

**Job Class Profile: Cartographic Technician III (Photogrammetry)****Pay Level: CG-28 Point Band: 578-621**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	5	2	4	6	3	3	3	1	2	
Points	233	33	25	29	90	65	62	21	21	579

**JOB SUMMARY**

The Cartographic Technician III (Photogrammetry) performs a highly specialized technical service in the topographic mapping process, including project planning, aerial triangulation, map compilation and topology editing. Work also includes quality control on contract-out mapping and tasks related to the process of computer archiving of aerial photography.

**Key and Periodic Activities**

- Plans topographic base mapping projects including the design of aerial photography flight lines, the layout of mapping areas and map sheets and the selection of the locations for the ground survey photo control points.
- Performs interactive edits to digital maps and performs test processes to ensure the contractor maps are topologically clean and complete for trouble free use in GIS applications.
- Performs final quality control of all contract-out topographic base mapping projects for completeness, accuracy and topology.
- Performs highly specialized and precise work in archiving the department's roll of aerial photography involving image enhancement and colour matching using specialized software and high precision photogrammetric and graphic scanners.
- Performs aerial triangulation, i.e. The precise reading of tie and control points using specialized photogrammetric equipment; the numerical adjustment of the readings using specialized software; and the analysis of the results to determine corrective action to find the optimal solution.
- Produces final topographic map sheets for sale by the department.
- Makes survey targets for use in the field to show aerial photographic control.

**SKILL****Knowledge****General and Specific Knowledge:**

- GIS systems and software for map compilation and editing. i.e. CARIS
- Theory and proficiency in soft copy Photogrammetry.
- Aerial triangulation, cartography and Photogrammetry.

**Formal Education and/or Certification(s):**

- Minimum: 3-year Diploma in Geomatics or undergraduate degree in Geography with training in Photogrammetry, GIS, remote sensing and cartography.

**Years of Experience:**

- Minimum: 4-5 years

**Specialized Competency:**

Ability to interpret and see stereoscopically (in 3D)

**Interpersonal Skills**

- Interpersonal skills are used to receive information from others, ask questions to gain information, provide routine information, and communicate complex ideas to others.
- Most significant interactions are with co-workers/employees in the immediate work area, with the supervisor and with other employees in the department. There is also contact with contractors regarding mapping projects.

**EFFORT****Physical Effort**

- Requires fine finger precision work constantly using the computer mouse and keyboard.
- Sitting at a computer for extended periods and using a mouse and keyboard to edit digital maps and perform test processes and creates repetitive strain on hands, fingers, joints, shoulders and neck.
- Regularly uses hand tools that require accurate control and steadiness and occasionally using machinery that requires very controlled movement.

**Concentration**

- **Visual** concentration and **alertness** is required for image interpretation for scanning, 3D interpretation of images for mapping and general interpretation of maps for quality.
- Tasks can be **repetitive and require alertness** to verify that every small component is correct.
- There is a need for **exact results and precision and eye/hand co-ordination** while reading photo control and tie points from imagery and while setting up and capturing base map features using digital and photogrammetric software.

**Complexity**

- Tasks are constantly different but related and/or regularly repetitive/well defined or and allow for the use of similar skills and knowledge.
- There are also some tasks for which a limited number of guidelines or procedures exist and present challenges with limited opportunity for standardized solutions.
- Work is usually performed with defined and standard work processes, have obvious or limited solutions and/or can be addressed by following procedures or guidelines.
- The work involves highly technical processes that are well defined as processes have migrated from analog to digital format with specialized software and digital photo images for the production of base mapping.
- Typical problems are how to correct maps from contractors; how to correct aerial triangulation that is not fitting; and how much adjustment to make on scanned images.

- Manuals, and specialized staff/advisors are available as references or resources.

## RESPONSIBILITY

### Accountability and Decision-Making

- Work tasks are highly prescribed or controlled with well-defined procedures and various quality controls both computer and human.
- Decision making is minimal as the work follows well-defined procedures.
- Where the work remains within defined parameters there is discretion and judgement used in carrying out all topographic mapping procedures. Incumbent performs quality control on contract work.

### Impact

- Results are directly felt within the immediate work area and by clients and impact equipment and information.
- Base mapping is critical to all GIS users in both the public and private sectors. It is the fundamental building block. If data is incorrect then it will have an impact on any application that uses the data.
- Inspections, calculations and corrections minimize impact on these users.

### Development and Leadership of Others

- Not responsible for the supervision of staff.
- May provide some guidance to students and new employees as required.

## WORKING CONDITIONS

### Environmental Working Conditions

- Not required to wear safety equipment or take any unusual precautions.
- The likelihood of minor injury or illness and fractures is limited or does not apply.
- There is regular exposure to glare from computer screens.
- Occasional exposure to hazardous chemicals, dust, noise, limited lighting and sharp objects during scanning procedures.