be performed by someone with a vaster understanding of how BMPs need to be installed according to guy in the field. Inspectors just have more of an understanding what will work in the real world rather than what just is supposed to be there because of what a designer put there without even visiting the site in most cases.

A CPESC should not need additional training to inspect. They should already know how each of the practices is supposed to be installed and perform. If they don't, they should not be practicing.

It depends on initial training

Inspection, as in all skills, has a spectrum of abilities, special skills, as well as thoroughness. Some minimum level of competence is required, but I do not think specialization is.

CPESC training provides the necessary expertise. Business mind and insurance coverages provide the rest for an inspector.

This should be part of CPESC training. I see little value in CESSWI except as a steppingstone to CPESC. We encourage our young folks along that path.SSWI

Specialized training, yes; in California, additional certification is required

Inspection is related to the installation of the BMP and not the design of the BMP.

Training for recognition, regulations, and reporting

In comparing other inspection professionals without the CPESC training, it is very clear that CPESC training benefits both the inspector and the project.

I believe layperson can be given an overview of general expectation/ performance but at the end of inspection report. " Did you find anything unusual? contact John Smith @ ===== CPESC"

CPESCs who are PEs tend to have less knowledge, experience, and field savvy.

Training - yes; Certifications - no

But it depends on the nature of inspections if strictly for compliance probably not, if you specify corrective action, adequacy of BMPs prior to storm events perhaps yes.

CPESCs do not require additional certification in order to perform inspections. Please do not change the structure of the CPESC certification or divide it to create yet another inspection certificate.

A CPESC knows the full standards and requirements for EC/SC design and implementation, as well as stormwater quality and SWPPP requirements'

Or at least some construction field experience

QSD for CA

Without the training many don't know why, when, where, or how

Specialized training yes. Additional certification not necessarily.

It takes time to fully understand many separate nuances.

Specialized training is required in most jurisdictions. More certification is only in some and it is jurisdiction specific.

Inspectors for the contractors need to have solutions to problems.

That was what CPESC provided, years ago.

Training

Degrees and other Professional Registrations should only serve as “foundations”

Training is essential but a certification while beneficial doesn't seem necessary

Absolutely- we have record of numerous DOT projects have less regulatory issues with a CPESC professional

absolutely, it makes 100% difference in quality of inspection and ensuring corrections are made

Hands-on field experience is critical. Classroom instruction is good but not enough to be qualified.

Definitely experience and guidance to learn!

If you have a CPESC certification and know how to design an ESC plan, you should have the knowledge to be able to inspect a site and know if a plan is being followed or if BMPs are installed correctly.

Specialized training no need for extra certs.

Specialized training yes, but not beyond CPESC

Yes, but not CPESC. CPESC is about engineering and design. I have 18 years' experience as a stormwater inspector.

Beyond CPESC I don't think it is required, but it may be helpful depending on what type of training is considered. I'd value higher-order training than the basics though.

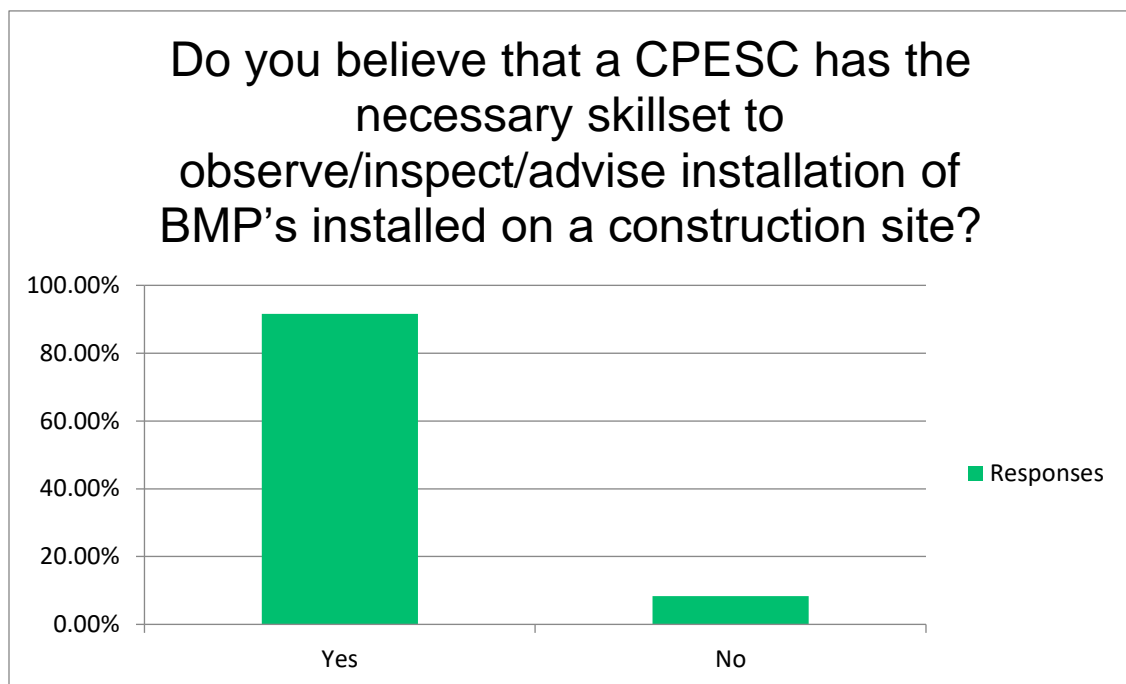
CPESC training is adequate for inspections.

CPESC have enough knowledge to handle inspections.

I think the skills required can be taught by an experienced person and through experience itself.

Q4 - Do you believe that a CPESC has the necessary skillset to observe/inspect/advise installation of BMP's installed on a construction site?

Answer Choices	Responses	
Yes	91.62%	481
No	8.38%	44
Comments		84
	Answered	525
	Skipped	2



Comments

Depending on the CPESC, has this skillset and potentially much more. However, has this as a bare minimum.

The CPESC with long design experience will be able to.

Given they are up to date on the current storm water practices.

Depending on their experience and area of expertise

If I as a CPESC spec a BMP I understand it and can inspect, etc. it

I think installation is different skillset to design - like an architect is different to a builder

They likely possess the technical knowledge but may lack the skills to properly assess and document inspections, as CPESC curriculum and manual does not contain inspection protocols and standards.

They better have the skills, or they should not be a CPESC

As long as the CPESC is in within their area of expertise and respects the code of ethics

perhaps but most likely could benefit from mentoring

some pass the test but still have no idea.

Yes, but again the main challenge is how to ensure the lowest bidder comply. This skillset is beyond the theory of BMPs, etc. It requires people skills and communication beyond the theory. This is the skillset that is missing because it's outside of what we learn in the textbook.

training and experience is needed. a recently certified CPESC does not necessarily have the required experience.

Depending on the CPESC's background and education.

As long as the person has the experience gained from working with a qualified person.

Providing that they have on the ground experience. Some CPESCs are solely designers with limited on-site practical experience with the installation of controls and what controls work best and where.

If they have had field experience

CPESC is very broad. The "Professional" part of the credential should mean that a CPESC will only conduct work within the individual's competency envelope.

As long as they have previous field experience

Not necessarily, it depends on the individual.

If the title CPESC is intended to be a global title then the relevant local best practice guidance and legislation needs to be referenced here (in Australia, the IECA Best Practice Erosion and Sediment Control is the relevant document for Best Management Practice in the region and a CPESC would have the necessary skillset to inspect installations relating to that document.)

yes, for temporary ESC during construction. Not permanent urban design.

SHOULD have.

Generally, yes, but depends on individual's experience. You can study hard for the CPESC exam and get your designation, but I have seen a number of CPESC who can't actually inspect ESC.

Dependent on how the CPESC skills have been utilized, but generally, CPESC have on the ground experience to know what works.

yes, but sampling techniques needed to be added to curriculum

Not everyone has field experience.

With additional, work-related training and training hours required for certification renewal.

The training and testing for CPESC do not provide adequate skills. Experience in the field with senior staff is required.

not just by the CPESC cert. itself. In reality it is more on-the-job training and experience

Only if received additional training

The installation should be per the designed EPSC plans and details.

Needs more than a CPESC

I think that there should be some general industry training, but a CPESC should have the skillset. Professionals should be aware of their expertise and discipline, and know when they are qualified or not, regardless of whether they have a CPESC.

For the majority, yes (e.g., silt fence, inlet protection, turbidity barriers). CPESC with PE would be necessary for some cases (e.g., detention pond)

Yes, I think anyone who holds a CPESC should be able to operate as a qualified inspector.

With understanding of local regulations as well.

Yes, but it depends on that person's training and if the practice was engineered, there could be the need for engineer oversight/presence

I have to find the training through other means, not available from CPESC.

I believe the basics and fundamentals are there but would like to see continued training to keep up with trends, issues, etc. so a CPESC is better prepared to address.

Yes, for observation and inspection of simple straight forward practices, but additional education as an Engineer should be required for more advanced options/techniques in certain situations.

But I do think that they need field experience in addition to the design experience.

I do feel that supplemental and targeted follow up trainings would be helpful, especially as new technologies become available.

Maybe - many BMPs require engineering background

CPESC alone is not field practical enough.

It is ineffective without actual construction experience

Yes, for Erosion Control BMPs

Need specific knowledge for State and local regulations.

With experience

Experience helps with sites that require creative solutions.

Unless they trained specifically for inspections but attained the higher certification.

It all boils down to field experience.

Better than no training

There is no hands-on training for this course. I have it, but without actually having done it in the past, it would be fairly useless

Depending on the CPESC and how involved they are in the field, a CPESC is able to observe/inspect/advise installation of BMP.

Well, they better! Should be requisite to being a CPESC

The cert materials do not focus on installation of all BMPs under all circumstances. Experience is required.

Now this is dependent on the years of experience a lot of times. Hopefully after a significant number of years of experience the designer has gone to the field and witnessed the installation of devices like I have, then that is a different story.

Not without continuing education.

Requires additional training

more emphasis should be placed on real world experience and not on university studies

field experience would be beneficial

It might be best to include CESSWI as part of the CPESC manual and testing.

Not all. Most CPESCs need more practical field experience.

With the appropriate training on the specific BMPs

Probably, but may need some expertise from an engineer, depends upon CPESC background and experience.

CPESCs develop and design E&SC practices and plans, so they are the most knowledgeable on how the practices must be installed. No other certificate holders or licensees are better qualified to oversee installation.

Bumps are developed by qualified designers and implemented by CPESCs using their training and experience.

That has been a main part of my 30 years of experience. If you are designing, you should absolutely know how to implement, and inspect.

Absolutely.

Generally, yes

It is a good start, but just the exam doesn't provide practical knowledge required for correct application and installation.

Inspections are unique and require additional skills.

Conditional Answer: If you are a regulator that has never designed, built, and maintained ESC then your viewpoint is narrow and inexperience and to a large extent it is pure theory.

CPESC designed for plan development

Yes - this certification should be mandatory on all private and public construction projects

Provided they have had good onsite experience

Not in all instances. It seems that experience level of CPESCs working in British Columbia vary greatly and their effectiveness to design, monitor and maintain ESC plans varies, as does experience with RUSLE and its correct application

CPESC is a credential used for individuals to prepare SWPPP plans, and inspection is the follow-up of that skill set.

If they have done significant field inspection

This really depends on the skills of the person. Conducting an inspection requires training. Can they evaluate the performance of a BMP yes.

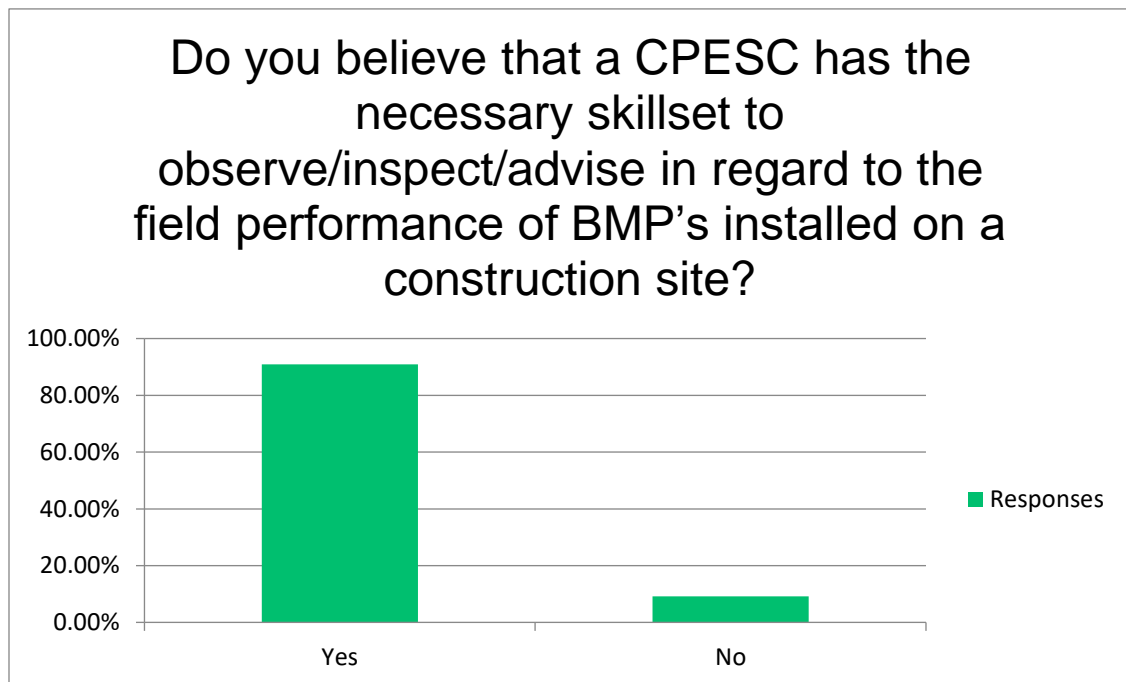
I have been doing it successfully for over 15 years

CPESC is engineering level design. Inspecting is a different discipline.

CPESC provides a great foundation to ensure BMPs are employed as designed

Q5 - Do you believe that a CPESC has the necessary skillset to observe/inspect/advise in regard to the field performance of BMP's installed on a construction site?

Answer Choices	Responses	
Yes	90.87%	478
No	9.13%	48
Comments		64
	Answered	526
	Skipped	1



Comments

If not a CPESC, then who would?

The CPESC with long design experience will be able to.

With observation and experience in seeing the BMPs perform.

Need more field experience to be able to evaluate effectiveness of BMPs

If I as a CPESC spec a BMP I understand it and can inspect, etc. it

not always - some non CPESCs have far more practical experience in installation and monitoring actual performance

again, they likely possess the technical knowledge, but not the inspection skills based solely on their CPESC certification.

They better have the skills, or they should not be a CPESC

Maybe not high-level performance for every BMP - but general knowledge and advise between options - yes

As long the CPESC is practicing within their particular area of expertise and has appropriate training and experience re: the BMPs recommended.

doubtful until seeing how they perform

some pass the test but no experience in the field.

Yes, but ensuring compliance from contractors is beyond this skillset.

...if they have training and experience.

Depending on the CPESC's background and education.

Again, needing the experience on the ground.

I believe that if a CPESC is able to design then they have the skillset to observe and advise in regard to the field performance of the BMPs installed. In fact, I think that they would be more knowledgeable since they have a better understanding of soil characteristics and the variety of BMPs available.

CPESC is very broad. The "Professional" part of the credential should mean that a CPESC will only conduct work within the individual's competency envelope.

Also dependent on experience

Yes, but if not performing to standards provided would need to work with manufacturer rep on failure and what next move should be.

If the title CPESC is intended to be a global title then the relevant local best practice guidance and legislation needs to be referenced here (in Australia, the IECA Best Practice Erosion and Sediment Control is the relevant document for Best Management Practice in the region and a CPESC would have the necessary skillset to inspect installations relating to that document with some additional testing data.)

yes, for temporary ESC during construction. Not permanent urban design.

Depending on experience.

Generally, yes, but depends on individual's experience. You can study hard for the CPESC exam and get your designation, but I have seen a number of CPESC who can't actually inspect ESC.

Again, if that CPESC has had on the ground experience

yes, but sampling techniques needed to be added to curriculum

experience, need to be non-biased on products used

Only if received additional training

Lack of field experience leads to decisions that may not apply.

Needs more than a CPESC

I think that there should be some general industry training, but a CPESC should have the skillset. Professionals should be aware of their expertise and discipline, and know when they are qualified or not, regardless of whether they have a CPESC.

Based on current CPESC requirements, yes.

With understanding of local regulations as well.

The opinion of constructability of BMPs seems to be lacking with a lot of CPESC inspectors. Most lack knowledge of sequencing in jobs.

depends on skill set.

I have to find the training through other means, not available from CPESC.

Yes, for observation and inspection but more advance education for advice is needed.

Although they would certainly be able to recognize when a BMP has failed or been installed incorrectly, overall performance is better gauged by personnel that is there day-to-day. They will know how often it needs to be repaired or replaced.

should be able to see if BMP is working properly

Typically, can observe issues and provide solutions.

Not without design experience

New BMPs developed each year. Need more experience with evolving E&C measures.

Requires the CPESC to have relevant training, which could potentially not be the case. It's up to the CPESC to get training that is relevant to their role on projects.

As long as there is a monitoring component attached for performance evaluation.

Provided the holder also has had some practical field experience as well at some point

But OJT experience under another inspector is also vital.

There is no hands-on training for this course.

Again, it is dependent on the role of the CPESC in a project and their past experiences. Field versus office.

on the ground construction also has very different aspects to the design phase of a project. Someone at the design end is not well aligned with what needs to happen to enable ESC for construction for example

I have worked with too many that do not have near the capabilities of someone who is a CESSWI with the same timeframe in the field as a CPESC does

I think the experience requirement ends up being inclusive of field and design experience. I do not think they are mutually exclusive.

Should be requisite to being a CPESC

In theory, a CPESC should be able to determine field performance.

This requires both seeing the installation and inspection after significant rain events.

Only with continuing education

With the appropriate training on the specific BMPs

CPESCs are the E&SC experts. They know what E&SC BMPs look like when they are functioning properly and when they fail. There are no certificate holders or licensees better qualified to inspect E&SC BMPs.

Personally, since becoming a CPESC, I find myself looking at any Site with a critical eye, noting deficiencies or new ideas, even just in passing

Not unless he/she has field experience

Need other professional input for flocculation of sed basins

If you are a regulator that has never designed, built, and maintained ESC then your view point is narrow and inexperienced and to a large extent it is pure theory.

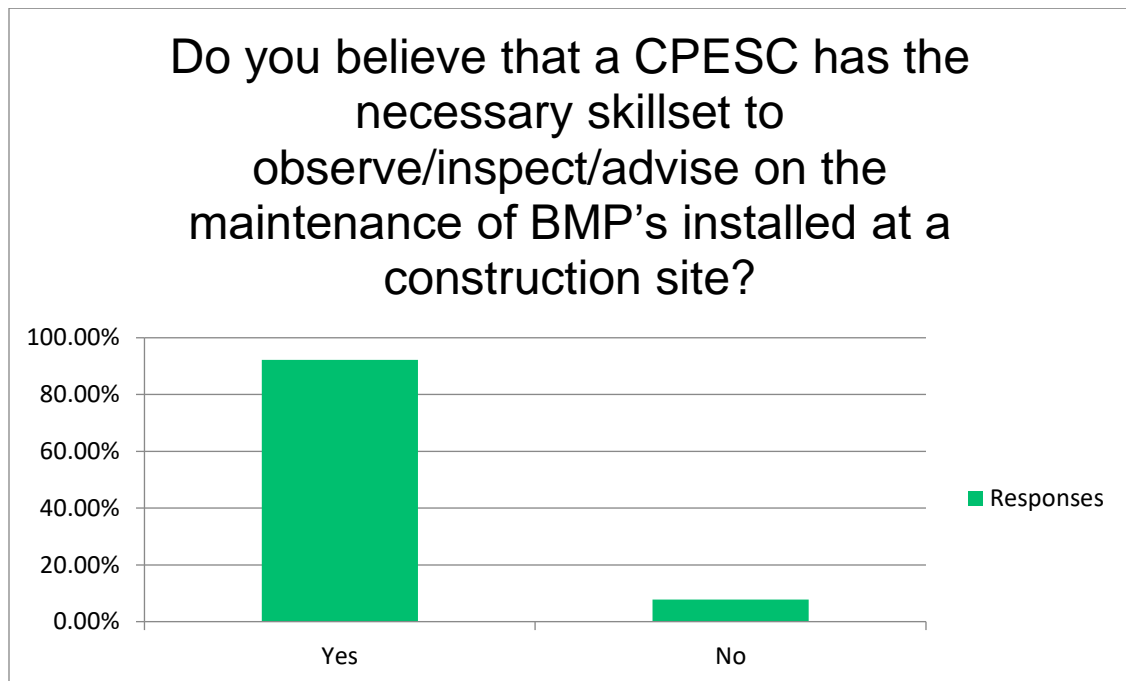
Not in all instances. It seems that experience level o

comes with time in the field

CPESC is engineering level design. Inspecting is a different discipline.

Q6 - Do you believe that a CPESC has the necessary skillset to observe/inspect/advise on the maintenance of BMP's installed at a construction site?

Answer Choices	Responses	
Yes	92.19%	484
No	7.81%	41
Comments		43
	Answered	525
	Skipped	2



Comments

The CPESC with long design experience will be able to.
 with data and experience in seeing how BMPs perform in various conditions.
 If I as a CPESC spec a BMP I understand it and can inspect, etc.
 They better have the skills, or they should not be a CPESC
 doubtful without maintenance
 some pass the test but no experience in the field.
 ...if they have training and experience.

Depending on the CPESC's background and education.

However, the more time out in the field a CPESC has the better off they will be. It will assist them in the design.

CPESC is very broad. The "Professional" part of the credential should mean that a CPESC will only conduct work within the individual's competency envelope.

If the title CPESC is intended to be a global title then the relevant local best practice guidance and legislation needs to be referenced here (in Australia, the IECA Best Practice Erosion and Sediment Control is the relevant document for Best Management Practice in the region and a CPESC would have the necessary skillset to inspect installations relating to that document.)

yes, for temporary ESC during construction. Not permanent urban design.

Generally, yes, but depends on individual's experience. You can study hard for the CPESC exam and get your designation, but I have seen a number of CPESC who can't actually inspect ESC.

More specialized training may be required in some situations

Regulatory knowledge is needed to know when maintenance should be initiated followed by on the ground visual inspections

yes, but sampling techniques needed to be added to curriculum

Only if received additional training

Needs more than a CPESC

I think that there should be some general industry training, but a CPESC should have the skillset. Professionals should be aware of their expertise and discipline, and know when they are qualified or not, regardless of whether they have a CPESC.

Based on current CPESC requirements, yes.

With understanding of local regulations as well.

Yes, but depends on skill set.

I have to find the training through other means, not available from CPESC.

Although they would certainly be able to recognize when a BMP is in need of maintenance, maintenance is better gauged by personnel that is there day-to-day. They will know how often it needs to be repaired or replaced.

Not without construction experience

With experience

Requires the CPESC to have relevant training, which could potentially not be the case. It's up to the CPESC to get training that is relevant to their role on projects.

The more field experience one gains, more knowledge one can impart.

Again, in combination with hands on experience and successes and failures

Inspections and maintenance are mandatory

With OJT

There is no hands-on training for this course.

again, design vs on the ground implementation

I have worked with too many that do not have near the capabilities of someone who is a CESSWI with the same timeframe in the field as a CPESC does

Should be requisite to being a CPESC

Maintenance is pretty obvious of BMPs if they are failing or full.

With the appropriate training on the specific BMPs

CPESCs are the most qualified to oversee maintenance of E&SC BMPs. Maintaining the practices and restoring their capabilities is part and parcel of being an expert in the form and function of E&SC BMPs.

Not if in a regulatory capacity

There is a need to provide additional post on bmp inspection at sites

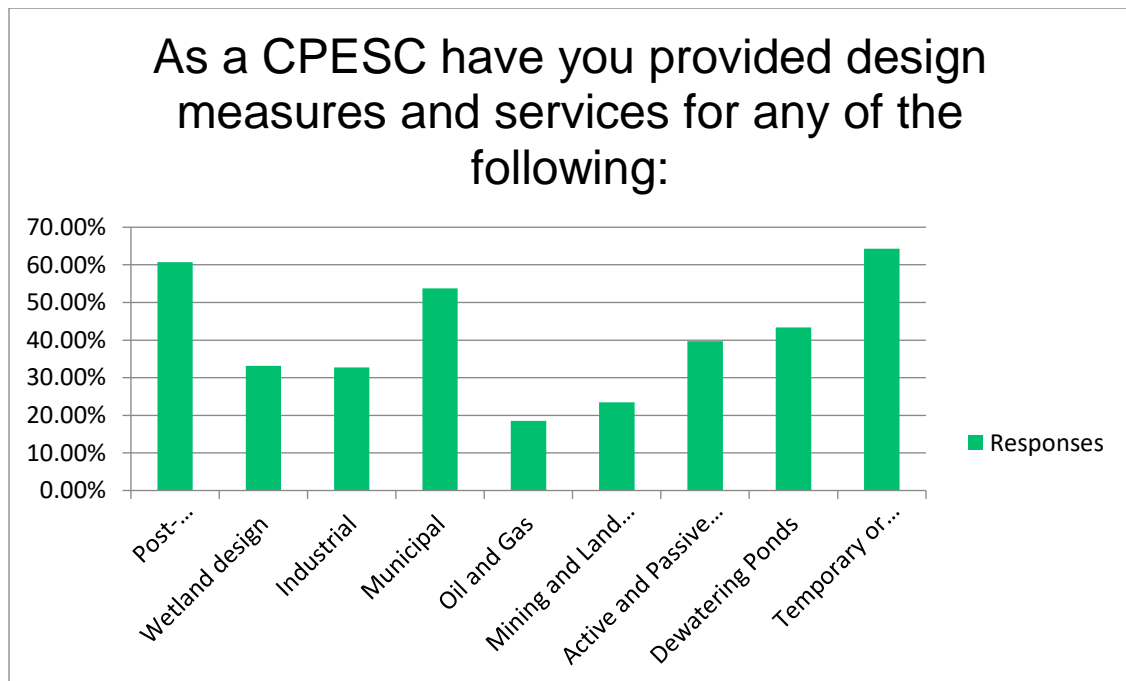
I feel like there is some lack of knowledge in knowing what vegetation is planted and what is a weed species that does not provide appropriate erosion. More training should be available for this.

Not in all instances. It seems that experience level o

CPESC is engineering level design. Maintenance is a different discipline.

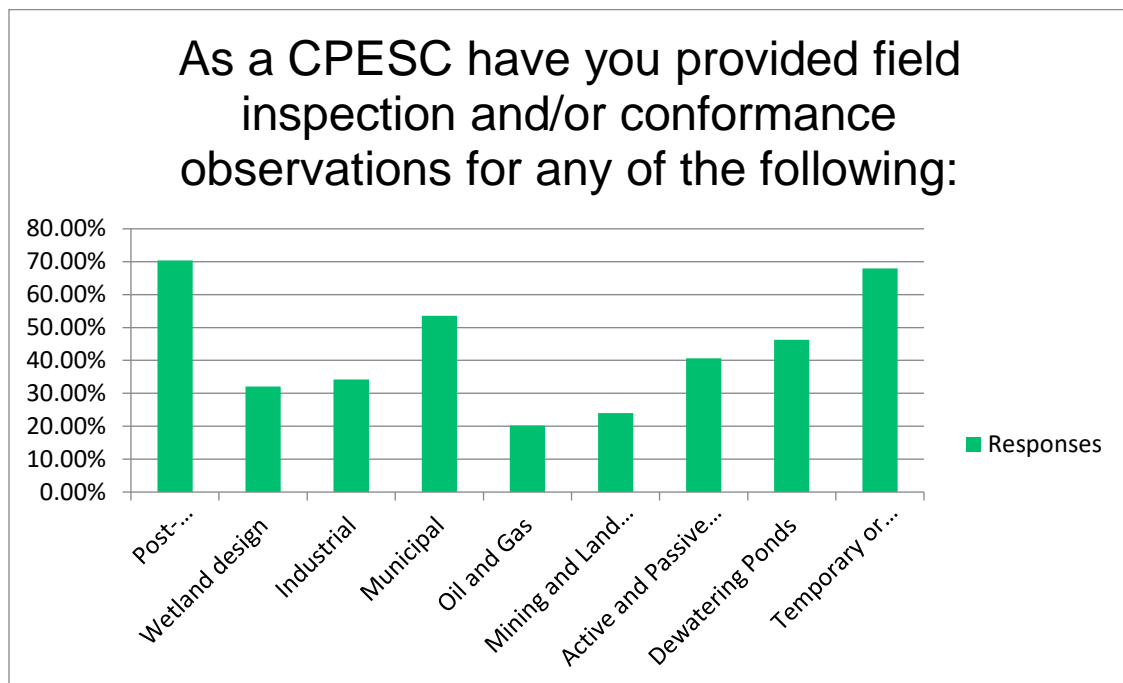
Q7 - As a CPESC have you provided design measures and services for any of the following:

Answer Choices	Responses	
Post-Construction/LID/GI	60.72%	269
Wetland design	33.18%	147
Industrial	32.73%	145
Municipal	53.72%	238
Oil and Gas	18.51%	82
Mining and Land Reclamation	23.48%	104
Active and Passive Treatments	39.73%	176
Dewatering Ponds	43.34%	192
Temporary or Permanent Ponds (any types are applicable where water impoundment is greater than 3 feet)	64.33%	285
Answered		443
Skipped		84



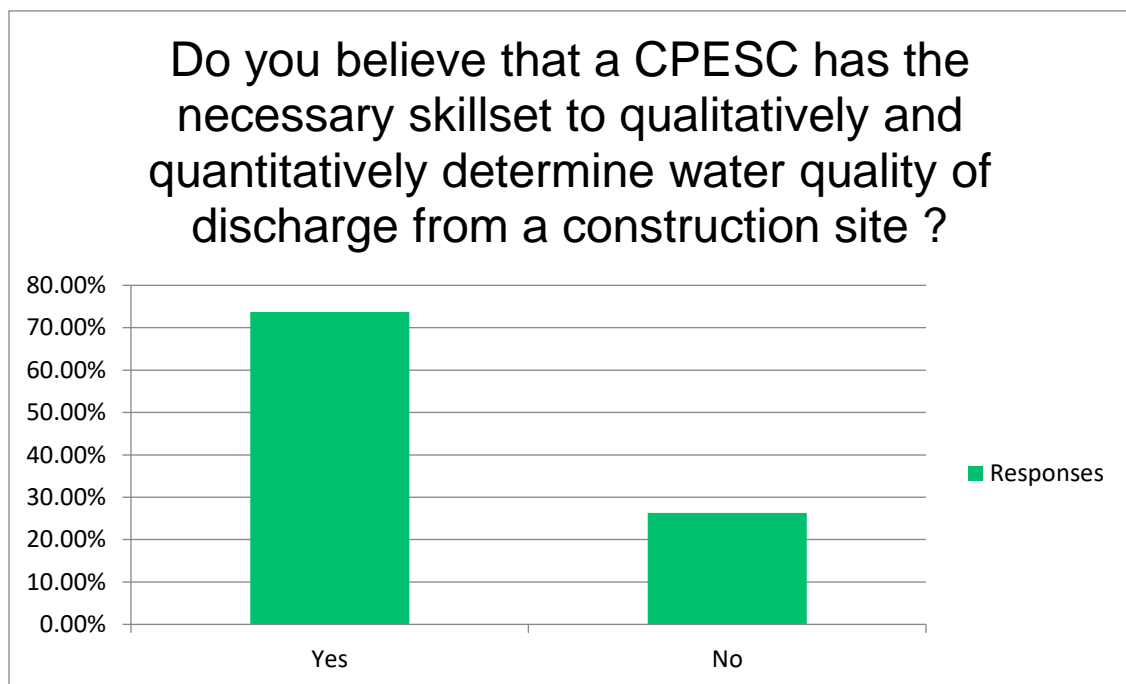
Q8 - As a CPESC have you provided field inspection and/or conformance observations for any of the following:

Answer Choices	Responses	
Post-Construction/LID/GI	70.42%	338
Wetland design	32.08%	154
Industrial	34.17%	164
Municipal	53.54%	257
Oil and Gas	20.21%	97
Mining and Land Reclamation	23.96%	115
Active and Passive Treatments	40.63%	195
Dewatering Ponds	46.25%	222
Temporary or Permanent Ponds (any types are applicable where water impoundment is greater than 3 feet)	67.92%	326
	Answered	480
	Skipped	47



Q9 - Do you believe that a CPESC has the necessary skillset to qualitatively and quantitatively determine water quality of discharge from a construction site ?

Answer Choices	Responses	
Yes	73.70%	384
No	26.30%	137
Comments		95
	Answered	521
	Skipped	6



Comments

- The CPESC with long design experience should be able to.
- Depends on the person, but more qualitatively than quantitatively
- Needs specific training in sampling protocol
- Yes, but additional water quality training and sampling training would be recommended.
- If using equipment to measure water quality, yes.
- Certainly, they can monitor the discharge given they have the hard skills necessary.
- CPESC should be able to determine what level of control is required to achieve water quality outcomes
- Qualitative yes, but quantitative I think it may be lacking some.
- With some additional training on discharge collection and testing.

Not necessarily by default - but I would think the majority probably do.

Not all. Some CPESCs might depending on other qualifications and experience they might have.

...if they have training and experience. anyone can do this with the proper training.

That is a CPSWQ function

This requires sampling of the discharge water and being able to interpret those results and knowing what the discharge limits for that area are.

the reason we are required to earn PDU is to use the additional training to add to these required skillsets

I think they have the means to determine the appropriate level. Albeit you will have to have some form of modelling knowledge and experience more like a hydraulic engineer

Since CPESC designs and write they SWPPP they should have an understanding of what to look for as far as what is an acceptable discharge from a site. Again, it is so important to have field experience to make you a better CPESC. I think that requiring a certain amount of continuing education credits should be field time.

CPESC is very broad. The "Professional" part of the credential should mean that a CPESC will only conduct work within the individual's competency envelope.

Not without additional training or experience

With special equipment, I believe that many water quality factors can be observed and reported. Multi-meters can measure turbidity, dissolved oxygen, pH, temperature, etc.

This discharge requires additional testing beyond the skillset of a CPESC.

This would typically fall into the background qualification of the CPESC

Not initially. This would be the only area that may require some training; however, it may not need specific certification.

Yes

Only when sediment is pollutant.

Quantitatively only to the extent that their role is to sample and test water quality. Typically, that would be done by others but requested and/or reviewed by the CPESC.

Again, depending on the experience of the CPESC

If you are a CPESC, you should be able to determine this.

possibly....the monitoring equipment should be the final determiner of that

Turbidity is easy to see

Quantity yes. If quality standard is based only on visual observation, yes. If quality definition is based upon water sampling and testing, no.

More specialized training may be required when considering more than just turbidity

Not without the proper tools and equipment.

Yes, if quantitative sampling has been completed.

currently no, sampling techniques needed to be added to curriculum

Water quality parameters that are measured in California under the CGP are pH and TSS. The CPESC training does not cover how to properly sample for these parameters in the field.

easy stuff yes, and CGP already requires sending to a lab for other constituents.

Only if received additional training

If turbidity monitoring, then yes possibly. Other chemical runoffs then no.

Only visual observation of "clear water". If an actual measurement is needed, I would have to take the sample to a lab. This is not currently required in Texas for basic construction activities.

Needs more than a CPESC

More training is required for water sampling and reporting

a CPESC should have the skillset. Professionals should be aware of their expertise and discipline, and know when they are qualified or not, regardless of whether they have a CPESC.

Based on CPESC requirements, yes.

This requires additional training.

Perhaps not directly as a result of having a CPESC but through other skill sets determine the ability to do so.
Being a CPESC does provide additional credibility and recognition

With understanding of local regulations as well.

subjectively - yes.

Annual refresher training would improve this skill set.

this type of analysis required laboratory experience

This takes an understanding of chemistry.

In my mind, this falls under my PE license

Stormwater calculations should be performed by or under the oversight of a Professional Engineer.

Qualitatively-yes, quantitatively-No

Not without field experience

Yes - 100%

Water quality discharge sampling is far more complicated than what CPESC trained and tested.

Need more skills & background for sample collection and analyses of lab results.

With regard to identification of discharges of sediment

With experience and training

Requires the CPESC to have relevant training, which could potentially not be the case. It's up to the CPESC to get training that is relevant to their role on projects.

But it really depends on the skill set and training of that CPESC

Provided they remember how to do the calculations.

Have to convince regulators on this. Services driven by regular requirements

For a project that needs a Stormwater permit, CPESC should be able to address all needs cradle to grave.

With OJT

Unless they have hands on experience from an outside source, they are not getting this from this certification course

Depends on their training and experiences. If a person only did the CPESC and never went into the field or took a course on assessing water quality, then I would be hesitant to say yes. If only collecting water for use in a turbidimeter on site yes. If collecting water to submit to a lab for analysis sure. If they are aware and follow sample collecting guidelines, they should be allowed to determine water quality. All comes down to what training beyond what the CPESC exam covered.

if you are site based or can be, yes

I think the CPESC is aware of the relative quality and quantity, but without labs or other means of measuring, it is not possible to determine. Lab analysis knowledge should not be a requirement to become a CPESC.

Unless they have been trained otherwise to measure WQ discharge

Additional training required

A CPESC may need sampling certificate to collect samples to determine quantitative result but can look to see qualitative

Depends on their prior experience. some CPESCs never leave an office, in this case i would say no

Most not, some yes.

Yes, in addition to visual observations and if provided with the tools and equipment, CPESCs can evaluate the quality of stormwater discharges from a construction site.

Some CPESC may not have ALL the necessary skill sets but there are more and more courses and webinars becoming available every month

Through proper sampling and testing and maintenance of a SWPPP, a CPESC will have the necessary information to determine the values.

For all practical purposes

Not without specific training on sampling and analysis.

Doesn't provide complete understanding of the design parameters.

Not unless trained in that function, as per regulatory authority water quality standards.

If trained in the specifics.

There needs to be more designs review and questions on the CPESC exam

Again, a range of onsite experience is required

We track turbidity, pH, and oil sheen (for the past 23 years)

With field experience

It would be better if the CPESC included post construction and LID training

Qualitatively yes, quantitatively may require additional training

They should. However, they may need extra training in sampling and the use of sampling equipment especially if they do not regularly sample.

These types of analysis should be completed by a licensed professional engineer.

CPESC is engineering design.

Provided sufficient equipment, a CPESC can be trained and carry out the water sampling required. It was not part of the CPESC training.

With laboratory assistance in many cases.

This requires that the assessor has also been trained in water quality monitoring techniques and principles, which isn't part of the CPESC training.

APPENDIX E

2022 CPESC Survey 3

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

- ☒ 0 - 5
- ☐ 5 - 10
- ☐ Greater than 10

2. What is your area of practice?

- ☐ Design
- ☐ Regulatory
- ☐ Municipal
- ☐ Manufacturer / Supplier
- ☐ Inspector
- ☐ P.E.
- ☐ Other (please specify)

3. Do you agree that 7 years of knowledge and work experience (education and professional practice) is sufficient for a CPESC (Requirements) to qualify for the Professional Certification?

- ☐ Yes

--

4. Does the current Professional Scope of Practice (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.

--

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

[illegible]

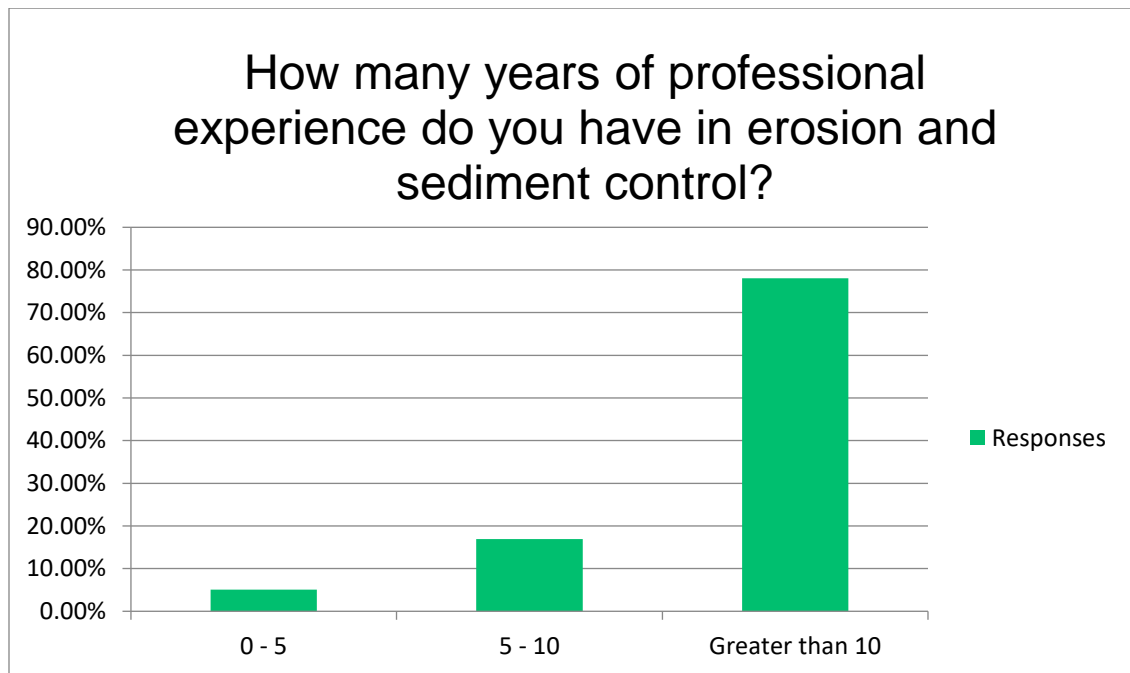
APPENDIX F

2022 CPESC Survey 3 Results

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

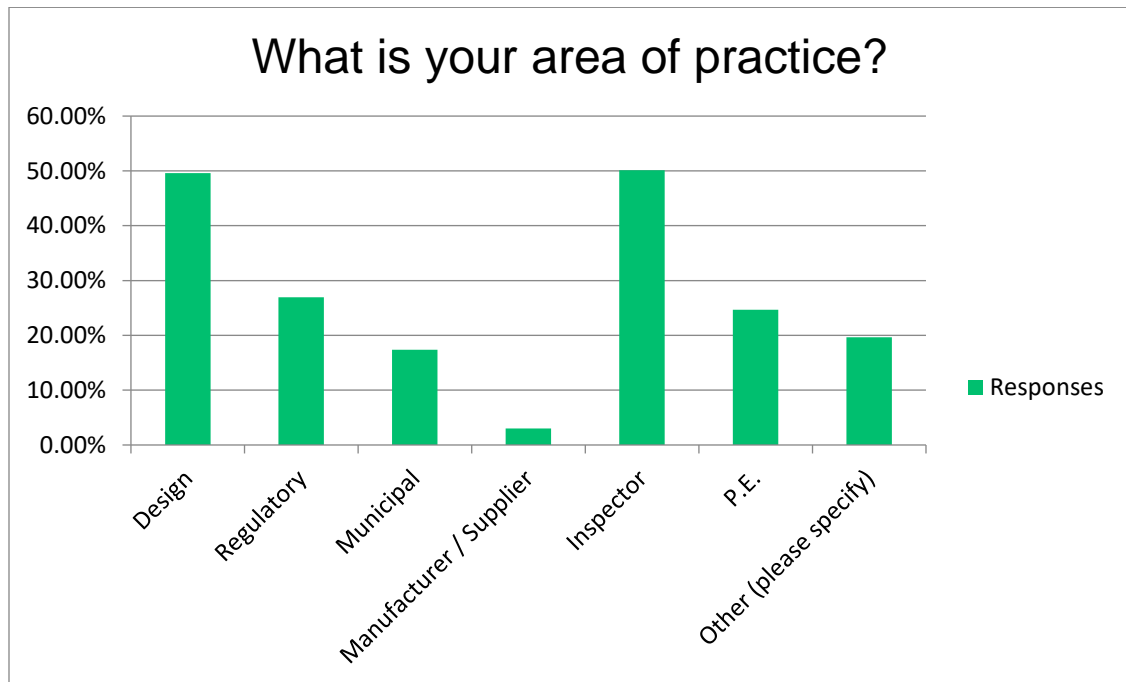
Q1 - How many years of professional experience do you have in erosion and sediment control?

Answer Choices	Responses	
0 - 5	5.05%	20
5 - 10	16.92%	67
Greater than 10	78.03%	309
	Answered	396
	Skipped	1



Q2 - What is your area of practice?

Answer Choices	Responses	
Design	49.62%	197
Regulatory	26.95%	107
Municipal	17.38%	69
Manufacturer / Supplier	3.02%	12
Inspector	50.13%	199
P.E.	24.69%	98
Other (please specify)	19.65%	78
	Answered	397
	Skipped	0



Other (please specify)

Technical advisor
 Consultant
 Construction Storm Water
 Environmental Compliance
 Construction monitoring/water quality monitoring
 Environmental Manager for contractor
 Developer
 Project Lead

Construction
Environmental Consultant
large scale construction
Consulting
Private construction contractor
Field installation all phases of erosion control
contractor
QA/QC
stormwater consultant
consultant
SWPPP writer, director of third-party inspections program, in-depth site reviewer
Land subdivisions
ESC Installation Supervision
Land Development
Design - install
Consultant project manager

For public works projects, the State Law requires Erosion & Sediment Control Plans as a part of the Registered/Licensed Professional Landscape Architects (PLAs) disciplines. Thus, the CPESC has been working in the areas of design under the Registered/Licensed Professional Landscape Architects (PLAs). The PLAs will seal as well as sign the final design work of plans and specs for public works projects.

Consultant - Permits and BMPS - Construction
construction
Industrial stormwater
installer
Environmental Professional
Contractor
contractor
SWP3 preparation
Provide onsite guidance for contractors during construction
Project Env Advisor
General Contractor
Builder, Contractor
Constructor
Inspector and design
Auditor
Environmental Director of Large GC
Planning advisor
Contractor
civil construction
State
SWPPP developer's

Academic
Contractor
Project Engineer; Instructor
Construction & land development
Construction
Permitting, oversight
Forestry - Watershed Management
Contractor
Project owner / reviewer
Instructor
Consulting
Constructor
Contractor
Contractor
Review plans submitted by contractor and review updates to statewide specifications and details
Contractor
Proponent for infrastructure delivery
Permitting
Consultant, Trainer, Expert Witness
Construction site manager
MS4 SWMP Coordinator / Environmental Monitor
Consulting
Contractor
Construction and Maintenance
Inventor
Environmental Scientist
Construction Management
P.Eng. (Canada)
Construction - all types
Solid Waste Consultant
Professional Landscape Architect
Construction

Q-3 - Do you agree that 7 years of knowledge and work experience (education and professional practice) is sufficient for a CPESC (Requirements) to qualify for the Professional Certification?

Answer Choices	Responses	
Yes	90.86%	358
No	9.14%	36
Comments		78
	Answered	394
	Skipped	3



Comments

- I think it depends on the work one has been involved with and if they have worked under another knowledge professional
- in field practice and implementation should be a large requirement
- Yes, but someone with less than 7 years' experience may also demonstrate sufficient skills if they have worked more intensely over a shorter timeframe.
- It's the quality of work experience that matter, not so much the quantity.
- You have to have practical on the ground experience in my opinion not just designing plans from a distance based on type(s) of experience
- I assume a sum total of the two areas.
- I think less - like 4 is appropriate.
- I have been designing, installing, inspecting, and I did not have a complete grasp of the entire industry till 10-12 years of full-time involvement in the business.

Largely depends on what type of experience. Some folks can get needed experience in a year in the right location. 4 years AND a Construction management degree are adequate.

Yes 7 years of "relative" experience

As long as that is a significant part of the seven years

Should be less. 4 years under a CPESC which is in line with Ohio PE requirements

The work experience and education should be related in terms of hydrology, soil and basic engineering in terms of creating structures.

I think 7 years is too high.

Experience must be equally mixed between, field, design and practical experience and include Permitting Agency compliance , i.e., DFWS, Army Corps of Engineers, Water Quality, etc.

7 years of specifically ESC would be more appropriate

Yes, as long as they can pass the test there should be no need to increase the years required.

The CPESC will continue to learn and improve through projects after 7 years of education and professional practice.

i would argue that the 4 years for a qualifying degree and the 2 years of IT experience would be sufficient

In general, I agree

As long as the 7 yrs. of knowledge & experience align with CPESC

Knowledge does not replace work experience. It is not equivalent.

if specific to erosion and sediment control

practice with additional knowledge tests and certification - yes

Time (yrs.) vs intensity of practice (occasional vs full time) matter. Someone who works full time with an ESC firm could accelerate through the program vs another who works on ESC project's part time.

It can easily be a couple of years.

Provided that SESC is not just something they do once in a while.

Depends on the experience and how the knowledge was acquired

But 3 of years should be experience (at a minimum)

I think a minimum of 4 years is appropriate (2 education/2 practice)

7 years allows for a CPESC to work on a variety of projects

There should be a category if you trained/work with a CPESC. Kind of like an apprentice program.

Not quite for most people. Some will be at the required level after 7 years

If work experience includes actual on the ground experience.

The Ed degree requirements don't have much to do with erosion and sediment control. It should be heavy soils classes or OJT like a soil conservationist with USDA.

Provided that education and experience is related to erosion/sediment control and not a fleeting glimpse

Suggest more practical experience i.e., longer work experience (maybe say 5yrs min.) would be worthwhile

too much for non-degreed professionals (suggest 4 years)

I think you need at least 10 yrs.

I think an exam and project should be required

Can be less if they are doing that full time

10 years minimum

With passing the difficult test

Its overkill

7 is the absolute minimum since it depends on what is being done during those 7 years.

To set a minimum standard for the certified people, we need to have a test for all.

7 years of direct relevance to erosion and sediment control

I feel it could be much less with adequate training and field experience.

Way too much time. Cut in half at most

Seven years is much longer than other professional designations at least in Canada

Not sure about accepting the law degree

You can get PE with 8 yrs. experience

Depends on what the 7 years consists of. Should be a mixture of things

My certification is "IT" as I am not quite at the 7-year mark yet. I feel I could successfully draft a SWPPP now with 6 years of experience, but I wouldn't have felt confident to do so even 3 years ago. I think if you are getting this type of certification, so you are able to draft SWPPPs then you need to have the experience. I wanted to become a CPESC so I would be able to draft SWPPPs not being an engineer. If I just wanted to perform inspections, I probably wouldn't have pursued this particular certification.

If it is truly experience in the subject.

Yes. I feel that if other professionals can vouch for their knowledge and abilities, 7 years should be adequate.

It's the only way I got mine nearly 25 years ago

I think 5 years of continuous experience is appropriate.

Practicing in the field

Should be less.

If proper knowledge can be shown

Depends on the quality of the mentor. All should have field experience

As long as during those years they have a minimum of 4 years field experience

Too long for experienced practitioners

May actually be over-shooting this. There is no formal education available for ESC; PE only requires 4 years

I believe 10 years would be more appropriate.

Greater emphasis should be placed on work experience. Very few academic programs provide construction ESCP training.

7 year is excessive.

In my area of NE Indiana 3 to 5 years would be sufficient

Need 4-year accredited college degree and 2-3+ years of experience

I think it could be 5 years.

5 years is enough

Obviously would depend on the nature of the experience, but most EPSC inspectors do not receive sufficient on the job training

I believe 5 is an appropriate amount.

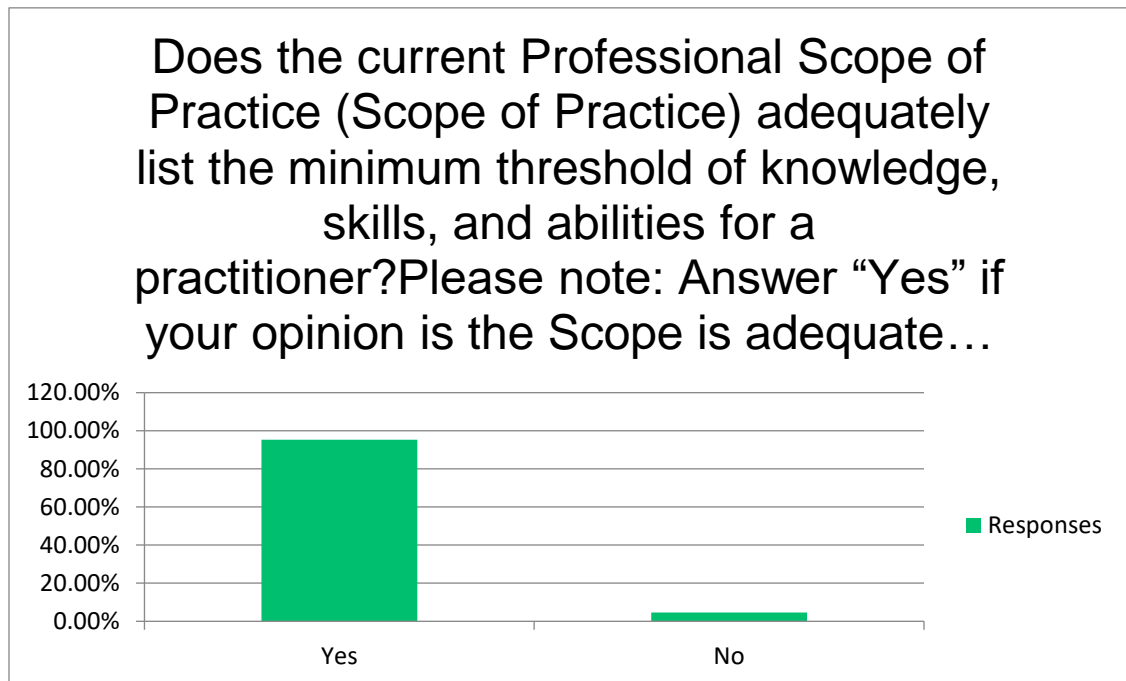
10 would be better. Seeing so many people without proper work experience.

No less than 7; a couple more may be better.

4 YEARS SEEM REASONABLE

Q4 - Does the current Professional Scope of Practice (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	95.37%	371
No	4.63%	18
Comments		33
	Answered	389
	Skipped	8



Comments

stream morphology & sediment transport

there doesn't seem to be a great cross over of practitioner on the ground vs practitioner of principles in designing only.

Specific Guidelines: CPESCs are not authorized to impede flows through engineered drainage facilities, (swales, ditches, pipes) or natural features (watercourses, creeks, streams) without appropriate coordination and authorization.

There needs to be an understanding of the financial aspects as well as design and installation, so that "experts" can recommend a feasible solution to issues.

add-the increased environmental challenges in using some BMPs especially when they are made with plastics, other polymers, and/or recycled rubber. Even if it is determined that these materials are sufficient and do not warrant environmental concern, it does not take away some of the challenges they are still facing in their usage.

Understand basic use of flocculants

enhancement to existing project designs for biological parameters to protect endangered species and environmentally sensitive areas where the original design has errors or omissions based on one's best professional judgement.

- Erosion/sediment control is a part of Functional Landscape Ecological Design of construction disturbed site.
- Erosion/sediment control is a part of Functional Landscape Ecological Restoration of construction disturbed site.
- Erosion/sediment control shall be added-as a part of Integrated Vegetation Management Plan (IVMP).
- Erosion/sediment control shall include Receiving Pervious Area (RPA) Design.

It is a very thorough list

It appears overly broad

It's very comprehensive

post construction water quality aspects.

I think the scope outlines a good knowledge base for a practitioner, however, it is very unrealistic to expect to have experience/skills/abilities in every area listed. The average professional job, no matter its nature, is likely only to give experience in a small handful of these areas.

A good general knowledge is important as well as understanding where to find more in-depth knowledge.

Very comprehensive.

Better clarification of using an ecosystem-based approach to erosion and sediment control that might include doing nothing as a BMP and letting nature solve a problem over time

ok as is

Suggest clearer inclusion in Specific Areas of Practice - Rules & Regulations for erosion and sediment control other than for waterways protection, such as other environmental or social impacts (neighborhood & street amenity - e.g., dust and roads, and transboundary erosion or deposition, etc.).

Post Construction

more on professional ethics.

post construction calculation and have an understating of RUSLE2 or other methods to ensure that the additional impervious area were taken into account when a project is in a design phase/
Preconstruction phase.

Consider that as you balance the requirements, industry acceptance/recognition and cost of this.

A lot of the knowledge/skills may not be applicable for other counties. **WE NEED COUNTRY/REGION SPECIFIC SCOPES**

There is a lot of information to know.

303(d) and TMDL assessment and corresponding BMPs and monitoring

extra planning skills are required

The SOP is comprehensive in the knowledge that is required to have the title of CPESC.

Not sure

I consider that agriculture should be its own separate certification as it does not match with industrial, construction, nor municipal permits. Also, sampling could also be a separate field of endeavor.

removing Agriculture. Perhaps narrow manufacturing

Should include municipal & regulatory

Suggest additional training in RECP selection using water velocity or calculation of shear stress (i.e., how to input design values received from stormwater engineer into product selection)

I would consider "assessing soil fertility and soil amendments" and "plant species selection" as outside of my scope of practice. I typically refer these items to a professional agrologist and an ecologist respectively

Q5 - Is there an emerging area not covered in the Professional Scope that you feel should be included in the future?

Answered	153
Skipped	233

Stream morphology & sediment transport could be considered as a specific area of practice.

climate change may need touched on, especially as it effects rain fall amounts.

the Professional Scope is correctly identified for this specific certification.

No

No

NZ specifics with devices and calcs

The general design criteria for sediment basins, traps, channels, etc.

no

Frozen soils, linear development, and more clearly state when NOT to use RUSLE for steep slopes.

Alternative/Sustainable BMPs, Passive/Active Treatment

no

Not at this time.

use of various water treatment methods and chemicals

none

Protection of green infrastructure practices during construction.

Renewable energies - wind and solar.

I believe you have the key points covered.

Not that I'm aware of.

Dealing with non-regulatory inspectors who are not knowledgeable in the field.

Not at the present

Not so much as include but make it more obvious that in-stream work may have federal jurisdiction so in those not areas maybe a little more on shoreline and in-stream.

N/A

No

I'm not aware of any.

Financial feasibility for designs,

No.

Hydro

Further understanding on pollutant transport impacts and the spectrum of pollutants that can be carried by sediment-laden discharges that may be preventable.

Adequate types of acceptable ground cover should be explored... with financial accountability. Value Engineering is important.

In-depth site reviews triggered by quarterly or annual requirements for national or regional builders/developers and/or consent decrees

no

Not at this time.

Not really

The use and logistics of rock.

basic wetland identification

Green infrastructure

more information on the " End-Results " especially when dealing with unexpected larger bodies of water!
EX. Mud slides or over-flows!

Be able to quantify, qualify and verify the environmental sustainability of products and materials

no

stream bank restoration and bioengineering practices

No

Turbidity Control

1) Functional Landscape Ecological Design of construction disturbed site.

2) Functional Landscape Ecological Restoration of construction disturbed site.

3) Integrated Vegetation Management Plan (IVMP).

4) Receiving Pervious Area (RPA) Design.

Encourage the applications of native Perennial Legumes in Functional Landscape Ecological Design, as well as Functional Landscape Ecological Restoration.

Native Perennial Legumes will continuously promote nitrogen availability in the soil through their roots (Nitrogen Fixation) and transfer nutrients into the local ecosystem. Such a Nitrogen Fixation process boosts the health and long-term sustainability /succession of other native plant species within the revegetation area.

For Biotechnical Erosion Control Design, the separation geotextile fabric is not required beneath the Riprap/Rock Mulch to encourage low native vegetation growing through the Riprap/Rock Mulch area. The native vegetation buffer in the Riprap/Rock Mulch area will filter stormwater runoffs and minimize/trap pollutants anticipated in stormwater runoffs. Without separation geotextile fabric or grout, the low native vegetation buffer growing through the Riprap/Rock Mulch area will stabilize rocks and function as a combined environmental-friendly BMP. Without separation geotextile fabric or grout, the Riprap/Rock Mulch will naturally settle and integrate better with the slope. This self-settling approach will also avoid small cavities developing underneath the Riprap/Rock Mulch layer.

All Rock Mulch and Rock Riprap used for erosion/sediment control shall be fractured/crushed rocks in angular shape for effective erosion/sediment control and energy/velocity. Natural river-run materials, especially the rounded natural river rocks/cobblestones and pebbles are not acceptable.

Regardless of the seeding method(s), the contractor is responsible to guarantee intimate seed-soil contact. Seed application on top of straw mulch cover or hydraulically applied straw mulch cover shall be rejected. To guarantee intimate seed-soil contact, seed application on top of existing exposed chipped wood materials and/or plant residues ground cover shall be rejected.

solar and /or wind turbines

LID and post inspections and maintenance

water quality assessment, monitoring, sampling protocol and design

N/A

Not that I am aware of.

Climate change

Behavior of a CPESC in and out of work

Green Infrastructure the needs and protection of these structures.

No. It is quite thorough.

Not that I am aware of

Updated BMP selections. Need slightly more info on MS4 and stormwater programs

Not at this current time.

No

No

New Pollutants such as PFAs, more emphasis on recycling , sustainability, plastics, infiltration devices in cities.

No

solar field development

Some basic installation, inspection, operation, and maintenance

I can't think of any

Not to my knowledge.

E&SC planning, SWPPP prep and monitoring, Farm Planning, etc.

No

No

Nutrient loading impacts on water quality. Erosion and sediment is a mode of phosphorus transport.

Alternative Energy resources such as Solar Farms and Wind Farms

Unnecessary to add

No

Green Stormwater Infrastructure (GSI)

Not that I can think of.

Post wildfire restoration working with nature as the solution/BMP and not hard erosion control products.

Coagulants and flocculants used in sediment basins and the relationship of these agents with soil chemistry.

Advanced treatment for industrial storm water

No

no

Permeable pavements, pavers, blocks type systems for maintenance and outflow/overflow treatments of run off

Nope.

No

not to my knowledge

Surface hydrology; basin design

High Efficiency Basin - Design, operation, and flocculation

Nothing comes to mind

Post Construction (GI/LID)

No

No

No

Passive sediment treatment. Active sediment treatment.

No

Not sure.

Nothing comes to mind.

Advanced treatment needs to be covered much more thoroughly. Specifically, how to design and size treatment systems, conveyance, and collection systems. Pare back some of the soil loss/vegetation/fertility stuff.

Not that I can think of.

Yes - erosion and sediment control considerations for climate change resiliency and adaptation.

Basin implementation and basin management

Sustainability / Green Building Certificate Institute

Identification of sensitive areas like wetlands, streams, and other waters of the US

None that I can see

Not that I'm aware of.

No.

No

no

No recommendations at this time

no

Country/region specific scopes.

I think the professional scope covers everything I could possibly ever imagine doing and then some.

Not presently

Understanding and modeling of sediment transport mechanics.

Not that I can think of.

NO

Better understanding which contaminants are attached to sediment (and which are less so) and understanding their migration from the project site.

Environmental remediation

No

soil analysis and rehabilitation skills. The focus should go back to erosion prevention and not on sediment capture or flocculation

RULSE 2

Soil health

Not at this time.

The impacts/implications of cloud-burst storms as related to erosion should be considered as there seem to be more of these.

No.

No

No

NA

Controlling pollutants in impaired watershed such as those associated with Total Maximum Daily Loads where soil disturbing activities such as construction or agriculture are contributors.

LID and long-term controls

Wildfire stabilization

The CII Permit

Treatment/chlorine process

None that I can think of.

None

Geologist

innovative, new technologies

Practicality

No. There may be too many already

Include more agronomic as to how to establish vegetation on damaged construction site soils

No

Low Impact Developments such as Rain Gardens.

no

Site reclamation and regrading

No

No

No

No.

Green infrastructure

Riparian Buffers

No

no

n/a

Not at moment

No

no

Not at this time.

No

APPENDIX G

Body of Knowledge

PLACE HOLDER

APPENDIX H

Subject Matter Experts

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

Mike Chase - *CPESC, CESSWI, CPSWQ, CPISM*

Mark Goldsmith - *CPESC, CESSWI, QSM*

James O'Tousa - *CPESC, CPSWQ, CESSWI*

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

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

Adam Dibble, *CPESC, CESSWI*

Gustavo Salerno, *CPESC*

Andrew Peach, *CPESC*

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