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| FORM N: REQUIREMENTS AND SPECIFICATIONS |
| **ENVIRONMENTAL MONITORING SYSTEM** |
| Instructions for filling out Form N: Requirements and Specifications :1. Ensure that you indicate which alternative is being proposed in the Proposal Type section below; if you would like to submit both alternatives each must be presented on a separate copy of Form N
2. Follow the proposal instructions in the Proposal Instructions section below
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| **PROPOSAL INSTRUCTIONS**1. **For each mandatory requirement, provide a Y (Yes) or N (No), indicating whether your solution can meet the requirement.** Y indicates that the solution you are proposing will meet the requirements listed in the requirement statement. N indicates that the solution you are proposing will not meet the requirements.
2. **For each high level rated requirement, provide a response in the section below the requirement section where the Proponent response is indicated with <>.** Be specific, detailed, and include images, diagrams, links, etc. where appropriate to support the response. The response should address all granular requirements (if any) listed below the high level requirement.
3. **For each granular rated requirement (except where indicated N/A via grey shading), indicate which Proponent response code best describes your solution:**

**Y – Available Out of the Box:** Solution for the requirement is currently available in the existing product “out of the box”. Configuration may be required to enable the feature (requirement will be met through changes to settings of tables, switches, and rules without modification to the source code). Requirement is installed and operational at other sites and can be demonstrated to the City of Winnipeg.**C – Available via Customization:** Solution for the requirement is not currently available in the existing product “out of the box”, but may be incorporated via customization of the solution components. Requirement will be met through changes to the source code which would require analysis and re-application during updates, upgrades, or when applying software patches.**F – Future Availability:** Solution for the requirement is not currently available, but will be available in an upcoming product release. If this option is indicated, include the date/timeframe when the requirement will be available for implementation.**3 – Third Party Supplied:** Solution for the requirement is expected to be met by using a third party vendor’s existing product, either integrated or non-integrated. **N – Not Possible:** Solution for the requirement will not be provided by the Proponent.**Notes:**1. An omitted response will be assumed to be the same as a response code of “N”.
2. Any deviation from the response code will be re-coded at the discretion of the City of Winnipeg.
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| **PROPOSAL TYPE**Indicate the Alternative that this response applies to (check one only) | Check One |
| **Alternative 1 – City of Winnipeg Solution Hosting**A commercial off-the-shelf software package implementation where the City of Winnipeg will host the application and any required components on our infrastructure and will take full or partial responsibility for maintenance of the application, working closely with the Proponent. |  |
| **Alternative 2 – Proponent Solution Hosting**A commercial off-the-shelf software package implementation where the Proponent will host all aspects of the solution, including all server-based hardware, software, and databases (structured and non-structured data). The Proponent will take full responsibility for maintenance and upgrading activities related to the application and related components, with oversight provided by the City of Winnipeg. |  |

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| **Form N: Mandatory Requirements** |
| **E4 Mandatory Requirements** | **RFP Reference #** | **Proponent Response (Y, N)** |
| The solution must present single point of management for all unique customers and locations, to avoid duplication of and/or conflicting sources of information. This is required to support the EMS vision outlined in E3. | E3 |  |
| The solution must have the capability to persist liquid waste water collection events (liquid wastehauler load manifests) electronically as described in section E5.2. | E5.2 |  |
| The solution must have direct access to at least five (5) years of historical data including all pertinent documents, or all of the historical data and documentation for parameters which have been added within the past five (5) years. The reports will be in the formats identified in Appendix C. | Appendix C |  |
| The solution must provide the ability to configure and manage license and permit parameters, set violation count and tiers for enforcement parameters, define rules and alerts based on enforcement parameters as per the requirements defined in section E5.3. | E5.3 |  |
| The solution must support the creation and management of Data Capture Forms and provide the ability to define and enforce validation rules, as per the requirements defined in section E5.4. | E5.4 |  |
| The solution must allow users to navigate, select, view and interpret data in a variety of formats, and the ability to save data query results in a variety of formats (grids, reports), as per the requirements defined in section E5.5. | E5.5 |  |
| The solution must provide the ability to generate and distribute predefined reports on a scheduled basis, as per the requirements defined in section E5.5. | E5.5 |  |
| The solution must support integration with external sources, as per the requirements defined in section E5.5. | E5.5 |  |
| The solution must support the ability to administer automated data feed validation, including the ability to purge data by a set schedule, set parameters for data irregularities, and transform data, as per the requirements defined in section E5.4. | E5.4 |  |
| For Alternative 1 on Form B, the solution must be capable of being run in the City’s Corporate Data Center and be consistent with the City's Corporate technology platforms and standards for pre-production and production environments, as per the requirements defined in section E6.1. | E6.1 |  |
| The solution must provide the ability to create, distribute and track all enforcement documents by customer across all IWSB Programs. Refer to Appendix C for reporting details. | Appendix C |  |
| The solution must provide a comprehensive scheduling and calendar integration feature, as per requirements E5.4. | E5.4 |  |

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| **Form N (Requirements and Specifications)** |
| **Form N: Experience of Proponent**  |
| **B11 Experience of Proponent** | **RFP Reference #** | **Proponent Response**  |
| **B11.1** The Proponent should submit information in sufficient detail for the City to evaluate the qualifications of the Proponent by providing the items listed below.*Include any additional information regarding the experience of the Proponent that may be of interest to the City of Winnipeg.* | B11.1 |  |
| (a) Brief overview of your organization, company history, management structure, professional services offered, markets serviced and customer base. | B11.1(a) |  |
| (b) Three (3) references for recent projects similar in complexity, size and scope. Each reference should consist of a company name, contact name, email address, phone number, and a brief description of the project. At least one reference should be for the supply and implementation of an industrial waste management system, similar to that proposed in this RFP. | B11.1(b) |  |
| *<Experience of Proponent Response>* |

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| **Form N: Implementation** |
| **B12 Implementation** | **RFP Reference #** | **Proponent Response**  |
| **B12.1** The Proponent should describe the project management approach and team organization during the performance of Services, so that the evaluation committee has a clear understanding of the methods the Proponent will use in the delivery of this Project. Provide a detailed project plan representative of activities, effort and duration. Indicate expectations for skills, roles, and responsibilities for City of Winnipeg and Proponent resources. Include planning for testing and go-live approach. Methodology should be presented in accordance with the Scope of Work identified in D4.*Include any additional information regarding implementation that may be of interest to the City of Winnipeg.* | B12.1D4 |  |
| (a) Project Plan: provide details of the project team, project team qualifications, timeline/schedule including duration and effort, project assumptions and constraints, expected deliverables and milestones for each phase, a description of the risk management procedures and approach, a description of the issue management procedures and approach, and a description of the change management procedures and approach. A Payment Schedule, as identified in D19, should be included as part of this response. | B12.1(a)D19 |  |
| (b) Effort and Staff Skills: provide details of the specific City of Winnipeg staff (roles and capabilities) required throughout the project and dedicated project allocation for each of the following project phases: defining the project plan, installation, design and specification, solution configuration, data migration, testing, go-live and end user training. | B12.1(b) |  |
| (c) Testing: provide information about your overall approach to testing and validating the solution. Include all relevant testing phases such as system testing, integration testing, User Acceptance Testing (UAT), performance/load testing, etc. | B12.1(c) |  |
| (d) Go-Live Approach: describe the recommended strategy to transition the affected business units from their legacy operations to your proposed solutions. Describe any recommendations for go-live support including onsite resources, duration, roles and responsibilities for City of Winnipeg staff, final cut-over, rollback strategy, etc. | B12.1(d) |  |
| *<Implementation Proponent Response>* |

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| **Form N: Training** **and Support** |
| **B13 Training** **and Support** | **RFP Reference #** | **Proponent Response**  |
| **B13.1** The Proponent should describe the training methodology and approach, including all relevant information regarding knowledge transfer to City of Winnipeg staff. Ensure the response aligns with the training prices in Form B. The explanation should address the following details and any additional information that may be pertinent to the COW.*Include any additional information regarding training and support that may be of interest to the City of Winnipeg.* | B13.1Form B |  |
| (a) Approach: describe the proposed schedule, participants, and curriculum and include any prerequisite knowledge required of each of the user types: Configuration & Administration and Operational (end users). Specify logistical requirements for on-site training e.g. classroom, white board, internet access, etc. Note that the City will provide computers and other necessary equipment. | B13.1(a) |  |
| (b) Support Manuals: provide a listing of all support materials (end-user, administrator, and installation) that will be included with your proposed solution and delivery mechanism or format (printed, electronic, web, video, etc.). | B13.1(b) |  |
| *<Training and Support Proponent Response>* |
| **Form N: Legacy Data Access** |
| **B14 Legacy Data Access** | **RFP Reference #** | **Proponent Response**  |
| **B14.1** The solution should be able to access at least five years of historical data currently managed for the five IWS programs. The objective of this requirement is to provide a smooth transition from existing systems and processes to the new solution and facilitate long term data analysis and trending. Describe how data from the existing source systems will be accessed in order to accomplish this requirement with reference to the components listed below.*Include any additional information regarding legacy data access that may be of interest to the City of Winnipeg.* | B14.1 |  |
| (a) Resources: Describe roles and responsibilities of Proponent and City of Winnipeg staff who will participate in the data conversion. Describe what tools you can provide to facilitate access of sample, test, and audit data. | B14.1(a) |  |
| (b) Approach: Provide your approach/methodology that will be used for analysis, design, data testing and validation, and implementation. Describe success factors for achieving our data access goals and any constraints, limitations, or risks related to this task. | B14.1(b) |  |
| *<Legacy Data Access Proponent Response>* |

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| Form N: Business Requirements |
| **E5 Business Requirements** | RFP Reference # | ProponentResponse(Y, C, F, 3, N) |
| **E5.1 Customer & Asset Management**This category represents requirements related to the storage and management of all Customers, Location and Asset information for the 5 IWS programs. It is vitally important that information is managed centrally, to avoid duplicate entries and confusion. |
| 1. **Customers and Locations**: Describe how your solution provides the ability to record and manage a list of Customers and Locations. Provide details on how contacts and locations can be associated with other contacts, locations and specific business events within the solution. Advise if your system manages change history for customer and location information and the history details. Include all attributes and categories that are available with your standard configuration and how additional attributes and categories could be added.

*Include any additional information regarding customer and locations that may be of interest to the City of Winnipeg.* | E5.1(a) |  |
| 1. Generator contacts and locations: Describe how waste generator contact and location information is managed within your solution.
 | E5.1(a)(i) |  |
| 1. Wastehauler company, contacts & locations: Describe how wastehauler companies and company locations are managed within your solution.
 | E5.1(a)(ii) |  |
| 1. Sewered Overstrength customers: Describe how Sewered Overstrength companies and company locations are managed within your solution.
 | E5.1(a)(iii) |  |
| 1. Prevention Program customers: Describe how Pollution Prevention Program companies and company locations are managed within your solution.
 | E5.1(a)(iv) |  |
| 1. IWSB contacts & locations: Describe how internal system users are managed within your solution including user profiles and managing system access/privileges.
 | E5.1(a)(v) |  |
| 1. Solid Waste contacts & locations: Describe how Solid Waste contact and location information is managed within your solution and other characteristics that differentiate between wastewater contacts and locations.
 | E5.1(a)(vi) |  |
| *<Customers and Locations Proponent response>* |
| 1. **Assets:** Describe how your solution provides the ability to record assets in the system and associate with known locations of record (see 5.1). Provide details on how assets can be associated with customers, locations and specific business events within the solution. Advise if your system manages change history for asset information and the history detail. Include all attributes and categories that are available with your standard configuration and how additional attributes and categories can be added.

*Include any additional information regarding assets that may be of interest to the City of Winnipeg.* | E5.1(b) |  |
| 1. Wastehauler: Describe how a wastehauler asset is managed within your solution. Examples include wastehauler trucks and flow meters.
 | E5.1(b)(i) |  |
| 1. Waste Generator: Describe how a waste generator asset is managed within your solution. Examples include containers (catch basin, interceptor, grease traps), sink fixtures, food preparation equipment and food waste grinders.
 | E5.1(b)(ii) |  |
| 1. IWSB: Describe how an IWSB asset is managed within your solution. Examples include pH probes, sample pumps and autosamplers.
 | E5.1(b)(iii) |  |
| 1. Other customer assets: Describe how other customer assets are managed within your solution. Examples include wastewater pre-treatment systems (DAF, Filtration), pH treatment systems etc.
 | E5.1(b)(iv) |  |
| 1. Asset Categories: Describe the specific categories of assets your system is capable of tracking, and a listing of the standard attributes associated with each category.
 | E5.1(b)(v) |  |
| 1. Asset Custom Attributes: Describe how your system can be configured to add custom attributes to a specific category and/or asset type.
 | E5.1(b)(vi) |  |
| 1. Asset History: Describe how your system is capable of tracking all historical events associated with a specific attribute, including inspections, and maintenance records.
 | E5.1(b)(vii) |  |
| *<Assets Proponent response>* |
| **E5.2 Hauled Liquid Waste**This category represents the requirement for the solution to record all liquid waste collection events from generator sites (locations) and subsequent disposal events at the City’s wastewater treatment plant. It is vitally important that all disposals at the plant are accompanied by a manifest of the load contents (generator/locations, collection date/time, hauler, waste type) and the total volume is recorded and reportable to government regulators. |
| 1. **Load Tracking:** Describe how your solution provides the ability to track hauled liquid waste loads from the initial point(s) of collection through to the disposal at the waste treatment plant. Provide details on the life cycle of capturing, submitting and reconciling load manifests. Advise how the data will be represented in the system from a waste generator, wastehauler and waste disposal event perspective.

*Include any additional information regarding load tracking that may be of interest to the City of Winnipeg.* | E5.2(a) |  |
| 1. Electronic manifest: Describe what information is captured when a liquid wastehauler picks up a residential or commercial liquid waste load. Include information such as waste generator, waste container, wastehauler, truck, waste collection date/time, volume, etc. Describe how the manifest can be delivered to the treatment plant electronically and manually.
 | E5.2(a)(i) |  |
| 1. Remote access: Describe what functionality your solution provides for recording the collection of waste from a waste generation site (location) at the time of collection. Provide details on the hardware and software requirements, i.e. IOS or Android device, and what data can be captured in the field.
 | E5.2(a)(ii) |  |
| *<Load Tracking Proponent response>* |
| 1. **Load Metrics:** Describe what information can be recorded in your system when a liquid wastehauler disposes of liquid waste at a wastewater treatment plant. Include information such as waste disposal location (lane & manhole), disposal start and end date/time, waste collection number, etc. Describe how your solution can manage lane access to wastehaulers through a PIN pad or RFID terminal.

*Include any additional information regarding load metrics that may be of interest to the City of Winnipeg.* | E5.2(b) |  |
| *<Load Metrics Proponent response>* |
| 1. **Billing:** Describe the billing life cycle for the waste treatment plant for liquid wastehaulers including any supporting system transactions. Advise what billing methods are available for your solution, i.e. based on volume, disposal event, etc. Describe any external solution requirements required to support the billing life cycle, i.e. ERP software, etc.

*Include any additional information regarding billing that may be of interest to the City of Winnipeg.* | E5.2(c) |  |
| 1. Wastehauler invoice: Describe any invoicing functionality within your solution. Advise of any invoice templates available “out of the box.” Identify if any activities are expected to be addressed by external solutions and how the status of the payment is reflected in your solution.
 | E5.2(c)(i) |  |
| 1. Wastehauler payments: Describe how wastehauler payments are recorded within your system. Identify if any activities are expected to be addressed by external solutions and how the status of the payment is reflected in your solution.
 | E5.2(a)(ii) |  |
| 1. Payment reconciliation: Describe how wastehauler payments are reconciled within your system. Identify if any activities are expected to be addressed by external solutions and how the status of the payment is reflected in your solution.
 | E5.2(a)(iii) |  |
| *<Billing Proponent response>* |
| **E5.3 License Management**This category represents requirements related to the issuance and management of all licenses, permits and waivers associated with the five programs managed by IWS. |
| 1. **Permits & Licenses:** Describe the life cycle of permits and licenses in your solution including any supporting system transactions generated. Provide details of any workflow capabilities including internal approvals. Advise if there are any templates for licenses and permits in the environmental monitoring space. Provide any details on how configurable permits and licenses are within the solution. Advise if your system manages license and permit change history and the history detail. Advise on the capabilities of adding additional attributes and categories.

*Include any additional information regarding permits & licenses that may be of interest to the City of Winnipeg.* | E5.3(a) |  |
| 1. Wastehauler permits: Describe how wastehauler permits are recorded in your solution. Describe how charges and fees are maintained and applied in your system.
 | E5.3(a)(i) |  |
| 1. Disposal permits: Describe how wastewater and solid waste permits are recorded in your solution. Describe how customer charges and fees are maintained and applied in your system. Include examples of one time charges, regular charges, flat fees, calculated fees based on volumes and/or frequency.
 | E5.3(a)(ii) |  |
| 1. Discharge licenses: Describe how wastewater and solid waste licenses are recorded in your solution. Describe how customer charges and fees are maintained and applied in your system. Include examples of one time charges, regular charges, flat fees, calculated fees based on volumes and/or frequency.
 | E5.3(a)(iii) |  |
| 1. Waivers: Describe how waivers (i.e. grease trap waiver) are recorded in your solution.
 | E5.3(a)(iv) |  |
| *<Permits & LIcenses Proponent response>* |
| 1. **Enforcement Activities:** Describe the life cycle of enforcement activities in your solution including any supporting system transactions generated. Advise if there are any templates for enforcement workflow activities. Provide any details on how configurable enforcement workflow activities are within the solution. Advise if your system manages enforcement activity history and the history detail.

*Include any additional information regarding enforcement activities that may be of interest to the City of Winnipeg.* | E5.3(b) |  |
| 1. Enforcement workflow configuration: Describe how users can configure enforcement workflow activities. Identify optional parameters and methods system users are notified by when an enforcement activity is required.
 | E5.3(b)(i) |  |
| 1. Violation count: Describe how your system counts and tracks violations.
 | E5.3(b)(ii) |  |
| 1. Permit suspension/cancellation: Describe how users can suspend/cancel permits.
 | E5.3(b)(iii) |  |
| 1. Enforcement notification: Describe the methods your system supports for internal and external notification of enforcement activities.
 | E5.3(b)(iv) |  |
| *<Enforcement Activities Proponent response>* |
| 1. **Customer self-service:** Describe the life cycle for customers applying for and getting issued permits, licenses, waivers and payments remotely through a business portal. Describe what types of data can be provided to the user “prefilled” and if this can be extended within the interface. Note any templates or “out of the box” interfaces available supporting customer self-service of permits and licenses.

*Include any additional information regarding customer self service that may be of interest to the City of Winnipeg.* | E5.3(c) |  |
| 1. Payment: Describe how your system has the capability to process or interface with online payment services. Describe the life cycle of customer payments within your system and optional interfaces to back office billing and accounts receivable systems. Describe what methods of payments are supported and how, e.g. VISA and MasterCard credit cards through an external service bank payment service.
 | E5.3(c)(i) |  |
| *<Customer Self-Service Proponent response>* |
| **E5.4 Sampling & Inspections** |
| 1. **Scheduling:** Describe the life cycle of scheduling and executing inspections and sampling events in your system. Describe what information is required to schedule a sampling and inspection event. Advise of what service channels are available for system users and if there is any functional restrictions by service channel.

*Include any additional information regarding scheduling that may be of interest to the City of Winnipeg.* | E5.4(a) |  |
| 1. Inspection scheduling: Describe how a user would schedule an inspection with an existing customer and location in the system. Note any differences by service channel (i.e. browser vs. mobile).
 | E5.4(a)(i) |  |
| 1. Sampling scheduling: Describe how a user would schedule a sampling with an existing customer and location in the system. Note any differences by service channel (i.e. browser vs. mobile).
 | E5.4(a)(ii) |  |
| *<Scheduling Proponent response>* |
| 1. **Record inspection & sampling results real time:** Describe if your solution has any mobile capabilities with recording inspections and sampling events real time. Advise of the supported platforms (i.e. iOS, Android, etc.).

*Include any additional information regarding record inspection & sampling results real time that may be of interest to the City of Winnipeg.* | E5.4(b) |  |
| 1. Real time entry of schedule inspection forms: Describe how a user would complete an inspection form remotely and what information would automatically be populated and updated in the system. Advise of any data that would not be updated automatically by your solution and need to be updated when a user has full access to the application.
 | E5.4(b)(i) |  |
| 1. Real time entry of scheduled sampling forms: Describe how a user would complete a sampling form remotely and what information would automatically be populated and updated in the system. Advise of any data that would not be updated automatically by your solution and need to be updated when a user has full access to the application.
 | E5.4(b)(ii) |  |
| 1. Real time access to prior inspection forms: Describe how a user can access prior inspection forms remotely. Describe what information is available to the user to view remotely.
 | E5.4(b)(iii) |  |
| 1. Real time access to prior sampling forms: Describe how a user can access prior sampling forms remotely. Describe what information is available to the user to view remotely.
 | E5.4(b)(iv) |  |
| *<Record inspection & sampling results real time Proponent response>* |
| 1. **Field level support:** Much of the work performed by IWS inspectors involves activities to collect information while visiting customer sites and other monitored locations throughout the City of Winnipeg. Describe how your solution supports work activities conducted at remote locations. Such activities include conducting inspections, testing and sampling events and may pertain to existing or net new Customers and/or Locations. Advise of the life cycle of the process and what entities that are added to support the process.

*Include any additional information regarding field level support that may be of interest to the City of Winnipeg.* | E5.4(c) |  |
| 1. Supported activities: Describe what work activities that can be supported from remote locations and any limitations regarding data that may be accessed and/or entered into the system.
 | E5.4(c)(i) |  |
| 1. Resource dependencies: For the aforementioned activities, describe the required technology components to support these functions including devices, network connectivity, etc.
 | E5.4(c)(ii) |  |
| 1. Ad hoc entry of inspection forms: Describe how a user would complete an inspection form remotely and what information would automatically be populated and updated in the system. Describe any features that are not available when working in the field versus similar capabilities performed in the back-office.
 | E5.4(c)(iii) |  |
| 1. Ad hoc entry of sampling forms: Describe how a user would complete a sampling form remotely and what information would automatically be populated and updated in the system. Describe any features that are not available when working in the field versus similar capabilities performed in the back-office.
 | E5.4(c)(iv) |  |
| 1. Ad hoc entry of address information: Describe how a user would create a new location remotely with your solution. Describe any features that are not available when working in the field versus similar capabilities performed in the back-office.
 | E5.4(c)(v) |  |
| 1. Ad hoc entry of contact information: Describe how a user would create a new contact remotely with your solution. Describe any features that are not available when working in the field versus similar capabilities performed in the back-office.
 | E5.4(c)(vi) |  |
| *<Field level support Proponent response>* |
| **E5.5 Reporting & Analytics** This category represents requirements of the system to provide access to all information stored in the system. Access to information should support two general usage patterns, namely (as) formal, pre-defined reports and documents and end-user self-exploration of information via ad hoc queries and charting tools. |
| 1. **Ad ho querying:** The system should provide end-users with a robust set of tools to perform a variety of ad hoc queries. Describe how users can perform ad hoc queries against the data persisted in your solution. Advise of any supplementary materials to assist in these activities including a published data model, templates and queries included “out of the box.”

*Include any additional information regarding ad hoc querying that may be of interest to the City of Winnipeg.* | E5.5(a) |  |
| 1. Environmental records search: Describe what data is available for users to search for environmental records, i.e. spills, permits, licenses, etc. by location.
 | E5.5(a)(i) |  |
| 1. Querying capability by location: Describe what logical data can be queried by location in your solution.
 | E5.5(a)(ii) |  |
| 1. Querying capability by customer: Describe what logical data can be queried by customer in your solution.
 | E5.5(a)(iii) |  |
| 1. Source database query capabilities: Describe if users can reference persisted data in your solution with other tools using standard integration patterns, i.e. ODBC connection to Office productivity tools. Advise if personalized queries developed by each user will only be accessible by that user.
 | E5.5(a)(iv) |  |
| *<Ad hoc querying Proponent response>* |
| 1. **Report composition:** The system should be equipped with a robust set of report authoring tools for composing formal, boardroom-style reports and end-user dashboards. Describe how users compose and share reports within your solution. Describe any features used to format and visually represent summary data, such as dashboards and scorecards. Advise of any templates that are included “out of the box” with the solution. See Appendix C for a sample of current IWSB reports generated.

*Include any additional information regarding report composition that may be of interest to the City of Winnipeg.* | E5.5(b) |  |
| 1. Report Authoring: Describe the process and tools used by end-users to define, build, and manage formal reports and data visualizations (tables, charts, mixed) within your system.
 | E5.5(b)(i) |  |
| 1. Dashboards: Describe how your system can provide end-user dashboards, for displaying multiple datasets within a single, comprehensive view. Advise what interactive capabilities are supported within dashboards, including but not limited to dynamic filtering, sorting, drill-down, map-based querying, etc.
 | E5.5(b)(ii) |  |
| 1. Access controls: Describe how access to reports and dashboards can be controlled / restricted to user groups and/or roles.
 | E5.5(b)(iii) |  |
| 1. Support multiple output formats: Describe what report output formats are supported within your solution, including but not limited to PDF, HTML, XML, DOC, and XLS.
 | E5.5(b)(iv) |  |
| 1. Report Execution and Distribution: Describe the process by which pre-defined reports can be scheduled for generation and distributed to end-users automatically.
 | E5.5(b)(v) |  |
| *<Report composition Proponent response>* |
| 1. **GeoSpatial Reporting:** The solution should include a map-based interface to allow users to view and/or spatially query information stored within the solution. Describe how users can query and view information on a map, include maps on report compositions and/or output map-based queries and convert spatial queries into tabular reports. Describe how your solution can incorporate other spatial datasets stored within the City’s corporate Spatial Data Infrastructure (see Appendix F for details). Include any reference to third-party tools and/or platforms required to provide this capability.

*Include any additional information regarding geospatial reporting that may be of interest to the City of Winnipeg.* | E5.5(c) |  |
| *<GeoSpatial reporting Proponent response>* |
| 1. **Office productivity suite integration:** Describe what Office productivity software (i.e. Microsoft Office) your solution integrates with and which applications (i.e. Microsoft Word, Microsoft Excel). Describe what functionality is exposed through the integration and what data can be exposed for use with the external application. Describe any templates or workflow activities that are included “out of the box” with the solution. See Appendix C for a sample of current IWSB reports generated.

*Include any additional information regarding office productivity suite integration that may be of interest to the City of Winnipeg.* | E5.5(d) |  |
| 1. Bulk mailings: Describe how a system user can perform bulk mailings with your solution and office productivity software.
 | E5.5(d)(i) |  |
| 1. Form letters: Describe how system users can create form letters with your solution and office productivity software.
 | E5.5(d)(ii) |  |
| 1. Schedule events: Describe how users can manage schedules with your solution and office productivity software.
 | E5.5(d)(iii) |  |
| *<Office productivity suite integration Proponent response>* |

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| Form N: Technical and Non-Functional Requirements |
| **E6 Technical and Non-Functional Requirements** | RFP Reference # | ProponentResponse(Y, C, F, 3, N) |
| 1. **Technical Architecture:** Describe the overall architecture of your proposed solution. Include any relevant models / diagrams and descriptions necessary to convey the following architectural perspectives of your solution (business, application, information and technology).

*Include any additional information regarding technical architecture that may be of interest to the City of Winnipeg.* | E6.1(a) |  |
| 1. Business architecture: Describe how your solution is designed to meet the specific business functions and processes envisioned for the COW’s Industrial Waste Management Solution per section E3.
 | E6.1(a)(i) |  |
| 1. Data architecture: Describe how information is organized, secured, and managed within your solution. Include a description of the key data entities relevant to the business scope of your solution and how these entities are managed over the long-term of the solution. Include any references to data / information that is persisted and managed internal to your solution and/or linked to any external systems.
 | E6.1(a)(ii) |  |
| 1. Application architecture: Describe the discrete modules and components of your solution, and how they relate to the required functions of EMS. Include a description of the underlying technology platform (e.g. Java, .Net, etc.) and industry standards on which your solution is based. Within your description, include any and all third-party applications / components delivered within your core solution and/or external components on which your solution is dependent. Highlight any software components that will require the COW to procure licenses from third-parties, in order to operate your solution.
 | E6.1(a)(iii) |  |
| 1. Technical architecture: Describe the “typical” deployment configuration(s) and network topology used to host your solution, and your recommendation for the COW in this proposal. Include all deployment nodes (application servers, database servers, end-user workstations, mobile devices, etc.) and the corresponding deployment unit(s) (applications, modules, components) installed on each. Include any relevant network components (firewalls, zones, etc.) and/or enterprise systems (Directory Server, Mail Server, etc.) as applicable.
 | E6.1(a)(iv) |  |
| *<Technical Architecture Proponent response>* |
| 1. **Infrastructure Requirements:** Describe the recommended infrastructure specifications required to host and manage your solution within the COW enterprise. Specifications should be provided for all required servers, end-user workstations and devices, and include dependencies on required operating system, CPU, RAM, local storage and network connectivity. Where multiple configuration options exist in your solution offering provide your recommendations that best meet our needs based on the operational metrics and business context provided in Appendices A and B. All proposed solutions should be consistent and compatible with COW desktop workstation and server standards as noted in Appendix F. Any exceptions to the COW standards should be clearly noted in your response. The inclusion of tables, diagrams and other visual models to describe the specifications is encouraged. Provide recommended specifications for two (2) independent environments – Production and Non-Production (Dev / Test) as noted in the sub-sections below.

*Include any additional information regarding infrastructure requirements that may be of interest to the City of Winnipeg.* | E6.1(b) |  |
| 1. Production Environment: Provide specifications for a Production operating environment, capable of operating within the COW data centers and made available via network connectivity with the COW enterprise. Under normal operating conditions, the solution should be available from all network connected workstations within the WWD and from mobile devices connected to the internet (via Cellular Service). The Production infrastructure should be adequately sized to address concurrent user metrics, as detailed in Appendix A.
 | E6.1(b)(i) |  |
| 1. Non-Production Environment: Provide specifications for a secondary Non-Production operating environment for supporting a variety of business and technology vitality activities such as training, testing upgrades, etc. This environment should be isolated from the main Production environment infrastructure.
 | E6.1(b)(ii) |  |
| 1. Other dependencies: Provide a list of any and all hardware and/or software components that are NOT included in your proposal, but will be required by the COW to efficiently operate Production and Non-Production environments (e.g. Database Backup solution, Enterprise Job Scheduler, etc.).
 | E6.1(b)(iii) |  |
| *<Infrastructure Requirements Proponent response>* |
| 1. **System Management:** Describe the system management activities and processes required to operate and maintain the vitality of your proposed solution over time.

*Include any additional information regarding system management that may be of interest to the City of Winnipeg.* | E6.1(c) |  |
| 1. Active Directory: The solution should integrate with the City of Winnipeg’s Corporate User Directory (MS Windows Server 2012 Active Directory) for authenticating users.
 | E6.1(c)(i) |  |
| 1. Access: The solution should provide the ability to define and control user access to functions and datasets through combination of role-based and group-based authorization controls. Describe the features and capabilities used to control access (granted/denied) and user profile and session management.
 | E6.1(c)(ii) |  |
| 1. Backup & Recovery: The solution should include a recommended backup and recovery approach and processes. Describe the required activities required to maintain backups of both operational / business data and system configuration to ensure recovery of data in the event of a destructive system failure (affecting the data).
 | E6.1(c)(iii) |  |
| *<System Management Proponent response>* |
| 1. **Performance:** Describe the expected performance of your solution for common functional activities. Performance metrics should be relative to normal operating conditions (see Appendix A regarding user loads) and based on the infrastructure recommendations provided in your response.

*Include any additional information regarding performance that may be of interest to the City of Winnipeg.* | E6.1(d) |  |
| 1. Start-up Performance: Provide typical metrics for user login and invoking any major functional of major application login, data form initiation. Describe performance expectations for application start-up and user login.
 | E6.1(d)(i) |  |
| 1. Standard Tasks Performance: Describe performance expectations for common tasks such as but not limited to receiving sample results from the LIMS, creating and running queries, entering inspection data, generating KPIs regarding performance statistics of the programs, viewing customer profiles and addressing any system notifications.
 | E6.1(d)(ii) |  |
| 1. Reporting Performance: Describe performance expectations for standard report generation (standard, pre-defined reports).
 | E6.1(d)(iii) |  |
| 1. Scalability: Describe the capability of your solution to scale to accommodate increased user demands, peak load times, and other high volume usage scenarios. Describe the capability of your solution to scale to accommodate future enhancements.
 | E6.1(d)(iv) |  |
| *<Performance Proponent response>* |
| 1. **Availability:** : Describe the capabilities of your solution to meet the availability requirements noted below.

*Include any additional information regarding availability that may be of interest to the City of Winnipeg.* | E6.1(e) |  |
| 1. Standard Availability Requirements: All functions of the solution should be available for use 24/7/365, excluding scheduled outages.
 | E6.1(e)(i) |  |
| *<Availability Proponent response>* |
| 1. **Support:** Describe the support and maintenance services you plan to offer post-implementation, including Service Level Agreements (SLAs) that align with the pricing in Form B. Be specific and include all options for support levels/methods, and time of availability. Include delineation between tasks for which the City of Winnipeg will be responsible vs. those that your support services will provide.

*Include any additional information regarding support that may be of interest to the City of Winnipeg.* | E6.1(f) |  |
| 1. Support types: Describe the types of Business and/or Technical support typically offered to and used by your customers. Include any limitations, restrictions, or constraints for accessing your support services.
 | E6.1(f)(i) |  |
| 1. Incident Management and Escalation: Describe your customer facing and internal processes for managing incidents, including issue classification and escalation approach.
 | E6.1(f)(ii) |  |
| *<Support Proponent response>* |
| 1. **Usability:** Describe how your solution is designed to be user-friendly and intuitive. Include a robust description of the global design features within the solution that assist and guide the user through an aesthetically appealing experience when performing routine tasks. The City of Winnipeg describes usability as the capability of the software to be understood, learned, used, and attractive to the user. In your response, please consider the points below.

*Include any additional information regarding usability that may be of interest to the City of Winnipeg.* | E6.1(g) |  |
| 1. Understandability: The solution should demonstrate the following characteristics: Descriptions and demonstrations are available to solution users. Guides and context sensitive messages are displayed to solution users.
 | E6.1(g)(i) |  |
| 1. Learnability: The solution should demonstrate the following characteristics: Functions can be absorbed quickly. Functions and flows within the solution are intuitive and require actions that are discreetly defined and apparent.
 | E6.1(g)(ii) |  |
| 1. Operability: The solution should demonstrate the following characteristics: There is consistency across functions and screens. Common data elements can be selected rather than entered. Colour coding and conditional formatting is used to indicate status/state of a system artifact or data element. Icons and images are used, where beneficial to the user experience. Data visualization techniques are applied, to facilitate understanding of presented data. Navigation through the solution functions is clear and can be effectively done without a mouse when applicable. Self-explanatory messages that clearly indicate resolutions are present where appropriate. The ability to undo actions is provided where appropriate.
 | E6.1(g)(iii) |  |
| 1. Attractiveness: The solution should demonstrate the following characteristics: Screen layouts are aesthetically pleasing. Styles, colors and fonts are used consistency throughout the application. The application has a modern look and feel when using solution functions.
 | E6.1(g)(iv) |  |
| *<Usability Proponent response>* |