



PAPUA NEW GUINEA PUBLIC SERVICE

JOB DESCRIPTION



Form 002.7

1. IDENTIFICATION

AGENCY: <i>Works & Highways</i>	SYS. POSN. NO:	REF. NO: 60ESHE15	
WING: <i>Network Planning, Design & Standards</i>	DESIGNATION/CLASSIFICATION: <i>Hydraulics Engineer</i> – Grade 12		
DIVISION: <i>Engineering Services & Standards</i>	LOCAL DESIGNATION: <i>Hydraulics Engineer</i>		
BRANCH: <i>Highway Engineering</i>	REPORTING TO: <i>Senior Engineer – Bridges Design Grade 13</i>	SYS. POS. NO:	REF. NO: 60ESHE09
SECTION: <i>Technical</i>	LOCATION: <i>Headquarter – Boroko</i>		

HISTORY OF POSITION

FILE REF.	DATE OF VARIATION	DETAILS
111-60-A00	10/12/2021	Create

2. PURPOSE

Assist to develop and implement a safe and effective integrated bridge network programmes funded through the National government Infrastructural Development Programmes in Papua New Guinea.

3. DIMENSIONS

- 3.1** *Assist Senior, Supervising and Principal Engineers of Bridge Section on engineering and technical issues of bridging requirements relating to feasibility studies, investigations, scoping, design, documentation and implementation of the National Governments Infrastructural Development Programmes on road transport (Roads & Bridges) network in Papua New Guinea.*
- 3.2** *Assist Senior, Supervising and Principal Engineers (Bridge Section) to prepare briefs for investigations on proposed bridge crossing. These activities and tasks involved are measuring of stream flows & currents, analyze soil & water conditions, and relevant characteristics that may affect the bridge abutments, center pier and substructure when constructed.*
- 3.3** *Assist Senior, Supervising and Principal Engineers (Bridge Section) to supervise and appropriate equipment/tools and facilities including design software's to implement the National Governments Road Transport Network Programmes.*

4. PRINCIPLE ACCOUNTABILITIES

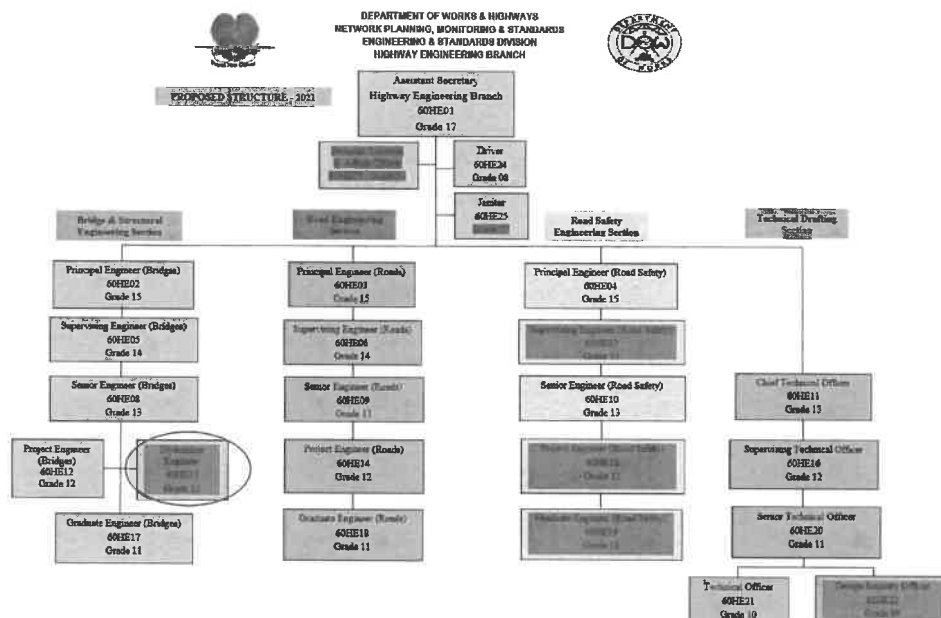
- 4.1** *Assist to ensure that design and documentation of the bridge projects involved by the Design Branch comply with the approved Department of Works (DoW) bridge design standards and specifications before construction.*
- 4.2** *Assist Senior, Supervising and Principal Engineers (Bridge Section) to ensure design checks of bridge projects completed by Engineering Consultants engaged by Department of Works (DoW) do comply with the approved design standards.*
- 4.3** *Assist with continuous training of design engineers and technicians on updated design software's and technologies used for improved performance and implementation of the bridge projects involved.*
- 4.4** *Assist to review and improve existing design standards and technology practices for design, documentation and construction of bridge projects involved on various road network programmes within the country for improved service delivery and access to the rural population.*

5. MAJOR DUTIES

- 5.1** Assist the bridge design team (Engineers & Technical Staff) to undertake feasibility studies, investigations, design & documentation of various bridge projects involved by Bridge Section as directed.
- 5.2** Assist to prepare tender documentation relating to design drawings, reports and earthwork quantities on bridge projects by Bridge Section for tendering awarding of contracts for construction.
- 5.3** Assist to liaise through Senior, Supervising and Principal Engineers (Bridge Section) and prepare hydraulic/hydrology bridge site inspection and investigation study briefs/scoping and include in the Terms of References (TOR).
- 5.4** Assist to liaise through Senior, Supervising and Principal Engineer (Bridge Section) with DoW field staff, other Government Departments and State Authorities/Agencies on DoW bridge design standards and specifications.
- 5.5** Assist with other relevant duties and tasks as directed by the management.

6. NATURE AND SCOPE

This position is within the management level of the design Branch and reports directly to the Activity Head (Assistant Secretary – Roads & Bridges Design Branch) as depicted in the structural framework of the branch.



6.1 WORKING RELATIONSHIP

(a) Internal

Reporting through senior, Supervising and Principal engineers (bridge Section) to Assistant Secretary (Roads & Bridges Design Branch),

(b) External

Nil

6.2 WORK ENVIRONMENT

Assist to implement all engineering, technical design specifications and standards on behalf of Department of Works (DoW) for the National Government of Papua New Guinea on road transport (Roads & Bridges) network for safe and easy accessibility for the people of Papua New Guinea.

7. CONSTRAINTS FRAMEWORK AND BOUNDARIES

- **Rules/procedures**
 - *The National Government through Department of Transport's National Transport Strategy Policy Guidelines for Road Transport Networks for upgrading and rehabilitation works has identified the sixteen (16) priority road network sections including the missing links in the Medium-Term Transport Development Programmes (MTDP).*
 - *Department of Works (DoW) shall be confined and limited to meet these policy guidelines as stated in the MTDP as a result when implementing these development projects.*
 - *All engineering design and documentation shall be focused on these road networks within the country subject to annual development budget funding as a result of these policy guidelines.*

- **Decision**
 - *The Government through department of Transport has the mandated role and obligation to decide and include other relevant sections of road network throughout the country into MTDP for implementing that will open accessibility to the rural population for economic and social developments.*
 - *This decision will not only alleviate poverty but also improve living conditions of the rural population through delivery of services such as health, education and other social improvements as well as agricultural developments.*

- **Recommendations**
 - *It is recommended that other policy guidelines be developed to include other missing sections of road network and funding to be made available through the Department of National Planning and Monitoring (DNP&M).*

8. CHALLENGES

- *The current challenge with respect to this position was the creation of this position to assist with bridge design requirements for hydraulics and hydrology investigation studies. All investigation studies are out-sourced to engineering consultants to conduct these studies on behalf of DoW through consultancy briefs prepared by the design branch. Creation of this position will ideally equip and improve the bridge engineers to conduct hydraulic and hydrology studies requirements and save costs that is being outsourced to the engineering consultants over these years.*
- *The other challenge with respect to this position is a qualified hydraulic/hydrology engineer to be recruited to this position who has obtained appropriate hydraulic/hydrology engineering qualifications from a recognized university to be engaged to this position. These studies when conducted are to comply with the relevant approved bridge design standards.*

9. QUALIFICATIONS, EXPERIENCES AND SKILLS

(a) Qualifications

- *Appropriate university degree in hydraulic & hydrology engineering studies from a recognized university.*
- *Registered member of Institute of Engineers – Papua New Guinea.*

(b) Knowledge

- *Sound knowledge of bridge engineering design software, concepts and relevant studies involved for bridge design requirements.*
- *Significant knowledge on various types of software's used for hydraulic/hydrology studies on soil and flow conditions before construction of the bridge and its effects after construction of the bridge structure.*

- *Sound knowledge on types of counter-measures to recommend in design and construction phases to protect/prevent bridge structure from damages that may lead to collapse of the bridge.*

(c) Skills

- *Significant experience in hydraulic/hydrology software's used for bridge design calculations to measure the flood frequency rates and peak discharges of proposed bridge crossings over rivers, creeks and streams.*

(d) Work Experience

- *Minimum experience of 4 years in bridge engineering applications on design and documentation phases on variety of bridge projects.*