TECHNICAL SPECIFICATIONS FOR THE SUPPLY, INSTALLATION, CONFIGURATION, TRAINING, AND SUPPORT OF COMPUTER-AIDED DESIGN (CAD), BUILDING INFORMATION MODELLING (BIM), GIS, AND SURVEYING SOFTWARE

1. Introduction

The Procuring Entity intends to procure an integrated Computer-Aided Design (CAD), Building Information Modelling (BIM), Geospatial Information System (GIS), Surveying and Civil Engineering Design Software solution. The proposed solution shall support engineering design, drafting, surveying, mapping, geospatial analysis, collaboration, construction documentation, and project lifecycle management.

The software shall be supplied with all necessary licenses, installation services, configuration, training, technical support, and software updates.

Tenderers shall indicate compliance to the details of service/ requirement by indicating **Full compliance,** or **Does Not Comply**, and where applicable provide supporting documentation.

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2. Technical Specifications

Item	Technical Requirement	Minimum/Mandatory Specification	Tenderer's Response (Full Comply/Does Not Comply)
2.1	Operating System Compatibility	The software shall support 64-bit Microsoft Windows 10 and Windows 11 operating systems and be compatible with the latest Microsoft .NET Framework.	
2.2	Supported File Formats	The software shall natively support or import/export at minimum: DWG, DXF, DGN, PDF, IFC, PLN, JPEG, PNG, TIFF, SHP, DEM, LAS, LandXML and other commonly used CAD, BIM and GIS file formats.	
2.3	User Management	The software shall support role-based user access, detailed user rights assignment, authentication using LDAP/Active Directory, and centralized administration.	
2.4	Hardware Compatibility	The software shall support major brands of plotters, printers, scanners, GPS devices, and other engineering peripherals.	

2.5	Display Requirements	Support a minimum display resolution of 1280 × 1024 with True Color graphics, Direct3D support, Pixel Shader 3.0 or higher, and hardware acceleration.	

3. System Functional Requirements

Item	Requirement	Minimum/Mandatory Specification	Tenderer's Response
3.1	Collaborative Design Environment	The solution shall support simultaneous multi-user collaboration on a centralized project model with automatic synchronization of design changes, controlled user permissions, project versioning, and server or cloud-based licensing.	
3.2	Geospatial Analysis	The software shall support spatial queries, thematic mapping, buffer analysis, network tracing, overlay analysis, coordinate systems, and spatial data management.	
3.3	3D Design Capabilities	The solution shall provide advanced 3D modelling, push-pull editing, conceptual modelling, visualization, rendering, terrain modelling, and geolocation functionality.	
3.4	Design Tools	The software shall support the complete project lifecycle from conceptual design through detailed design, documentation, construction and asset management using integrated CAD and BIM technologies.	
3.5	Workflow Management	The solution shall provide interoperability between architects, engineers, surveyors, planners, and project managers while maintaining data integrity throughout the project lifecycle.	
3.6	Software Interoperability	The software shall integrate with commonly used CAD, BIM, GIS, survey, and engineering applications including but not limited to Archicad, ArcGIS, Civil Engineering software, and IFC-compliant platforms.	
3.7	Electrical Symbol Libraries	The software shall include customizable electrical libraries compliant with international standards, including symbols for transformers, current transformers, voltage transformers, isolators, air-break switches, circuit breakers, substations, protection equipment, and associated electrical infrastructure.	
3.8	Visual Analysis	The software shall provide line-of-sight analysis, sight distance analysis, civil visualization, terrain analysis, and	

		support Digital Elevation Models (DEM), LiDAR, SHP files, contour modelling, and survey data.	

4. Raster, Survey and GIS Functionality

Item	Requirement	Minimum/Mandatory Specification	Tenderer's Response
4.1	Raster-to-Vector Conversion	The software shall convert raster images into editable CAD objects and support editing of scanned drawings, engineering plans, aerial photographs, satellite imagery, and maps.	
4.2	Data Translation	The solution shall exchange design data with other engineering software while preserving intelligent object properties and design metadata.	
4.3	Survey Processing	The software shall support direct import of raw survey observations, least squares adjustment, coordinate system transformation, survey editing, automated survey figure generation, and digital terrain model creation.	
4.4	Reality Capture	The solution shall import, visualize and process point cloud data (LAS/LAZ), classify point clouds, generate terrain surfaces, extract engineering features, digitize as-built infrastructure, and support parcel design.	
4.5	Parcel Design	The software shall support parcel subdivision, automated parcel layout, cadastral workflows, and integration with survey and GIS datasets.	

5. Engineering Design and Documentation

Item	Requirement	Minimum/Mandatory Specification	Tenderer's Response
5.1	Construction Documentation	The software shall generate production drawings, longitudinal profiles, cross sections, grading plans, earthwork calculations, quantities, schedules, annotations, and engineering reports.	
5.2	Map Production	The solution shall produce professional thematic and engineering maps displaying wetlands, zoning, land use, utilities, soil classifications, parcel boundaries, drainage systems, pipelines, and other infrastructure.	
5.3	Reports and Quantities	The software shall generate dynamic schedules, bills of quantities, quantity take-offs, volumes, material reports, and customizable engineering reports linked directly to project data.	

6. Mobility

Item	Requirement	Minimum/Mandatory Specification	Tenderer's Response
6.1	Mobile Application	The software shall include mobile applications for Android and iOS supporting viewing, editing, markup, annotation, synchronization, and sharing of CAD drawings while integrating with major cloud storage platforms.	

7. Building Information Modelling (BIM)

Item	Requirement	Minimum/Mandatory Specification	Tenderer's Response
7.1	BIM Functionality	The software shall provide integrated Building Information Modelling (BIM) capabilities including intelligent objects, coordinated documentation, clash detection, multidisciplinary coordination, and project collaboration.	
7.2	Team Collaboration	The software shall provide centralized project collaboration, version control, model synchronization, conflict resolution, and secure access management for multiple users.	

8. Training and Knowledge Transfer

Item	Requirement	Minimum/Mandatory Specification	Tenderer's Response
8.1	User Training	The successful tenderer shall provide comprehensive instructor-led training for administrators, advanced users, and end users covering installation, configuration, drafting, BIM workflows, GIS functionality, surveying tools, reporting, and project collaboration.	
8.2	Training Certification	Training shall be delivered by manufacturer-authorized trainers or accredited training partners. Participants shall receive official course materials and certificates of completion.	
8.3	Documentation	The supplier shall provide user manuals, administrator guides, installation manuals, quick reference guides, and electronic training materials.	

9. Support and Maintenance

The successful bidder shall provide:

- Minimum one (1) year software maintenance and technical support.
- Access to software updates and upgrades during the support period.
- Online and telephone technical support during business hours.
- Remote and onsite support where necessary.
- Defined Service Level Agreements (SLAs) for incident response and resolution.
- Access to an online knowledge base and technical documentation.

10. Server-Based Licensing Requirements

The proposed software solution shall provide a centralized, server-based licensing system to facilitate efficient management and optimal utilization of software licenses across the organization.

The licensing solution shall meet the following minimum mandatory requirements:

Requirement	Minimum/Mandatory Specification	Tenderer's Response (Full Comply/ Does Not Comply)
Licensing Architecture	The software shall provide centralized server-based (network/concurrent) Perpetual licensing managed from a dedicated License Server.	
Concurrent Licensing	Licenses shall be shared among authorized users, allowing any available license to be allocated dynamically when a user starts the software and released automatically upon exit.	
License Management	The system shall provide a centralized license management console for monitoring, administering, and allocating licenses.	
License Utilization	The License Server shall display real-time license usage, available licenses, borrowed licenses, and historical utilization statistics.	
User Authentication	The licensing system shall integrate with Microsoft Active Directory/LDAP for authentication and user access management.	

Remote Access	The licensing system shall support secure access for users connected through the organization's Local Area Network (LAN), Wide Area Network (WAN), and Virtual Private Network (VPN), subject to organizational security policies.	
Scalability	The licensing solution shall support future expansion through the addition of new licenses without requiring reinstallation or replacement of the existing licensing infrastructure.	
High Availability	The licensing solution should support redundant or backup license servers to minimize service interruption in the event of server failure.	
License Borrowing	The solution shall allow authorized users to temporarily borrow licenses for offline use, with automatic return upon reconnection or expiry of the borrowing period.	
Monitoring and Reporting	The licensing system shall generate reports on license utilization, peak usage, user activity, expiry dates, and compliance with licensing terms.	
Security	Communication between client workstations and the License Server shall be encrypted and protected against unauthorized access or license misuse.	
Administrative Controls	System administrators shall be able to reserve licenses for specific user groups, departments, or projects, and restrict access based on organizational policies.	
Software Updates	The licensing system shall continue to function seamlessly after software updates and version upgrades without requiring major reconfiguration.	
Disaster Recovery	The bidder shall provide procedures and tools for backing up and restoring the License Server configuration in the event of hardware failure or disaster recovery.	
Technical Support	The bidder shall provide installation, configuration, commissioning, documentation, and technical support for the License Server throughout the warranty and support for a period of 3 year.	

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