

**BENCHMARK POSITION DESCRIPTION – BM #42  
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE**

<b>1. POSITION TITLE</b> Highway Design Engineer	<b>2. CLASSIFICATION LEVEL</b> LSO 2
<b>3. DIVISION</b> Highways	<b>4. BRANCH</b> South Coast Region
<b>5. IMMEDIATE SUPERVISOR</b> Sr. Highway Design Engineer	<b>6. LOCATION</b> Burnaby

<b>Program Function</b>	Describe the purpose of the program and organization in which the position operates.
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The primary functions of the Engineering Branch are to provide a complete range of services in highway survey, highway design, traffic design, consultant design liaison, highway and traffic design audit, safety audit, engineering plan preparation and general engineering services to the Region. The Highway Design team facilitates the management and direction of all provincial highway geometric design to ministry standards, ensures quality management of all design products, and conducts extensive consultation with other ministry staff, transportation agencies, local governments, First Nations and other stakeholders.

<b>Purpose of Position and Summary of its Functions</b>	This may be used for POSTING purposes.
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The primary purpose of this position is to produce preliminary designs of all classifications of highways and detailed designs of various aspects of all classifications of highways. The position will also conduct quality audit reviews and checks of engineering designs.

<b>Organizational Structure and Working Environment</b>	
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The position resides in the Highway Design and Survey Engineering Section which is one of several engineering disciplines reporting to the Regional Manager, Engineering. The position reports directly to a Highway Design Engineer and receives direction in major policy and priority assignments but otherwise operates with minimal supervision. The position maintains a close working relationship with other professionals within various other engineering groups throughout the ministry.

<b>Position's Specific Functions and How They Are Performed</b>	
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- 1. 40% Produces preliminary designs of all classifications of highways by:**
- Establishing the requirements and scope of each preliminary design assignment
  - Determining the design criteria and relevant ambient standard appropriate for the project and developing cost estimates
  - Liaising with stakeholders and affected municipalities
  - Interpreting designs and standards utilized by branches within the Ministry and other agencies and integrating them into highway project specifications.
  - Reviewing maps/photos and models for accuracy and completeness
  - Designing various concepts and options
  - Leading or participating in operational planning meetings, negotiations, design, pre-tender and pre-construction reviews of highway designs and standards
  - Establishing a systematic approach for comparison of options based on current methods and systems
  - Analyzing, evaluating, comparing and ranking options and preparing recommendations on the preferred concept
  - Documenting the process and rationale for the recommended design
  - Attending public meetings and/or answering public enquiries
  - Preparing and delivering presentations to the Executive, Senior Management, Municipalities, Public Groups, etc.

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**2. 40% Produces detailed designs of various aspects of all classifications of highways and other structures by:**

- Assisting and advising technical staff engaged in geometric highway design
- Estimates highway design and construction project time and scheduling requirements.
- Estimates all project costs relating to planning, design and construction cost
- Devising solutions or recommendations to issues encountered in the design process
- Investigating and evaluating alternative structural arrangements
- Developing, reviewing and recommending strategies for construction project sequencing and scheduling.
- Performing detailed engineering design calculations on all aspects of the structure
- Presenting notes, sketches, and drawings of the design to technical staff who assist in completing the finalized drawings
- Preparing special provisions, schedules of quantities, and advisory notes to be followed during construction
- Attending public meetings and/or answering public enquiries
- Investigating and advising on solutions to engineering and technical issues
- Preparing and delivering presentations to the Executive, Senior Management, Municipalities, Public Groups, etc.

**3. 15% Provides advice and conducts Quality Audit reviews and checks of engineering designs by:**

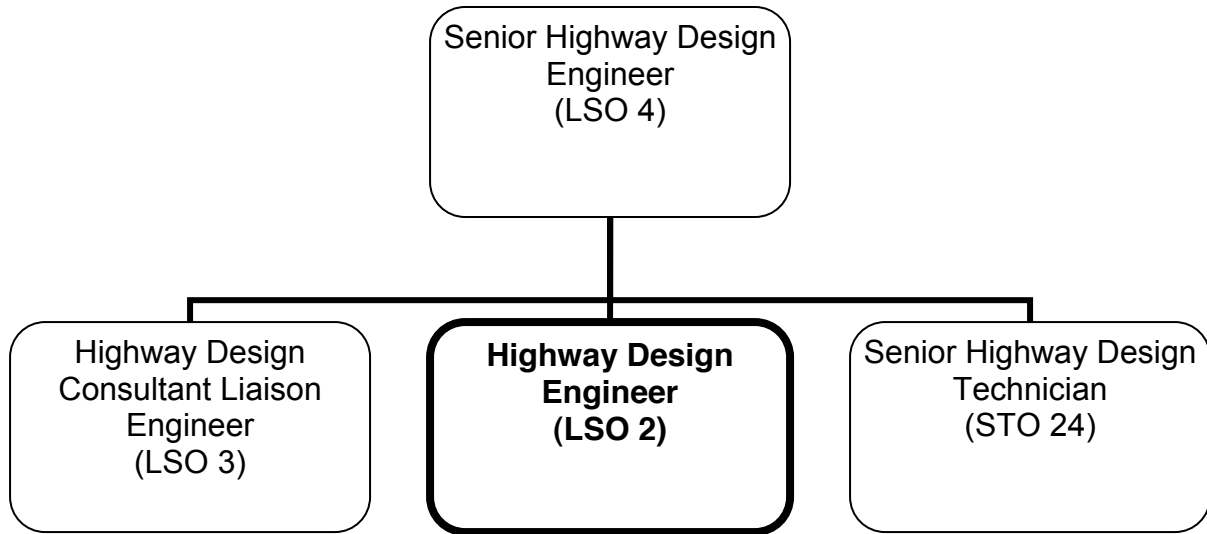
- Providing professional expertise and technical advice and guidance to senior managers, region district and section staff, and engineering consultants to ensure compliance with legislation and policy, operational planning requirements and service plans;
- Developing and formalizing quality management plans for assigned design projects
- Analyzing and evaluating highway design drawings and related documentation to ensure uniformity, accuracy and compliance with standards
- Signing and sealing engineering reports and drawings
- Responding to issues that arise during constricting by revising drawings and calculations
- Evaluating various design tools
- Preparing data, analyzing information required for reports, briefing notes, written technical reviews and/or recommendations
- Maintaining and expanding technical and professional proficiency in the complex expanding technical environment of Highway Engineering, through ongoing professional development, participation in conferences and symposia, and literature review.

**4. 5% Performs other related duties:**

- Reviewing consultants' designs at varying stages of completion
- Assisting in the evaluation of consultants' proposals

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**ORGANIZATION CHART – HIGHWAY DESIGN ENGINEER**



**BENCHMARK CLASSIFICATION RATIONALE – BM #42  
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE**

**TITLE: Highway Design Engineer**

**LEVEL: LSO 2**

**DIVISION/BRANCH: Highways/South Coast Region**

FACTOR	POINTS
<p><b><u>PURPOSE OF POSITION</u></b> The primary focus of this position is to produce preliminary and detailed designs for various aspects of all classifications of highways. The position will also conduct quality audit reviews and checks of engineering designs.</p> <p><b><u>KNOWLEDGE</u></b> The work requires a breadth of knowledge of engineering and experience and proficiency in three dimensional geometrics of highway design in order to determine design criteria, interpret designs and standards and produce various design options.</p> <p>Requires registration as a Professional Engineer.</p>	C(2) 99
<p><b><u>JUDGEMENT</u></b> <u>Originality and Complexity:</u> The position produces highway designs which require making adaptations to design solutions which are consistent with established standards and practice. The position utilizes current technology and recognized design practices in accordance with ministry policies, standards and procedures.</p> <p><u>Technical Supervision Received:</u> Drawings are reviewed upon completion for adequacy and completeness.</p>	B2 75
<p><b><u>ORGANIZATION AND PROGRAM ROLE</u></b> The primary role of the position is to provide advice, recommendations and consultative services in the production of preliminary and detailed highway designs.</p>	II(a) 43
<p><b><u>ADMINISTRATIVE SUPERVISORY RESPONSIBILITY</u></b> The position does not administratively supervise any staff.</p>	0

**TOTAL POINTS 217**

LEVEL	POINT RANGE
1	168 – 203
<b><u>2</u></b>	<b><u>204 – 237</u></b>
3	238 – 267
4	268 – 295
5	296 – 365