

Job Profile: Soil Specialist

Pay Level: CG-39 **Point Band:** 882-915

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	6	5	3	5	5	5	5	4	4	
Points	280	83	19	24	150	108	103	86	43	896

JOB SUMMARY

The Soil Specialist is responsible for the acquisition, interpretation, assessment and publication of soils and related terrain sciences information. Soil information is used to assess the extent, distribution and agricultural potential of the province's soil resources for agronomic uses, drainage applications, environmental sensitivity assessments, engineering applications, nutrient management planning and urban applications.

Key and Periodic Activities

- Characterizes soils, soil properties and derives soil suitability for agronomic and non-agronomic purposes and the spatial representation of the information by mapping.
- Plans all logistical requirements for field and office work projects including research methodology, literature review, database compilation, equipment, human resources, scheduling and budgets.
- Performs terrain analysis using air photo interpretation for landform identification and soil drainage classification for draft map preparation. Compiles and interprets soil information through both field and laboratory analysis. Authors and publishes scientific and technical soil information in the form of maps, reports and digital databases.
- Provides technical advice to the farming community, agricultural staff and other federal, provincial and affiliated agencies on the adaptability of soils for various crops, their behaviour under use or treatment for plant production or other purposes, their productivity under different management systems and their susceptibility to soil degradation processes. Advice for non-agronomic soil resources applications is provided for horticulture and fuel peat, forest management, soil traffic ability, septic systems and environmental land management.
- Designs, develops and maintains an inventory of provincial soil resources.
- Provides interpretative soils analysis for provincial and federal Department of Agriculture, as well as other government departments, universities, schools, scientific societies, environmental consultants and industry.
- Develops and evaluates soil quality change by establishing, monitoring and evaluating various land uses and land management practices.
- Develops, reviews, evaluates and makes recommendations to the Canadian System of Soil Classification, Newfoundland and Labrador Environmental Farm Plan; promotes climatic, green cover solutions by participating in workshops involving new scientific alternative approaches relating to the reduction of ground water, air and other environmental pollution.

Key and Periodic Activities

- May conduct comprehensive field inspection on suspected pollution problems on agricultural land, sampling and monitoring and making recommendations on best management practices.
- May provide geo-scientific reports and appear in provincial and supreme courts as a professional witness involving land tenure conflicts.
- Conducts seasonal soil survey field work and air photo interpretation.
- Supervises technical and support staff and coordinates GIS staff in the development of soils geo-databases.
- Prepares and revises soil maps and develops and maintains computerized soils data and retrieval systems in a form usable to clients.
- Researches, conducts field investigations, analyzes data and makes recommendations to industry officials.

SKILL

Knowledge

General and Specific Knowledge:

- Mapping procedures and standards
- Use of field equipment such as augers, GPS, map and compass, clinometers, pH meters
- Air photo interpretation

Formal Education and/or Certification(s):

- Minimum: Undergraduate Degree in Physical Geography

Years of Experience:

- Minimum: 3 - 4 years

Competencies:

- Written and verbal communication skills
- Computer and software skills
- Ability to repair and calibrate equipment/machinery
- Analytical and assessment skills
- Project Management skills

Interpersonal Skills

- A range of interpersonal skills such as listening, asking questions, providing routine and complex information is used when advising and educating farmers on how to complete a soil assessment. Resulting from this assessment, provides recommendations on land usage and solves problems on such factors as rock removal, soil textures, erosion, presence of organic matter, etc. Provides technical advice to the farming community, and other federal, provincial and affiliated agencies on adaptability of soils, and occasionally conducts formal interviews, facilitates meetings, and makes formal presentations.
- Communications occur with employees within the immediate work area, department, other Provincial Government departments, Municipal and Federal governments and external industry organizations/businesses.
- Most significant contacts are clients (i.e. agencies, municipalities, environmental consultants,

greenhouse and nursery operators, landscape and composting companies, provincial, national and international businesses to advise on land suitability, land tenure conflicts, land clearing, drainage and related issues); Managers/Supervisors to provide original soils mapping, suitability mapping and Canada Land Inventory mapping for areas throughout the province and employees/peers to provide information, problem solve and mentor.

EFFORT

Physical Effort

- The demands of the job occasionally result in considerable fatigue when conducting field work as a result of walking over rough and varied terrain, carrying field gear, using a shovel and auger to dig soil pits and probe bogs.
- Lifting or moving objects which are typically less than 10 lbs.
- The use of fine finger/precision work occurs on a regular basis when using a computer to edit data and write reports and when peering into a stereoscope to conduct air photo interpretation for terrain analysis.

Concentration

- **Visual concentration** is regularly required when performing air photo interpretation for terrain analysis, computer analysis, driving and writing reports.
- **Auditory concentration** is required for listening to information from others in order to provide the appropriate technical advice.
- **Other sensory demands such as touch** is used to determine field textures of different soils.
- **Repetition requiring alertness** is evident during data entry, editing and review, driving and when reviewing maps.
- **Time pressures and deadlines** are experienced when performing project management sequencing such as planning field work, photo interpretation, map preparation edits, report writing and communication of results to farmers who want to clear land for the upcoming growing season.
- **Eye/hand coordination** is required for operating an ATV.
- **Exact results and precision** is required when performing soil/terrain analysis, air photo interpretation and mapping decisions.

Complexity

- Work involves a series of tasks and activities which are quite different but allow for the use of similar skills and knowledge.
- Regularly encounters challenges/problems/issues that are technical in nature and may have policy/strategic significance. Therefore, a degree of analysis and solution development is required.
- Performs terrain analysis using air photo interpretation for landform identification and soil drainage classification for draft map preparation. Compiles and interprets soil information through both field and laboratory analysis. Authors and publishes scientific and technical soil information in the form of maps, reports and digital databases.
- Typical problems involve mapping, classifying a soil and deriving a suitability of that soil for a particular use and the spatial representation of the information by mapping. All agriculture

is based on soil information. Occasionally these challenges must be defined and practical solutions found.

- Reference material available includes manuals, soil survey reports, geology maps, air photographs, and satellite and climate data.

RESPONSIBILITY

Accountability and Decision-Making

- Works tasks and activities are somewhat prescribed or controlled.
- Can independently make decisions involving planning projects and providing direction to technicians and students. Perform final check of data before it is provided to a producer or client.
- Purchasing and out of province travel must be approved by a supervisor.
- Discretion and judgment must be exercised when planning all logistical requirements for field and office work projects including research methodology, literature review, database compilation, equipment, human resources, scheduling and budgets.
- Provides technical advice to the farming community, agricultural staff and other federal, provincial and affiliated agencies on the adaptability of soils for various crops, their behaviour under use or treatment for plant production or other purposes, their productivity under different management systems and their susceptibility to soil degradation processes. Advice for non-agronomic soil resources applications is provided for horticulture and fuel peat, forest management, soil traffic ability, septic systems and environmental land management.

Impact

- Impacts are felt internally within the immediate work area and department as well as externally with clients, general public and the Agriculture and Agrifoods Canada National Soils Database. Resource mainly impacted is information related.
- The consequences of a mistake or error can have a significant impact on farmers who depend on good soil information for business decisions. This information may also impact departmental strategic planning initiatives.

Development and Leadership of Others

- Typically responsible for direct and ongoing bargaining unit supervisory activities for a small size work group of employees (1 to 4 employees).
- Development and leadership responsibilities include on-the-job advice/guidance, direction, feedback, orientation to new employees, on-the-job training, acting as technical mentor, delegating tasks, organizing and coordinating the work of others. Takes a lead role in land development projects.

WORKING CONDITIONS

Environmental Working Conditions

- Safety equipment such as a helmet is required when operating an ATV during field work.
- There is exposure to fumes and hazardous chemicals when working in fields that have been

sprayed/treated with pesticides; and odours, bodily fluids and waste when visiting farms as well as dirt, dust, glare, limited lighting, wet or slippery surfaces, electrical shocks, isolation, temperature extremes, physical dangers or threats, heavy machinery, adverse weather conditions and travel.