

## New

Ministry

Transportation and Economic Corridors

### Describe: Basic Job Details

#### Position

Position ID

Position Name (30 characters)

Construction Engineer

Requested Class

Engineering & Related Level 2

Job Focus

Operations/Program

Supervisory Level

00 - No Supervision

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

#### Employee

Employee Name (or Vacant)

#### Organizational Structure

Division, Branch/Unit

Construction and Maintenance - NCR

☐ Current organizational chart attached?

Supervisor's Position ID

Supervisor's Position Name (30 characters)

Supervisor's Current Class

### Design: Identify Job Duties and Value

#### Job Purpose and Organizational Context

Why the job exists:

Reporting to the Construction Manager, the Construction Engineer is responsible for managing, coordinating and administering engineering consultants and in-house engineering specialists for the delivery engineering design, tender package, construction supervision, and contract management of various sized highway and airport projects using guidelines that are consistent with national and departmental standards. The position is responsible for the administration of Consultant Engineering Agreements and provides the leadership and expertise necessary to manage construction projects within a safe work environment, ensuring that they are delivered within scope, cost, time, and quality. This position requires a broad knowledge of highway engineering with a thorough understanding of design standards, construction administration and practices, the right of way acquisition process, utility coordination, regulations applied by the transportation industry, environment permits and regulators, and departmental policies and guidelines. This position also provides assistance in the planning and programming of the department projects.

#### Responsibilities

Job outcomes (4-6 core results), and for each outcome, 4-6 corresponding activities:

1. Assists in the functional planning and programming of departmental projects:
  - Provides input for the development, implementation, and delivery of strategies for construction and

- rehabilitation projects identified in the department's 3-year, 5-year, 10-year and 20-year programs
- Provides technical assistance and reviews Functional Plans, Geometric Assessments and Surfacing Strategies
- Participates in Open Houses. Gathers and reviews information from the public and various other stakeholders

2. Administers, coordinates and delivers, through the engineering consultants and in-house engineering and technical staff, the development, design, tendering and construction of highway projects, to ensure a timely, safe and efficient delivery of the department's highway construction and rehabilitation programs:

- Utilises any available planning studies, geometric assessments, intersection safety assessments, accident statistics, surfacing strategies, bridge reports, geotechnical reports and environmental studies in preparing terms of reference for consultant proposals
- Reviews and assesses consultant proposals and provides input on consultant selection
- Chairs the project initialisation meeting to confirm the scope of work
- Reviews and comments on designs to ensure that the department standards are being met
- Reviews conditions of land agreements and liaisons with appropriate consultant to ensure all conditions of sale are met
- Reviews and correct tender package to ensure that contractual requirements are being met and assists in the tendering process.
- Responsible for co-ordination and supervision of other engineering and technical staff if requested.

3. Contract administration and construction supervision of highway projects:

- Office Administration:
  - ... Reviews and provides comments on the Environmental Construction Operation (ECO) plan and the Traffic Accommodation Strategy
  - ... Chairs the pre-construction meeting, as required.
  - ... Reviews weekly reports, progress estimates and monthly expenditure reports
  - ... Reviews and recommends consultant fee/scope changes, personal change approvals, and contract unit prices requests and extra work orders
  - ... Monitors and controls project costs during all phases of the projects to ensure adequate funds are available to complete the projects
  - ... Reviews utility crossing agreements and utility conflicts and accesses the need for adjustments and cost responsibility
  - ... Coordinates project scope with Alberta Environment, Department of Fisheries and Oceans, and the National Coast Guard
  - ... Liaisons and coordinates efforts with other government agencies, stakeholders, and the public
  - ... As an expenditure officer, authorises payments of progress estimates and monthly expenditures
  - ... Reviews final details and final contract payment
  - ... Reviews and authorize consultant invoices to ensure compliance with the agreement
  - ... Monitors and evaluated consultant performance and complete the evaluation form which is utilized for future project consultant selection.
- Field Duties:
  - ... Observes and requests modifications to the traffic accommodation and safety procedures
  - ... Reviews the performance of the ECO Plan during site visits.
  - ... Monitors and discuss construction techniques and procedures with the engineer consultant to ensure construction is in compliance with the department's specifications
  - ... Reviews materials testing and sampling procedures and results
  - ... Attends bi-weekly construction meetings, as required
  - ... Ensures that the consultant's staff is performing in accordance with the agreement
  - ... Monitors the construction scope of work
  - ... Mediates any disputes between stakeholders including contractual interpretation
  - ... Resolves through negotiation and mediation, conflicts arising from landowners or stakeholders
  - ... Monitors construction progress, and reviews contract quantities and estimated project costs
  - ... Reviews field design changes and provide comments and recommendations

4. Takes an active role and provide project direction/guidance on complex projects with complex technical and

program/policy implications, involving multiple clients or stakeholders thereby bringing out the best of inventive thinking while implementing adequate controls to ensure that financial and human resources are efficiently directed toward project goals:

- Administers and manages the work of external engineering consultants by overseeing project schedules, and ensuring budget and contractual obligations are being met
- Plans, oversees and assesses the work of consultants and in-house specialists and technical staff involved in assigned projects
- Co-ordinates internal and external resources to ensure cost efficient and effective utilization of resources
- Reviews consultant human resources to ensure project milestone dates are achieved

5. Provides project leadership within acceptable project management principles and practices, and consistent with departmental guidelines, to ensure timely progress and quality of construction, cost control and resolution of issues:

- Develops and maintains appropriate communication strategies to ensure timely exchange of information with consultants, contractors and the department's operations staff.
- Recommends corrective actions as necessary, reviewing details to substantiate contract overruns, and reviewing and approving contract final details for final payments
- Mediates any disputes between stakeholders (contractor, consultant, and landowners) including contractual interpretation

6. Maintains continuous contact with stakeholders to ensure their needs have been adequately addressed:

- Liaisons with First Nations regarding project implementation within First Nation reserves and discusses employment opportunities and equipment usage
- Liaisons with contractors, consultants, landowners, utility owners, elected officials, local communities leaders, highway user groups, environmental agencies and special interest groups, municipal officials, other government agencies and officials and the general public, throughout the life cycle of project
- Participates in the public consultation process as a representative for the department
- Liaisons with the departments operations staff regarding project identification, scope determination, special design requirements and final acceptance of construction projects
- Participates in group meetings with local landowners, municipalities and highway user's organizations to obtain input regarding stakeholders' needs, keeping them informed of current program developments
- Assesses engineering proposals by local municipalities for future construction feasibility and the probability of associated problems and risks

7. Participates and contributes to department initiatives and goals:

- Participates in the North Central Region's meetings to support the department's mission, goals and objectives
- Creates an environment for teamwork and collaboration with other departments and agencies
- Participates in technical committees to develop engineering standards and construction specifications, as well as to improving the process for delivery of projects
- Participates in the development and formulation of the multi-year construction program for the Region. Helps in the preparation of, and presentation of topics of for discussion for the annual start-up meeting

## Problem Solving

Typical problems solved:

- Provide guidance to engineering consultants during design phase and make decisions on scope of work
- Make direct impact decisions on scope, schedule and cost of projects
- Resolve construction disputes regarding scope, cost and schedule
- Provide guidance on field change orders during construction

Types of guidance available for problem solving:

- Cost Benefit Analysis
- Long term planning and asset management

-Engineering guidelines and practices  
-Field knowledge and experience

Direct or indirect impacts of decisions:

-Direct impact on financial outcomes of projects  
-Direct impact on quality and longevity of projects  
-Direct impact on stakeholders including local landowners, municipalities and indigenous communities

## Key Relationships

Major stakeholders and purpose of interactions:

- Manages several construction and rehabilitation contracts ranging between \$50,000 to \$200,000,000 for periods of 3 months to 5+ years, and numerous consultant agreements valued from \$5,000 to \$10,000,000 for service duration of 6 months to 5+ years
- Involved in various experimental initiatives and trial projects such as PG Grade asphalt for rut resistance, use of geogrid within asphalt, preliminary surface repairs methods, rubberized asphalt pavement, superpave, use of lightweight fills in embankments, safety barricades, and wildlife reflectors to improve the quality of highway construction and safety to the motoring public
- Stakeholders include contractors, consultants, local land owners, utility owners, environmental agencies and interest groups, highway users, other government departments (municipal, provincial and federal), Local MLAs and the general public
- The programs covered include the Provincial Highways Program, Airports, Provincial Highways Rehabilitation Program, Provincial Highways Bridges Program, Construction of Public Roads Program, Twinning Widening & Expansion Program and Bridges Program, etc.

## Required Education, Experience and Technical Competencies

Education Level

Bachelor's Degree (4 year)

Focus/Major

Engineering

2nd Major/Minor if applicable

Designation

PEng

If other, specify:

Job-specific experience, technical competencies, certification and/or training:

- Bachelor Degree in Engineering and current membership as a Professional Engineer with APEGA.
  - Extensive knowledge of highway planning, design, and the construction specifications and process, including the application of project management principles
  - Knowledge of theories, principles and practices of Engineering Science
  - Knowledge of general construction practices and procedures
  - Knowledge and understanding of construction contract documents and specifications and their interpretations
  - Knowledge of the roles and responsibilities of the complete design team in a project setting
  - Knowledge of the roles and responsibilities of the department, consultant and contractor, on construction contract projects
  - Knowledge of environmental requirements and how construction activities may impact them (DFO, EPA)
  - Knowledge of departmental and national highway design and operation guidelines and standards
  - Knowledge of departmental consultant guidelines, contract administration manual, project administration manual, traffic accommodation through construction zone manual, etc.
  - Understanding of procedures related to land (right of way) acquisition and expropriation
  - Strong negotiation and problem solving skills
  - Strong written and oral communication skills
  - Leadership skills and interpersonal skills
  - Excellent organizational skills and time management skills
  - Ability to handle a number of complex multi-disciplinary projects simultaneously and meet deadlines.
  - Ability to resolve conflicts and make immediate decisions
  - Ability to analyze situations and problems and provide innovative solutions to complex problems
- Computer software applications skills

## Behavioral Competencies

Pick 4-5 representative behavioral competencies and their level.

Competency	Level					Level Definition	Examples of how this level best represents the job
	A	B	C	D	E		
Systems Thinking	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Takes a long-term view towards organization's objectives and how to achieve them:</p> <ul style="list-style-type: none"> <li>• Takes holistic long-term view of challenges and opportunities</li> <li>• Anticipates outcomes and potential impacts, seeks stakeholder perspectives</li> <li>• Works towards actions and plans aligned with APS values</li> <li>• Works with others to identify areas for collaboration</li> </ul>	
Drive for Results	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Works to exceed goals and partner with others to achieve objectives:</p> <ul style="list-style-type: none"> <li>• Plans based on past experience</li> <li>• Holds self and others responsible for results</li> <li>• Partners with groups to achieve outcomes</li> <li>• Aims to exceed expectations</li> </ul>	
Agility	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Works in a changing environment and takes initiative to change:</p> <ul style="list-style-type: none"> <li>• Takes opportunities to improve work processes</li> <li>• Anticipates and adjusts behaviour to change</li> <li>• Remains optimistic, calm and composed in stressful situations</li> <li>• Seeks advice and support to change appropriately</li> <li>• Works creatively within guidelines</li> </ul>	
Develop Networks	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Leverages relationships to build input and perspective:</p> <ul style="list-style-type: none"> <li>• Looks broadly to engage stakeholders</li> <li>• Open to perspectives towards long-term goals</li> <li>• Actively seeks input into change initiatives</li> </ul>	

		• Maintains stakeholder relationships	
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**Benchmarks**

List 1-2 potential comparable Government of Alberta: [Benchmark](#)

**Assign**