**ROLE PROFILE**

**Role Title: Senior Engineer (Structures)**

**Service Group: Environment and Property**

**Accountable to: Team Leader (Structures)**

**Grade: J Competency Level: 3**

**JE Code: JE2025**

**Date: October 2019**

**Purpose of job**

To provide technical expertise and mentoring in the design, assessment, inspection, strengthening and refurbishment of Bridges and Other Structures (Structures) applying effective asset management to ensuring the structures are safe for use and fit for purpose in accordance with the Highways Act. To act as supervising engineer for the bridge inspection programme. This includes but is not restricted to highway structures.

To manage and monitor improvement works to existing Structures and for new build and understand and apply Corporate and Service requirements related to the highway network and in relation to construction works ensure that projects are supervised and administered in accordance with the relevant Contractual obligations and that works are constructed in accordance with the design specification and standards.

To undertake the role of Technical Approval Authority for highway structures on behalf of Milton Keynes Council and act as supervising inspection engineer for the inspection programmes including technical review and sign off of inspection reports.

**Key Objectives**

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| 1 | As supervising engineer for the bridge inspection programmes manage a team of inspectors, plan and implement annual programmes of general, principal and other inspections as required arranging appropriate access agreements, legal or consent orders and necessary administration of costs with external bodies in advance. |
| 2 | As supervising engineer for the bridge inspection programme oversee delivery of the annual inspection programmes and the inspectors undertaking the works providing mentoring where required, manage performance, ensure a consistent approach to condition reporting, ensure accurate and informative inspection reports are produced.  |
| 3 | As supervising engineer for the bridge inspection programmes technically review inspections and sign off all completed and approved reports within the bridge asset management system – Asset Management eXpert (AMX) in a timely manner in accordance with best practice. |
| 4 | To review Technical Approval documents in accordance with BD2. To provide guidance to highway development and adoption engineers carrying out technical audits of new development and planning applications. To act as Technical Approval Authority for the Council in all structure related matters for the design of new and design and assessment of existing structures. |
| 5 | To manage recording of asset data to include both new scheduled works and all completed inspection, assessment results, maintenance and upgrade information in the bridge asset management system - Asset Management eXpert (AMX) to ensure effective asset management and works programming of the stock of bridges and other structures. |
| 6 | To prepare and present detailed packages of project information, including asset data, outline design, ecology, testing/investigation requirements, location of utilities, third party access/conditions, Risk Assessments, Method Statements, briefs and or reports on a range of issues to the appropriate bodies/organisations for consultation/consent/approval. To produce technical and non-technical reports |
| 7 | To manage, plan and implement design/assessment (or oversee design/assessment work activities by consultants) and supervise the construction and delivery of multiple projects and programmes of Structures work within timescale, budgetary constraints and in line with recognised project management practices, quality management systems, contract conditions and specification and corporate governance. To act as Project Manager or Technical Project Manager for projects as necessary. |
| 8 | To liaise with third party organisations such as Historic England, Highways England, Network Rail, Environment Agency, Canals and Rivers Trust, Utilities, various societies including British Horse Society and Sustrans, legal, planning and private land owners in the planning stages of inspection and maintenance works to obtain required consents, approvals, including legal agreements to ensure design/works comply with the guiding principles and standards of these governing bodies/organisations. |
| 9 | To manage contracts including finances and the work/performance of contractors on site and to ensure that work elements are constructed in accordance with the project detailed design drawings, specifications and in accordance with the Contract in order to achieve quality standards.  |
| 10 | To ensure that effective relationships are maintained at all levels with contractors to meet any requirements in the contract for partnership working and continuous improvement in service delivery. |
| 11 | To assist in the management, development, co-ordination and implementation of operational practices, systems and procedures to meet ongoing objectives of the service and the council. |
| 12 | To propose practical courses of action and design solutions at all stages of works delivery based on specialist technical, professional, contractual and managerial knowledge, to ensure proposed solutions meet with service standards, legal obligations, Contract and local terms and conditions. Wherever possible consideration to be given to use of innovation and best value.  |
| 13 | To manage people, programmes, administration and resources efficiently and effectively and to be innovative, to develop, assess and achieve performance measures in the Structures service area. |
| 14 | To manage key stakeholder aspirations and expectations related to the delivery of the projects implemented by the Structures Service through effective communication, information practices with effective stakeholder relationships. To comply with customer care guidelines and initiatives and carry out all duties in accordance with the Council’s equal opportunities policy and to ensure contractors compliance with the Considerate Constructors Scheme. |
| 15 | To ensure compliance with Standing Orders, Financial Regulations, governance and legislative requirements. |
| 16 | To manage and implement all services in accordance with the Construction, Design and Management Regulations (CDM) fulfilling the statutory roles as necessary and in accordance will all Health and Safety at work requirements, corporate policies and relevant legislation and guidance.  |
| 17 | To provide ‘value engineering’ solutions to Structures projects during design and implementation stages. |

**Scope**

Responsible under direction of the Team Leader (Structures) for;

Inspection, Assessments, maintenance and management of the Council’s stock of bridges and other structures to ensure they are safe for use and fit for purpose in line with MKC Council objectives, asset management plan and national standards. There are approximately 680 bridges and 450 other structures managed and maintained by the team. In addition there are approximately 200 bridges owned by other service areas within the council that we oversee.

Review of bridge record data, past inspections, assessments, option appraisal reports, design drawings and other technical documents, scheduling and planning technical inspections and capital programme maintenance and recording in AMX. A methodical and logical approach to carrying out this work is essential.

Annual review of the risk based Principal Inspection Programme and making any necessary adjustments to the programme or risk assessment to ensure it is managed effectively.

Review and sign off all technical inspection reports prepared by the engineers delivering the General and Principal Inspection programmes.

To provide specialist structures guidance at pre-planning, planning and adoption stages for new or existing infrastructure applications.

This role involves some driving to and from various sites or to attend meetings

Ensuring a consistently accurate approach is used while undertaking technical inspections, assessment and recording of defects to ensure accurate, informative inspection reporting and clear and concise interpretation of results. Defect scoring in accordance with national guidelines and standards.

Preparation of packages of works for investigation, construction or assessment including locations, photographs, requirements, production of works schedules, consideration of traffic management, access, risk and ecology in accordance with procedures.

Review target costs to ensure they are within budget, cover all works in accordance with the design/specification identified in the works package, preparation approval of works orders using the councils preferred works ordering system to administer works through term contractors, authorising works orders and approval of payments of contractors accounts for works completed to the engineers satisfaction.

Preparation of works orders using the councils preferred works ordering system to administer works through term contractors.

The work involves having a head for heights as there is a need to use ladders, working from scaffold platform or a MEWP. The work also involves some walking on uneven ground off public highway.

Walking on foot alongside live carriageways and accessing or exiting from traffic management in a vehicle is also required.

Working near, in on or adjacent to water is also required as the council maintains approx. 280 structures that cross various watercourses including canals and main rivers. Working from pontoons is a requirement during the inspection of bridges over main rivers, canals and lakes as part of the Principal Inspection programme. Supervision of works that use pontoons may be necessary.

The individual has a duty of care that any defect of hazard encountered that may represent an immediate risk to public safety and/or structural stability must be reported to the Team Leader (Structures) immediately. Timely and accurate maintenance and upkeep of all electronic records associated with inspections, projects and maintenance works undertaken in accordance with asset management principles and quality systems.

As supervising engineer for the inspection programme lead on regular inspection programme monitoring and review meetings with the team of inspectors, attendance at project meetings, meeting with other stakeholders in advance or during works and when necessary take minutes and follow up actions as required

Liaison with the various contractors, and stakeholders and to own and resolve all queries within agreed timeframes (or escalate as appropriate).

Co-ordination with technical teams within the Highways Service as necessary in connection with the maintenance of bridges and other structures on the network.

The design, management, planning, implementation and supervision of structures maintenance schemes working with the Term Service Contractors, sub-contractors, external contractors and consultants.

The management and planning of Structures maintenance programmes for delivery through the Term Service Contracts to ensure that best value is achieved and to reduce to a minimum and network disruption.

To supervise site works for existing structures improvement or replacement schemes from small 0.9m culverts, footbridges, porte cocheres, retaining walls and bridges, to complex multi-span larger structures with unusual load paths and critical members such as post-tensioned or half-joints structures to ensure that the quality of the work complies with the contract drawings, specification and design standards. Overseeing construction of new structures delivered by developers is occasionally required.

To monitor the performance of the Contractor on individual schemes and work programmes and to monitor and manage compliance with contractual conditions. To respond to and implement any contract actions as required to ensure on going performance, quality, programme and finance requirements are met.

To manage project finances in line with contractual requirements and compliance with MKC corporate procedures.

To apply specialist technical knowledge in the field of bridge or structural engineering to advise, instruct, recommend and supervise the design and construction of structures projects. On occasion to use this specialist knowledge to advice colleagues in other areas of highways and to produce reports and information briefs for use corporately and or in communication.

Management of the contractual requirements of the Highways Infrastructure Term Service Contract in line with MKC Council objectives and the Contract Objectives.

Mentoring and supervising approximately 4 engineers responsible for delivery of the inspection programmes.

**Work Profile**

Responsible for identifying, planning, managing, co-ordination and implementation of structures maintenance and renewal projects and programmes in line with allocated budget and corporate procedures.

Accountable for approval and sign off of design and assessment documentation for new and existing Highway Structures in accordance with BD2 in the capacity of Technical Approval Authority for the Council.

Responsible for reviewing and sign off of technical inspections, assessments and designs prepared by others and where applicable using technical knowledge and expertise prepare proposals and recommend options to the Team Leader (Structures) to assist with forward programmes of work.

Production of performance, progress and reporting data as required for the purpose of monitoring the Service area. Accountable for managing contractor and consultant performance and maintaining quality standards in accordance with contractual conditions and Service requirements.

Accountable for the effective and efficient running of site works and supervisory staff engaged in the works or services..

Accountable for the management of Contractors and Consultants in line with corporate objectives and contract requirements, including budgets, KPIs and partnering where applicable.

Accountable for scheme and programme budgets and to effectively manage and supervise the contractor to ensure that budget targets are maintained. Responsible to agree final accounts and any contractual claims resulting from the works in accordance with the contract conditions and the allocated budget.

Responsible for ensuring that during structures programmed works there is co-ordination between teams and their programmes/work across the highways service for implementation through the Term Service Contract to ensure a joined up approach and best use of resource.

Responsible for the development and maintenance Quality Systems, processes and procedures needed to ensure that the contract and contractors can be managed effectively and efficiently.

Responsible for production of performance, progress and reporting data for use by senior managers for monitoring the service and the Term Service Contract.

Responsible for the management of communication and engagement practices to ensure that key stakeholders are informed and involved in all areas of service delivery as appropriate.

Accountable for managing and maintaining Health and Safety Standards and ensuring compliance with related legislation, and with particular regard for safe construction practices and safe implementation and maintenance of traffic management on the public highway.

Accountable to fulfil the statutory roles within the Construction, Design and Management Regulations (CDM) as necessary and accordance with all Health and Safety at Work requirements, corporate policies and relevant legislation and guidance.

Responsible for continuous improvement in contract supervision to include development planning, training plans and the design and implementation of improved practices and procedures.

## It will be necessary for the post holder to adopt a flexible approach to this role and the deployment of resources. The post holder is also required to undertake and record ‘Continuous Professional Development’ as recommended by the Institution of Civil Engineers or equivalent professional body.

The post holder will be required to communicate and consult with Elected Members, Officers of Milton Keynes Council and other local authorities, Parishes, citizens and their representative groups, Contractors and external organisations

To undertake duties commensurate with the grade as required for service delivery

To provide assistance across the Authority, to work on tasks and projects consistent with existing level and responsibility where business needs require.

Responsible to represent the interests of the Council as required.

Will be required to undertake work outside normal hours, principally to supervise site works but this may also include attendance at meetings.

The ability to drive is a requirement of this role. The post holder will be required to travel around the Borough on a daily basis.

**Job Context**

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**PERSON SPECIFICATION**

**In this section the Skills, Knowledge, Qualification and Competency requirements to perform the role to a satisfactory standard are set out. The extent, nature and level of the role holder’s knowledge and skills should be specified**

**Awareness** some knowledge or skills sufficient to show aptitude and the ability to learn in the particular work area

**Significant**  knowledge and skills gained through practice and/or qualification sufficient to fulfill the role requirements

**Extensive** knowledge and skills gained through practice and/ or qualification to fulfill the role requirements and contribute to training others and developing policy and practice in the work area

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| **PERSON SPECIFICATION**  | **Examples specific to role** | **Required** | **Level** | **Method of Assessment application form, interview, testing, reference** |
| **Essential** | **Desirable** | **Awareness** | **Significant**  | **Extensive** |
| **SKILLS AND KNOWLEDGE****Technical knowledge and qualifications**  | **Experience*** Computer literate with a good knowledge of Word and Excel software packages
* Experience of asset data management, monitoring and running reports
* Ability to use computer and software packages and to produce drawings
* Significant experience of performing, recording and interpreting inspections of bridges and other structures
* Significant experience in describing and categorising defects likely to be identified in concrete, masonry, timber or steel and more complex or unusual structural forms
* Significant experience in interpreting defects, prioritising and appropriate remedial work
* Experience in bridge design and or assessment of highway structures
* Significant practical experience of the supervision and management of bridges and highway structures contractors during construction works
* Significant practical experience for technical and service delivery aspects of transportation infrastructure related projects and programmes.
* Practical experience for the management responsibility of projects and programmes, including human and financial resources.
* Experience in engaging with clients, general public and their representatives to discuss, develop, resolve and implement solutions
* Significant practical experience of contract management and procurement, (NEC3 preferred)

Experience of claims management in a contract environmentExperience in the application of CDM regulations **Knowledge*** Sound knowledge of inspection, assessment and design of bridges and highway structures
* Extensive knowledge of construction forms of bridges and other structures and construction materials used.
* Knowledge of structural behaviour, modes of failure, common causes of deterioration and defects observed.
* Knowledge Bridge design standards such as the Design Manual for Roads and Bridges (DMRB
* An appreciation of the implications of working practices on the environment and a knowledge of sustainable construction practices Knowledge of principal repair techniques for concrete, metal, masonry and timber bridges and structures
* Highways Act 1980
* New Roads and Streetworks Act 1991
* Construction Design and Management Regulations
* In depth knowledge of Highway Contracts including specification and price lists
* Conditions of Contract NEC suite (essential), ICE and JCT (desirable)

**Qualifications*** Chartered or Incorporated Member of a professional Institution (Civil or Structures only)

Driving licence | XXXXXXXXXXXXXXXXXXXXXXXXX |  |  |  | XXXXXXXXXXXXXXXXXXXXXXX | A/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/I/TA/IA/IA/IA/IA/IA/IA/IA/I |
| **Planning and organising work**  | * Demonstrable experience of achieving Best Value and Partnership working.
* Demonstrable experience of and ability to reschedule and reprioritise projects to ensure targets and deadlines are monitored and met within allocated budgets.
* Ability to prioritise own and teams workload in order to achieve programme and project objectives and to meet ongoing customer expectations in line with allocated budgets
 | XXX |  |  | X | XX | A/IA/IA/I |
| **Planning capacity and resources** | * Experience of “Performance Management” in terms of people, projects and self and contractors.
* Experience in the development and operation of “Quality Systems” and Equal Opportunities.
* Ability to plan and implement resources effectively in order to achieve Council objectives and delivery targets.
* Ability to manage, motivate and lead a team
 | XXX | X |  | XX | XX | A/IA/IA/I/TA/I |
| **Influencing and interpersonal skills** | * Effective communication, consultation and engagement with clients, general public, elected members, their representatives and team members.
* Proven ability to prepare and present clear, informed reports to a wide range of audiences.
* Advise on and resolve technical, financial and contractual problems in highway infrastructure schemes.
* Proven ability to manage stakeholder expectations in line with deliverables.
* Proven negotiation skills in dealing with stakeholders, contractors and external partners to achieve a ‘win win’ outcome.
 | XXXXX |  |  |  | XXXXX | A/I/TA/I/TA/IA/IA/I |
| **PROBLEM-SOLVING****Using initiative to overcome problems** | * Proven ability to think ‘outside of the box’ in problem solving
* Proven ability to analyse complex problems and using specialist knowledge identify a range of options, providing a reasoned recommendation for the solution
* Proven ability to respond to problems in a reactive manner, making immediate decisions and actioning the appropriate solutions
* Proven ability to manage contract claims and to limit through negotiation and evidence size of claims
 | XXXX |  |  |  | XXXX | A/IA/IA/IA/I/T |
| **Managing risk** | * Extensive knowledge of risk management and its application
* Proven ability to analyse risks in the management of projects and programmes and assess and manage those risks
* Proven ability to identify work place risk and to put measures in place to reduce ongoing risk
* Proven ability to manage contract risk and apply mitigation measures to manage risk through the contract
 | XXXX |  |  |  | XXXX | A/I/TA/IA/IA/I |
| **Managing change** | * Able to engage in change and to provide leadership to others through change
 | X |  |  |  | X | A/I/T |
| **ACCOUNTABILITY and RESPONSIBILITY****Undertakes tasks without supervision** | * Accountable for the management of Structures contracts
* Accountable for the management of people
* Responsible for the management of programmes and projects
* Accountable for the management of budgets
* Able to work on own initiative and to take a pro-active approach to project delivery
 | XXXX | X |  | XXX | XX | A/IA/IA/IA/IA/I |
| **Managing people**  | * Manage the performance, including motivation of staff.
* Commitment to staff and personal development, to include development plans, training and identification of opportunity.
* Committed to equal opportunities, understanding and application of related policy
 | XXX |  |  | X | XX | A/IA/IA/I |
| **Managing financial resources** | * + Experience of managing budgets to meet project and programme objectives and delivery targets
	+ Proven ability to work within and engage corporate project governance procedures
	+ Proven ability to work within and engage corporate procurement rules.
 | X | XX |  | XX | X | A/I/TA/IA/I |

**COMPETENCIES REQUIRED – All post holders must be able to comply with the Council’s core competency requirements, Leading Change, Focus on the Customer, Team Working, Delivering Performance, Motivation, Managing Resources.**

**SPOKEN ENGLISH FLUENCY DUTY REQUIREMENT - The ability to converse at ease with members of the public and provide advice in accurate spoken English is essential for this post.**

**CORPORATE SAFEGUARDING STATEMENT – All post holders must be committed to applying and upholding the Council’s Corporate Safeguarding Policy Statement. Specific safeguarding responsibilities should be detailed in this document.**

**Other information e.g.**

* able to travel to meet service delivery requirements – driving licence required
* available to undertake work outside of normal working hours
* required to undertake duties commensurate with the grade as required for service delivery

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| Signed Job holder  | Signed Line Manager  | Signed Assistant Director  |  |
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| Print Job Holder  | Print Line Manager  | Print Assistant Director  | Date |