



THE CITY OF WINNIPEG

REQUEST FOR PROPOSAL

RFP NO. 528-2021

**PROFESSIONAL CONSULTING SERVICES FOR 2022 REDWOOD
RECONSTRUCTION PROJECT**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 PROFESSIONAL CONSULTING SERVICES FOR 2022 REDWOOD RECONSTRUCTION PROJECT

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, November 18, 2021.

B2.2 The Project Manager or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. ENQUIRIES

B3.1 All enquiries shall be directed to the Project Manager identified in D2.

B3.2 If the Proponent finds errors, discrepancies or omissions in the Request for Proposal, or is unsure of the meaning or intent of any provision therein, the Proponent shall promptly notify the Project Manager of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

B3.3 Responses to enquiries which, in the sole judgment of the Project Manager, require a correction to or a clarification of the Request for Proposal will be provided by the Project Manager to all Proponents by issuing an addendum.

B3.4 Responses to enquiries which, in the sole judgment of the Project Manager, do not require a correction to or a clarification of the Request for Proposal will be provided by the Project Manager only to the Proponent who made the enquiry.

B3.5 All correspondence or contact by Proponents with the City in respect of this RFP must be directly and only with the City's Project Manager. Failure to restrict correspondence and contact to the Project Manager may result in the rejection of the Proponents Proposal Submission.

B3.6 The Proponent shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Project Manager in writing.

B3.7 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

B4. CONFIDENTIALITY

B4.1 Information provided to a Proponent by the City or acquired by a Proponent by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Project Manager. The use and disclosure of the Confidential Information shall not apply to information which:

- (a) was known to the Proponent before receipt hereof; or
- (b) becomes publicly known other than through the Proponent; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B4.2 The Proponent shall not make any statement of fact or opinion regarding any aspect of the Request for Proposals to the media or any member of the public without the prior written authorization of the Project Manager.

B5. ADDENDA

- B5.1 The Project Manager may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Request for Proposal, or clarifying the meaning or intent of any provision therein.
- B5.2 The Project Manager will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B5.3 Addenda will be available on the MERX website at www.merx.com.
- B5.4 The Proponent is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.5 The Proponent shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Proposal non-responsive.
- B5.6 Notwithstanding B3, enquiries related to an Addendum may be directed to the Project Manager indicated in D2.

B6. PROPOSAL SUBMISSION

- B6.1 The Proposal shall consist of the following components:
- (a) Form A: Bid/Proposal (Section A) in accordance with B7;
 - (b) Fees (Section B) in accordance with B8.
- B6.2 The Proposal should also consist of the following components:
- (a) Management Proposal – Proponent and Subconsultants (Section C) in accordance with B9;
 - (b) Management Proposal – Project Team (Section D), in accordance with B10;
 - (c) Technical Proposal (Section E) in accordance with B11; and
 - (d) Project Schedule (Section F) in accordance with B12B11.
- B6.3 Further to B6.1 all components of the Proposal shall be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.
- B6.4 Further to B6.2, all components of the Proposal should be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely.
- B6.5 The Proposal should be submitted in a PDF format; with a font of not less than 11 pt Arial for 8.5"x11" pages and a font of not less than 8 pt Arial for 11"x17" pages; margins of not less than 0.75"; linespacing of not less than single; and should be no more than sixteen (16) pages in length exclusive of the required form(s). Only the first sixteen (16) pages of each Proposal will be evaluated.
- B6.5.1 Further to B6.5, anything included as an appendix will not be evaluated.
- B6.6 Further to B6.5 and B6.5.1, a total of four (4) of the sixteen (16) total pages may be presented on 11" x 17" page size. The 11"x17" page size should be used only for sections B10 Management Proposal – Project Team (Section D) and B12 Project Schedule (Section F).
- B6.7 The Proposal shall be submitted electronically through MERX at www.merx.com.
- B6.7.1 Proposals will **only** be accepted electronically through MERX.

B6.8 Proponents are advised that inclusion of terms and conditions inconsistent with the Request for Proposal, will be evaluated in accordance with B21.1(a).

B6.9 Any cost or expense incurred by the Proponent that is associated with the preparation of the Proposal shall be borne solely by the Proponent.

B7. PROPOSAL (SECTION A)

B7.1 The Proponent shall complete Form A: Bid/Proposal, making all required entries.

B7.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:

- (a) if the Proponent is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
- (b) if the Proponent is a partnership, the full name of the partnership shall be inserted;
- (c) if the Proponent is a corporation, the full name of the corporation shall be inserted;
- (d) if the Proponent is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B7.2.1 If a Proposal is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2

B7.3 In Paragraph 3 of Form A: Bid/Proposal, the Proponent shall identify a contact person who is authorized to represent the Proponent for purposes of the Proposal.

B7.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:

- (a) if the Proponent is a sole proprietor carrying on business in his/her own name, it shall be signed by the Proponent;
- (b) if the Proponent is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Proponent is a corporation, it shall be signed by its duly authorized officer or officers;
- (d) if the Proponent is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B7.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.

B7.5 If a Proposal is submitted jointly by two or more persons, the word "Proponent" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Proponents in the Proposal and the Contract, when awarded, shall be both joint and several.

B8. FEES (SECTION B)

B8.1 The Proponent shall complete Form B: Fees, summarizing all applicable Fees. The Proposal shall include a Fixed Fee for all disciplines and/or phases identified in D3.1 Scope of Services.

B8.2 The Proposal shall include the total Fees for all disciplines, identified and necessary, for each Scope of Service phase, and for each location of the Project described in D3 and D4, including:

- (a) Preliminary Design Services, in accordance with D5;
- (b) Detailed Design Services in accordance with D6;
- (c) Contract Administration Services, in accordance with D7; and
- (d) Post Construction Services, in accordance with D8.

- B8.3 Adjustments to Fees will only be considered based on increases to the Scope of Services.
- B8.3.1 The City will not consider an adjustment to the Fees based on changes in the Project budget or the Final Total Construction Cost.
- B8.4 Notwithstanding C1.1(b), Fees shall include costs for out of town travel, related meals and accommodations for the duration of the Project and shall not be considered an Allowable Disbursement.
- B8.5 The Fees entered in each column of Form B: Fees shall also include an allowance of up to 8% for Allowable Disbursements as defined in C1.1(b), but shall exclude the costs of any site investigation services, materials testing services, geotechnical services, Underground Structures acquisitions, pipeline loading assessments, ground-penetrating radar inspections, closed circuit television (CCTV) sewer inspections, hazardous materials investigation, and/or those included in B8.4. No other disbursements will be permitted.
- B8.5.1 Further to B8.5, the Contract Award shall include, in addition to the proposed Fees, an allowance for the costs of any site investigation services, materials testing services, geotechnical services, Underground Structures acquisitions, pipeline loading assessments, ground-penetrating radar inspections, closed circuit television (CCTV) sewer inspections, and/or hazardous materials investigations in the amount of up to 30% of the Total Fees. Fees for approved Subconsultants for work described in B8.5 shall be payable as invoiced by the Subconsultant plus an allowed handling fee of 5%.
- B8.6 Proposal(s) shall include the Fees to be assessed for Engineering and other Services as defined in the Scope of Services.
- B8.6.1 Further to B8.6, Proposal(s) shall include Fees for up to three sewer external point repairs (EPR's) per location identified in the project.
- B8.6.2 Further to B8.6, Proposal(s) shall include all Fees and Disbursements associated with traffic control for survey work for all Scope of Service Phases.
- B8.7 The Fees associated with Preliminary Design shall:
- (a) be a Fixed Fee;
 - (b) include Allowable Disbursements;
 - (c) be entered in column (a) for Form B: Fees.
- B8.8 The Fees associated with Detailed Design shall:
- (a) be a Fixed Fee;
 - (b) include Allowable Disbursements;
 - (c) be entered in column (b) of Form B: Fees.
- B8.9 The Fees associated with Contract Administration shall:
- (a) be a Total Maximum based on Hourly Rates;
 - (b) be based on the number of working days identified for each project location identified in D4.1;
 - (c) include Allowable Disbursements;
 - (d) be entered in column (c) of Form B: Fees.
- B8.9.1 Further to B8.9(b), the actual working days will be established during the Detailed Design phase, with the consultation and concurrence of the Project Manager. Fees can be adjusted according to the actual number of working days agreed upon during Detailed Design.
- B8.10 The Fees associated with Post-Construction Services shall:
- (a) be a Total Maximum based on Hourly Rates;

- (b) include Allowable Disbursements;
- (c) be entered in column (d) of Form B: Fees.

- B8.11 Notwithstanding C11.1, Fees submitted shall not include the Goods and Services Tax (GST) or Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B8.12 Payments to Non-Resident Consultants are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B8.13 Fees stated shall not include any costs which may be incurred by the Consultant with respect to any applicable funding agreement obligations as outlined in D16. Any such costs shall be determined in accordance with D16.

B9. MANAGEMENT PROPOSAL – PROPONENT AND SUBCONSULTANTS (SECTION C)

- B9.1 The Management Proposal should describe the experience of the Proponent and any Subconsultants (excluding materials testing and geotechnical subconsultants), including:
- (a) general firm profile information, including years in business, average volume of work, number of employees, typical services performed and available, including local office information, and other pertinent information for the Proponent and all Subconsultants;
 - (b) details demonstrating the history and experience of the Proponent and Subconsultants in providing design, management of construction and contract administration services on a minimum of three local projects (if applicable) of similar complexity, scope and value.
- B9.2 For each project listed in B9.1(b), the Proponent should submit:
- (a) Name of project. Include Bid Opportunity/Tender number or other Bid Opportunity/Tender information as reference;
 - (b) description of the project;
 - (c) role of the consultant;
 - (d) project's original contracted construction cost and final cost;
 - (e) design and schedule (anticipated Project schedule and actual project delivery schedule, showing design separately); and
 - (f) project owner.
- B9.2.1 Where applicable, information should be separated into Proponent and Subconsultant project listings.
- B9.2.2 Reference information (two current names with telephone numbers per project) must be made available upon request of the Project Manager.

B10. MANAGEMENT PROPOSAL – PROJECT TEAM (SECTION D)

- B10.1 The Proposal should describe your approach to overall team formation and coordination of team members.
- B10.2 Proposals should:
- (a) Include a methodology describing the team's project management approach and organization during the performance of Services, so that the evaluation committee has a clear understanding of the methods the Proponent and Subconsultant(s) will use in the delivery of the project;
 - (b) describe the job function for each individual and group of individuals identified in B10.3(a);
 - (c) include an organizational chart for the project which identifies the roles of key personnel.
- B10.3 Proposals should include, in tabular form:

- (a) names of key personnel assigned to the project, who shall not be substituted without written permission from the Project Manager;
- (b) the experience and qualifications of the key personnel assigned to the project, including:
 - (i) job title;
 - (ii) educational background and degrees;
 - (iii) professional affiliations;
 - (iv) years of experience administering projects for the City of Winnipeg;
 - (v) years of experience in current position;
 - (vi) years of experience in design; and
 - (vii) years of experience in construction administration.

B10.4 Proposals should include time estimates and allocations including:

- (a) for each person identified in B10.3(a), list the percentage of their time to be dedicated to the project. Provide this information for each of the phases identified in D3.1 Scope of Services;
- (b) Time estimates by work activity and in total, including hourly rates for each person identified in B10.3(a), as well as survey, drafting, clerical and any other support staff.

B10.5 For each person identified in B10.3(a), list at least three (3) projects, comparable in scope, size and complexity, in which the person listed did comparable work and played a comparable role. Prove the following:

- (a) Name (include Tender number of the other Tender information as reference) and description of the project;
- (b) Role of the person; and
- (c) Project Owner.

B10.5.1 Further to B10.5, and upon request of the Project Manager, the Proponent must be able to provide, for each person identified in B10.3(a), two current references, including telephone numbers, for each project listed.

B10.6 Where applicable, information should be separated into Proponent and Subconsultant project listings.

- (a) Proposals may also address any other relevant information that conveys the Proponent's understanding of the Project requirements.

B11. TECHNICAL PROPOSAL (SECTION E)

B11.1 The Proposals should address the technical deliverables and associated task requirements required by the Scope of Services. It should clearly identify and explain work activities and identify all assumptions and interpretations.

B11.2 Specifically, Proposals should describe:

- (a) The Proponent's practical understanding of the Project, specifically:
 - (i) the team's understanding of the broad functional and technical requirements and urban design issues;
 - (ii) the team's understanding of the proposed Project Budget and Capital Construction Estimate; and
 - (iii) communication strategies.
- (b) the Proponent's technical approach and methodology to complete the Services, specifically with reference to the key issues identified in D3.1.
- (c) the collaborative process/method to be used by the Proponent in all phases of the Project;
- (d) all activities and services to be provided by the City;

- (e) the deliverable(s) of the Project;
- (f) any assumptions made with respect to the Scope of Services.

B11.3 Methodology should be presented in accordance with the Scope of Services identified in D3.1, as well as **PART F - Specifications**, Appendix A – Definition of Professional Consulting Services – Engineering, and Appendix B – Site Investigation Requirements For Public Works Street Projects.

B11.3.1 Details of the Scope of Services are provided in D3.1 to D8.

B12. PROJECT SCHEDULE (SECTION F)

B12.1 Proponents should provide a methodology including the key issues and criteria that will establish the construction schedule. The methodology should address any relevant information that conveys the Proponent's understanding of the Project requirements with respect to how the Project schedule will be developed.

- (a) Proponents should provide a methodology for developing the yearly construction schedule.

B12.2 The Project schedule should focus on the Preliminary Design and Detailed Design phases, recognizing that the Contract Administration schedule is a key part of the assignment that is to be established during the course of Preliminary Design.

- (a) Proponents should present a carefully considered Critical Path Method schedule using Microsoft Project or similar project management software, complete with resource assignments (key designers), durations (weekly timescale) and milestone dates or events. The schedule should address each requirement of the Scope of Services;
- (b) The Proponent's schedule should include critical dates for review and approval processes by the City and other organizations anticipated during the design and tendering phases of the Project. Reasonable times should be allowed for completion of these processes, not exceeding the time specified in D4.1.

B13. DISCLOSURE

B13.1 Various Persons provided information or services with respect to this RFP. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B13.2 The Persons are:

- (a) N/A

B14. CONFLICT OF INTEREST AND GOOD FAITH

B14.1 Proponents, by responding to this RFP, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B14.2 Conflict of Interest means any situation or circumstance where a Proponent or Key Personnel proposed for the Services has:

- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;

that could or would be seen to:

- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Proposals or award of the Contract; or

- (ii) compromise, impair or be incompatible with the effective performance of a Proponent's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the RFP process or the Project;
or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the RFP process) of strategic and/or material relevance to the RFP process or to the Project that is not available to other Proponents and that could or would be seen to give that Proponent an unfair competitive advantage.

B14.3 In connection with its Proposal, each entity identified in B14.2 shall:

- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Project;
- (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the RFP process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Project Manager; and
- (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.

B14.4 Without limiting B14.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Proponent to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B14.5 Without limiting B14.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

- (a) disqualify a Proponent that fails to disclose a perceived, potential or actual Conflict of Interest of the Proponent or any of its Key Personnel;
- (b) require the removal or replacement of any Key Personnel proposed for the Services that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Proponent or Key Personnel proposed for the Services that fails to comply with any requirements prescribed by the City pursuant to B14.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Proponent if the Proponent, or one of its Key Personnel proposed for the Project, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B14.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

B15. QUALIFICATION

B15.1 The Proponent shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Proponent does not carry on business in Manitoba, in the jurisdiction where the Proponent does carry on business; and
- (b) be financially capable of carrying out the terms of the Contract;

- (c) have all the necessary experience, capital, organization, and equipment to perform the Services in strict accordance with the terms and provisions of the Contract;
- (d) have or establish and staff an office in Winnipeg for the duration of the Project.

B15.2 The Proponent and any proposed Subconsultant (for the portion of the Services proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://winnipeg.ca/finance/findata/matmgt/listing/debar.pdf>

B15.3 The Proponent and/or any proposed Subconsultant (for the portion of the Services proposed to be subcontracted to them) shall:

- (a) have successfully carried out services for the programming; design, management of construction and contract administration for architectural and/or engineering projects of similar complexity, scope and value; and to those required for this Project; and
- (b) be fully capable of performing the Services required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have the knowledge and resources to administer the requirements of The Workplace Safety and Health Act (Manitoba) during the construction works associated with this Contract; and
- (e) undertake to meet all licensing and regulatory requirements of the appropriate governing authorities and associations in the Province of Manitoba.

B15.4 The Proponent shall submit, within three (3) Business Days of a request by the Project Manager, further proof satisfactory to the Project Manager of the qualifications of the Proponent and of any proposed Subconsultant.

B15.5 The Proponent shall provide, on the request of the Project Manager, full access to any of the Proponent's equipment and facilities to confirm, to the Project Manager's satisfaction, that the Proponent's equipment and facilities are adequate to perform the Services.

B16. OPENING OF PROPOSALS AND RELEASE OF INFORMATION

B16.1 Proposals will not be opened publicly.

B16.2 After award of Contract, the Contract amount and the name of the successful Proponent and their address will be available on the MERX website at www.merx.com.

B16.3 The Proponent is advised any information contained in any Proposal Submission may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).

B16.3.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Proposal Submission identified by the Proponent as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B16.4 Following the award of Contract, a Proponent will be provided with information related to the evaluation of his/her submission upon written request to the Project Manager.

B17. IRREVOCABLE OFFER

- B17.1 The Proposal(s) submitted by the Proponent shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B17.2 The acceptance by the City of any Proposal shall not release the Proposals of the other responsive Proponents and these Proponents shall be bound by their offers on such Services for the time period specified in Paragraph 11 of Form A: Bid/Proposal.

B18. WITHDRAWAL OF OFFERS

- B18.1 A Proponent may withdraw his/her Proposal without penalty prior to the Submission Deadline.

B19. INTERVIEWS

- B19.1 The Project Manager may, in his/her sole discretion, interview Proponents during the evaluation process.

B20. NEGOTIATIONS

- B20.1 The City reserves the right to negotiate details of the Contract with any Proponent. Proponents are advised to present their best offer, not a starting point for negotiations in their Proposal Submission.
- B20.2 The City may negotiate with the Proponents submitting, in the City's opinion, the most advantageous Proposals. The City may enter into negotiations with one or more Proponents without being obligated to offer the same opportunity to any other Proponents. Negotiations may be concurrent and will involve each Proponent individually. The City shall incur no liability to any Proponent as a result of such negotiations.
- B20.3 If, in the course of negotiations pursuant to B20.2, the Proponent amends or modifies a Proposal after the Submission Deadline, the City may consider the amended Proposal as an alternative to the Proposal already submitted without releasing the Proponent from the Proposal as originally submitted.

B21. EVALUATION OF PROPOSALS

- B21.1 Award of the Contract shall be based on the following evaluation criteria:
- | | |
|--|-------------|
| (a) compliance by the Proponent with the requirements of the Request for Proposal or acceptable deviation therefrom: | (pass/fail) |
| (b) qualifications of the Proponent and the Subconsultants, if any, pursuant to B15: | (pass/fail) |
| (c) Fees; (Section B) | 10% |
| (d) Management Proposal – Proponent and Sub Consultant(s); (Section C) | 5% |
| (e) Management Proposal – Project Team; (Section D) | 40% |
| (f) Technical Proposal (Section E) | 35% |
| (g) Project Schedule. (Section F) | 10% |
- B21.2 Further to B21.1(a), the Award Authority may reject a Proposal as being non-responsive if the Proposal Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Proposal, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

- B21.3 Further to B21.1(b), the Award Authority shall reject any Proposal submitted by a Proponent who does not demonstrate, in its Proposal or in other information required to be submitted, that it is qualified.
- B21.4 If, in the sole opinion of the City, a Proposal does not achieve a pass rating for B21.1(a) and B21.1(b), the Proposal will be determined to be non-responsive and will not be further evaluated.
- B21.5 Where references are requested, the reference checks to confirm information provided may not be restricted to only those submitted by the Proponent, and may include organizations representing Persons, known to have done business with the Proponent.
- B21.6 Further to B21.1(c), Fees will be evaluated based on Fees submitted in accordance with B8.
- B21.6.1 If there is any discrepancy between the Total Fees on Form B: Fees and the sum of the fees for the phases a), b), c) and d), the sum of the fees for the phases a), b), c) and d) shall take precedence.
- B21.6.2 Further to B21.1(c), the Award Authority may reject a Bid as being non-responsive if it exceeds the Maximum Total Fee amount (exclusive of the costs identified in B8.5 and B8.5.1) shown on Form B: Fees.**
- B21.7 Further to B21.1(d), Management Proposal – Proponent and Subconsultant(s) will be evaluated considering the experience of the organization on projects of similar size and complexity as well as other information requested, in accordance with B9.
- B21.8 Further to B21.1(e), Management Proposal – Project Team will be evaluated considering the experience and qualifications of the Key Personnel and Subconsultant personnel on Projects of comparable size and complexity, as well as the Proponent's project management approach and team organization, in accordance with B10.
- B21.9 Further to B21.1(f), Technical Proposal will be evaluated considering the Proponent's demonstrated understanding of the Project's technical and functional requirements, in accordance with B10.
- B21.10 Further to B21.1(g), Project Schedule will be evaluated considering the Proponent's ability to comply with the requirements of the Project, including, but not limited to, any Critical Stages identified in D4, in accordance with B11.
- B21.11 Notwithstanding B21.1(d) to B21.1(g), where Proponents fail to provide a response to B6.2(a) to B6.2(d), the score of zero may be assigned to the incomplete part of the response.
- B21.12 Proposals will be evaluated considering the information in the Proposal Submission and any interviews held in accordance with B19.

B22. AWARD OF CONTRACT

- B22.1 The City will give notice of the award of the Contract, or will give notice that no award will be made.
- B22.2 The City will have no obligation to award a Contract to a Proponent, even though one or all of the Proponents are determined to be qualified, and the Proposals are determined to be responsive.
- B22.2.1 Without limiting the generality of B22.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Services;
 - (b) the prices are materially in excess of the prices received for similar services in the past;

- (c) the prices are materially in excess of the City's cost to perform the Services, or a significant portion thereof, with its own forces;
- (d) only one Proposal is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

- B22.3 Where an award of Contract is made by the City, the award shall be made to the qualified Proponent submitting the most advantageous offer.
- B22.4 Further to Paragraph 7 of Form A: Bid/Proposal and C4, the City may issue an award letter to the successful Proponent in lieu of execution of Contract Documents
- B22.4.1 The Contract documents as defined in C1.1(o)(ii) in their entirety shall be deemed to be incorporated in and to form a part of the award letter notwithstanding that they are not necessarily attached to or accompany said award letter.
- B22.5 The form of Contract with the City of Winnipeg will be based on the Contract as defined in C1.1(o).
- B22.6 If funding for the Services is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Proponents are advised that the terms of D16 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B22.7 Following the award of Contract, a Proponent will be provided with information related to the evaluation of its Proposal upon written request to the Project Manager.
- B22.8 If, after the award of Contract, the Project is cancelled, the City reserves the right to terminate the Contract. The Proponent will be paid for all Services rendered up to time of termination.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Consultant Services* (Revision 2017-03-24) are applicable to the Services of the Contract.
- C0.1.1 The *General Conditions for Consultant Services* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm.
- C0.2 A reference in the Request for Proposal to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Consultant Services*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Consultant Services*, these Supplemental Conditions are applicable to the Services of the Contract.

D2. PROJECT MANAGER

D2.1 The Project Manager is:

Mark Warkentin, P.Eng., PMP

Telephone No. 204 471-3101

Email Address: mwarkentin@winnipeg.ca

D2.2 At the pre-commencement meeting, the Project Manager will identify additional personnel representing the Project Manager and their respective roles and responsibilities for the Services.

D3. BACKGROUND

D3.1 The Regional and Local Street Renewal Program is the annual Capital street renewal program of the City of Winnipeg's Capital Budget, as adopted by Council.

D3.2 Project Locations and Budget is recommended by the Public Service and adopted by City Council.

D3.3 The Adopted 2021 Capital Budget and Five-Year Forecast included the following:

(000s of \$)	2021	2022	Total
Redwood Av – Main St to Salter St	\$ 450	\$2,850	\$3,300

Including a First Charge on the 2022 Capital Budget.

D4. SCOPE OF SERVICES

D4.1 The Services required under this Contract shall consist of Reconstruction of Redwood Avenue from Main Street to Salter Street in accordance with the following:

- (a) The project budget is \$3,300,000
- (b) The construction estimate is \$2,310,000
- (c) The construction contract is to be 50 working days
- (d) 1 construction tender completed in 2022
- (e) In general, the scope of the Project is to execute the Regional Street Renewal project, within the annual cash-flow limitations in D3.3.

D4.2 The Consultant is expected to complete the Preliminary Design including:

- (a) Class 3 estimate;
- (b) Preliminary scheduling and staging plans, minimizing impacts to the travelling public and local businesses, schools, and residents.

- D4.3 Further to D4.2, following Preliminary Design, Detailed Design will proceed as per the established schedule, approved by the Project Manager.
- D4.4 Assumptions to be carried for the Project include:
- (a) It is expected that all construction will be completed by the end of 2022;
- D4.5 Further to D4.4, and without limitation to the detailed scope of services outlined throughout **D4**, it is expected that key issues will include (but are not limited to):
- (a) Traffic management (section D5.7 and D6.3(n));
 - (b) Coordination with utilities;
 - (c) Coordination with Water and Waste to renew watermain on Redwood Ave between Charles Street and Main Street;
 - (d) Coordinating with individual fronting businesses and residences, in advance of and during construction;
 - (e) Coordination required with Traffic Signals for the adjustment and renewal of the pedestrian corridors and traffic signals as required through out the project. Investigate tree trimming a pedestrian crossing to improve sight lines;
 - (f) Coordination required with Transportation Division for geometric improvements;
 - (g) Coordination with Transit Department, specifically to consolidate and upgrade Transit stops to reflect Transits long term planning;
 - (h) Public information preparation/coordination during construction;
 - (i) Identify and coordinate as applicable with development projects, events, festivals;
- D4.6 The Services required under this Contract are identified below:
- (a) Preliminary Design Services as outlined in D5;
 - (b) Detailed Design Services (including Tender Preparation) as outlined in D5.3;
 - (i) design and specification development;
 - (ii) drawing preparation;
 - (iii) procurement process.
 - (c) Contract Administration Services as outline in D7;
 - (d) Post-Construction Services as outlined in D8.
- D4.7 Within the Project phases in D4.8, the Consultant may be required – depending upon location and technical scope of services – to conduct site investigation services, materials testing services, geotechnical services, Underground Structures acquisitions, pipeline loading assessments, ground-penetrating radar inspections, and/or closed circuit television (CCTV) sewer inspection and sewer assessment.
- D4.7.1 Notwithstanding C8, Fees for Subconsultants engaged to perform services in D4.7 shall be payable as invoiced by the Subconsultant, plus an allowed handling fee of 5%.
- D4.7.2 Consultant Fees for supervision of Subconsultants required to perform any services in D4.7 shall be included in the Consultant's fees.
- D4.8 Stakeholder Relations
- (a) The stakeholder relations scope should include the following:
 - (i) The Consultant should support City staff in developing a stakeholder relations plan;
 - (ii) the Consultant should develop, in consultation with the City, a comprehensive stakeholder list, along with contact information and will update and maintain the list throughout the Project. The stakeholder list will identify key stakeholders in the Project area that may be impacted by the Project. This will also include groups with a high interest in the outcomes of the Project. The consultant will organize key

stakeholders into tiers based on needs, interests, and impacts on stakeholders and stakeholder groups;

- (iii) development of content, including maps of the Project area and a project timeline broken into construction phases, for a project webpage that will be hosted on the City's website;
 - (iv) development of graphics, cross sections and plan views that shows the general configuration to aid in showing the public what the Project and general vicinity of the project will look like. The graphics will be used for the Project website and/or public information events;
 - (v) meetings with key stakeholders, which may include but may not be limited to; landowners, business owners, schools, residents, provincial or federal entities, other City of Winnipeg departments, and with those affected by changes to traffic flow.
- (b) All stakeholder lists, contact information and correspondence with stakeholders and the public, should be tracked by the consultant and should be returned at the end of the Project. Stakeholder and public correspondence tracking logs and lists may be requested by the Project team during the Project.

D4.9 Further to, the Proponent will coordinate their activities with (including but not limited to):

- (a) City of Winnipeg (various departments and branches), including but not limited to Public Works Engineering, Parks and Open Spaces, Traffic Signals, Traffic Services, Traffic Management, Street Lighting, Underground Structures, Streets Maintenance, Transportation Planning Division, Transit Department, Planning Property & Development Department, Real Estate, Urban Design, Insurance, Legal Services, and Materials Management;
- (b) The Water and Waste Department and/or their representative(s), for the renewal or abandonment of the water mains, for the televising and renewal or abandonment of the sewer mains, water and sewer repairs, as well as insulating water services for Concrete Reconstructions;
- (c) The Winnipeg Parking Authority;
- (d) Winnipeg Transit regarding the impact of the Project on their operations and bus stops;
- (e) Any and all Utilities or agencies having infrastructure in the Project area, or that may be impacted by the Project;
- (f) City of Winnipeg Forestry Branch and the Project Manager for review of tree protection, removals and plantings for all locations.

D4.10 Where applicable, the following shall apply to the Services:

- (a) City of Winnipeg's Accessibility Design Standards (2015) [Accessibility Design Standards](#);
- (b) Universal Design Policy www.winnipeg.ca/ppd/Universal_Design.stm;
- (c) the most current edition of The City of Winnipeg Standard Construction Specifications [City of Winnipeg Standard Construction Specifications](#);
- (d) City of Winnipeg's Project Management Manual [Project Management Manual](#), also at [LINK](#);
- (e) City of Winnipeg's Tree Planting Details and Specifications Downtown Area and Regional Streets [Tree Planting Details and Specifications Downtown Area and Regional Streets](#), also at <http://winnipeg.ca/publicworks/parksOpenSpace/UrbanForestry/default.stm>;
- (f) City of Winnipeg's Tree Removal Guidelines [Tree Removal Guidelines](#), also at <http://winnipeg.ca/publicworks/parksOpenSpace/UrbanForestry/default.stm>;
- (g) City of Winnipeg's 2012 Draft Updated *Transportation Standards Manual* (previous version February 1991);
- (h) *Manual for the Production of Construction Drawings* – City of Winnipeg (November 1984);

- (i) Winnipeg Pedestrian and Cycling Strategies (adopted July 15, 2015) [Winnipeg Pedestrian and Cycling Strategies](#);
 - (j) Manual of Temporary Traffic Control on City Streets <https://winnipeg.ca/publicworks/transportation/pdf/2020-ManualOfTemporaryTrafficControl.pdf>
 - (k) Appropriate geometric standards set by the Transportation Association of Canada (TAC);
 - (l) Current and best practices in pedestrian and cycling infrastructure design.
- D4.11 The following documents are to be considered, where applicable:
- (a) OurWinnipeg (adopted July 20, 2011); <https://winnipeg.ca/interhom/CityHall/OurWinnipeg/History.stm>
 - (b) OurWinnipeg Sustainable Transportation Strategy (adopted July 20, 2011); <https://winnipeg.ca/interhom/CityHall/OurWinnipeg/History.stm>
 - (c) Winnipeg Transportation Master Plan (adopted November 16, 2011). <https://winnipeg.ca/publicworks/transportation/transportationmasterplan.stm>
- D4.12 The Project Locations and Technical Scope is subject to final approval of the Project Manager.
- D4.12.1 Substitutions and/or deletions may occur within the consulting assignment and may result in an adjustment in Fees as per B8.3. Work already completed for work identified in the consulting assignment prior to the notification of adjustment in the consulting assignment will be paid at hourly rates identified in the proposal for the actual time completed prior to notification. There will be no financial compensation if there is a reduction in the consulting assignment.
- D4.13 Unless otherwise specified below, Appendix A – Definition of Professional Consultant Services – Engineering – Public Works shall be applicable to the provision of Professional Engineering services for this Project.
- D4.14 The Consultant will be responsible for project reporting and support to the City's Project Manager for project reporting in accordance with the City of Winnipeg's Project Management Manual at <http://winnipeg.ca/infrastructure/asset-management-program/templates-manuals.stm#2> and templates <http://winnipeg.ca/infrastructure/asset-management-program/templates-manuals.stm#4>.
- D4.15 The funds available for this Contract are \$300,000.00.

D5. PRELIMINARY DESIGN

- D5.1 Preliminary Design Services associated with the Contract are described in Appendix A – Definition of Professional Consultant Services – Engineering.
- D5.2 The Consultant is responsible for:
- (a) Confirm the scope of work required using professional engineering judgement;
 - (b) In consultation with the Project Manager, and in accordance with Appendix B – Site Investigation Requirements for Public Works Street Projects, determining the extent to which Site investigation is required;
 - (c) Field surveys;
 - (d) Acquiring the historical and as-built drawings within Project limits from Underground Structures;
 - (e) Referring to **F2** (Sewer Assessment & CCTV Guidelines (2017)), determining the extent to which the sewer infrastructure (a) requires inspection, and (b) in consultation with the Water & Waste Department, and the approval on the Project Manager, requires repairs or renewal;

- (f) Engaging the services of appropriate qualified Subconsultant personnel where additional services are required, including, but not limited to: site investigation services Appendix B, materials testing services, geotechnical services Appendix B, Underground Structures acquisitions, pipeline loading assessments, ground-penetrating radar inspections, closed circuit television (CCTV) sewer inspection **F2** and/or hazardous materials investigation;
 - (g) Detailed examination of access and parking requirements for abutting residents/businesses;
 - (h) Construction staging plans that minimize disruption to the public. Assumptions must be stated in the Proposal;
 - (i) Providing Project details and regular Project updates to the Accela right-of-way coordination system; and
 - (j) Assisting with land acquisitions.
- D5.3 Review and incorporate regulatory requirements into the project plan and schedule. Obtain approvals from appropriate regulatory agencies as necessary.
- D5.4 Provide comprehensive management of the Project. Monitor and maintain the same in a manner acceptable to the Project Manager. Provide written weekly updates to the Project Manager during design services. Monthly status reports provided to the Project Manager, the reports should include, but not be limited to:
- (a) Progress on tasks since previous report;
 - (b) Expected progress for the next period;
 - (c) Project schedule update;
 - (d) Project budget update;
 - (e) Identify potential problems, risks and concerns; and
 - (f) Key stakeholder relations update.
- D5.5 Develop a Project Risk Management Plan, identifying risks and appropriate mitigation recommendations, as they relate to the successful completion of the Project. Use the City of Winnipeg's Project Management templates, identified in D4.14.
- D5.6 Prepare and submit a pavement design analysis and provide concrete pavement design briefs for all new or reconstructed pavements as identified in D4.
- D5.7 Develop construction traffic management plan and construction staging drawings, considering vehicles, trucks, Winnipeg Transit Operations, school buses, pedestrians, cyclists, emergency vehicles, and access management to provide an acceptable level of service during construction.
- (a) Further to D5.7, if necessary, develop temporary accesses to allow for businesses to operate seamlessly during construction. Propose alternatives that have minimal maintenance requirements.
- D5.8 Develop a construction wayfinding signage plan in consultation with Traffic management that will assist the public in locating affected businesses during construction.
- D6. DETAILED DESIGN (INCLUDING TENDER PREPARATION)**
- D6.1 Detailed Design Services associated with the Contract are described in Appendix A – Definition of Professional Consultant Services – Engineering.
- D6.2 Design drawings are required for all Public Works construction projects except for Regional Street Mill & Fill projects and TBO projects, unless specifically declined, in writing, by the Project Manager.
- D6.3 Designs to be submitted for review must:

- (a) be sealed by a Professional Engineer, registered in the Province of Manitoba;
- (b) include a pavement design brief for new or reconstruction of Regional, Collector or Industrial Street Pavements and for new or reconstruction of Street Pavements that are Bus and/or Truck routes;
- (c) include the pavement cross section (where applicable);
- (d) include the dimensional jointing design (where applicable);
- (e) include the proposed sidewalk jointing design for full width sidewalks (where applicable);
- (f) include separate overall horizontal geometry layout drawings;
- (g) include Department drawing numbers before the works are advertised. Drawing numbers can be requested from Permits & Plan Approval – GIS Support Services at (204) 986-4113;
- (h) conform to the Manual for the Production of Construction Drawings for the City of Winnipeg, Works and Operations Division (November 1984);
- (i) include construction staging drawings/figures;
- (j) include all relevant plan and profile information;
- (k) include miscellaneous details as required to better present the scope of the work to the contractor;
- (l) allow six weeks for circulation to Underground Structures;
 - (i) ensure that separate copies are sent to affected utilities, with specific requests made for estimates, where required.
- (m) preliminary Construction Contract Costs (Class 1 Estimate) including utility costs, Consulting Fees, internal project costs and overheads, and any associated costs identified in the additional comments of a project.
- (n) Include a detailed signage plan for all stages of construction for review by Traffic Management and the Project Manager, detailing temporary signage and traffic control devices. The drawings must show all signs (including regulatory), traffic control devices while detailing traffic, pedestrian and bike movements during each construction stage.

D6.4 The Tender documents must be prepared:

- (a) using the current applicable template from the Materials Management Division, including consulting with the City insurance branch for review of the insurance clauses;
- (b) referencing the current edition of The City of Winnipeg Standard Construction Specifications.

D6.5 The Consultant will be responsible for:

- (a) ongoing Project reporting and support to the City's Project Manager for Project reporting in accordance with the City of Winnipeg's Project Management Manual and templates;
- (b) ongoing comprehensive management of the Project;
- (c) provide updates to the Project Manager as identified in D2.1;
- (d) ongoing coordination of meetings with the City's Project Manager;
- (e) ongoing Project details and updates to the Accela right-of-way coordination system;
- (f) ongoing consultation and coordination with all affected utilities;
- (g) allow sufficient time for review by the City's Project Manager and additional personnel;
- (h) preparation of estimated capital costs and cash flow forecasts;
- (i) monitor and update the Project Risk Management Plan as per D5.5, where required;
- (j) ongoing communication, consultation and coordination with all affected stakeholders and public relations activities as per D4.8, where required; and

- (k) any and all associated ancillary services required to successfully complete the Detailed Design to the satisfaction of the City of Winnipeg.

D7. CONTRACT ADMINISTRATION

- D7.1 Contract Administration Services associated with the Contract are described in Appendix A – Definition of Professional Consultant Services – Engineering, and shall be conducted in accordance with the City of Winnipeg’s Project Management Manual (Appendix E – Contract Administration Procedure).
- D7.2 The Consultant is required to provide NON-RESIDENT Contract Administration Services including but not limited to:
- (a) ensuring persons with demonstrated experience are assigned to administer the Project for the duration of the Project, with personnel changes only upon approval of the Project Manager;
 - (b) timely processing of accurate progress payments and invoices;
 - (c) conducting pre-award and pre-construction meetings with formal notes as described in the City of Winnipeg’s Project Management Manual;
 - (d) complete management of stakeholder relations activities, as per D4.8; and
 - (e) provision to the City of a complete current report on the Project status on a monthly basis advising of progress, schedule, Project costs, Change in Service, and Changes in Work.
- D7.3 The Consultant is required to provide RESIDENT Contract Administration Services including but not limited to:
- (a) coordination of the day-to-day Site activities;
 - (b) ensuring construction contractor conformance to the City of Winnipeg’s *Manual of Temporary Traffic Control*;
 - (c) full-time inspection;
 - (d) field and/or laboratory testing and verification of construction material quality;
 - (e) field measurement and verification of construction material quantities in a manner so as to minimize contract disputes;
 - (f) provision of periodic and timely updates to the Project Manager on progress and/or expenditures, through:
 - (i) regular site meetings with formal minutes as described in the City of Winnipeg’s Project Management Manual;
 - (ii) other formal and/or informal documented means.
 - (g) representation of the City to the local residents and businesses in a professional manner, with responsible and prompt reaction to reasonable requests (minimizing impact and/or disruption of the Project to the extent possible);
 - (h) on-going updates to the lane-closure information line as required;
 - (i) coordinate traffic management and construction work;
 - (j) Ensuring the Contractor’s signage is in conformance with the City of Winnipeg’s Manual of Temporary Traffic Control and the staging/signage plans in the Contract;
 - (k) Maintain an up to date set of construction staging drawings;
 - (l) On projects located adjacent to the City limits and required designated construction zones, temporary traffic control devices required by the Province must be procured and provided to Traffic Services to set up and maintain;
 - (m) supervision of Subconsultants required to perform any services under D5.2(f); and
 - (n) provision of Project details and regular Project updates to the Envista right-of-way coordination system.

- D7.4 The Consultant will be responsible for:
- (a) ongoing Project reporting and support to the City's Project Manager for Project reporting in accordance with the City of Winnipeg's Project Management Manual and templates;
 - (b) ongoing comprehensive management of the Project;
 - (c) ongoing coordination of meetings with the City's Project Manager;
 - (d) ongoing Project details and updates to the Accela right-of-way coordination system;
 - (e) ongoing consultation and coordination with all affected utilities;
 - (f) allow sufficient time for review by the City's Project Manager and additional personnel;
 - (g) preparation of estimated capital costs and cash flow forecasts;
 - (h) monitor and update the Project Risk Management Plan as per D5.5, where required;
 - (i) ongoing communication, consultation and coordination with all affected stakeholders and public relations activities as per D4.8, where required; and
 - (j) any and all associated ancillary services required to successfully complete the Project to the satisfaction of the City of Winnipeg.

D8. POST CONSTRUCTION

D8.1 Post-Construction Services associated with the Contract are described in Appendix A – Definition of Professional Consultant Services – Engineering, and shall be conducted in accordance with the City of Winnipeg's Project Management Manual.

D8.2 The Consultant is required to provide Post-Construction Services including but not limited to:

- (a) preparation of one of each of the following for every construction contract administered under the Project:
 - (i) Certificate of Substantial Performance;
 - (ii) Certificate of Total Performance; and
 - (iii) Certificate of Acceptance.
- (b) additional Contract Administration for maintenance (pay) items within the warranty period of the construction contract;
- (c) resolution of deficiencies and/or outstanding warranty issues;
- (d) submission of a final construction report within three months of Substantial Performance of the construction contract, including:
 - (i) summary report – a brief (three to five page) description of:
 - ◆ services accomplished, including initial and final scope of Project;
 - ◆ for new street pavements – Final pavement design;
 - ◆ for pavement rehabilitations and TBO's – Amount of concrete repairs by percentage of surface;
 - ◆ for pavement rehabilitations and TBO's – Average thickness of asphalt placement;
 - ◆ issues encountered and resolutions achieved;
 - ◆ any outstanding services or issue-resolutions required;
 - ◆ final or projected final contract cost;
 - ◆ stakeholders list;
 - ◆ daily field reports (as an appendix);
 - ◆ all meeting minutes (pre-award, pre-construction, construction, as an appendix);
 - ◆ final pavement design for new pavements;

- ◆ amount of concrete repairs, by percentage for pavement rehabilitations;
 - ◆ average thickness of asphalt placement for pavement rehabilitations;
 - ◆ field test reports (as an appendix);
 - ◆ Certificates (as an appendix); and
 - ◆ progress estimates (as an appendix)
 - ◆ As-built drawings (pdf format as an appendix).
- (ii) Photographs – total minimum of 12, maximum of 20; good quality digital photos using descriptive file names (including year), provided on USB drive (notwithstanding pre-construction Site and property condition assessment photos, as per Appendix A – Definition of Professional Consultant Services – Engineering – Public Works);
- ◆ approximately six (6) typical pre-construction photos;
 - ◆ approximately six (6) typical post-construction photos; and
 - ◆ approximately six (6) typical construction operation photos (e.g. concrete pour, paving operation).
- (iii) Final Construction Contract Costs (based on actuals), including utility costs, Consulting Fees, internal Project costs and overheads, and any associated costs identified in the additional comments of a project.
- (e) provision of record drawings in accordance with the Public Works As-Built Drawing requirements identified in PART F - Specifications, within three (3) months of Substantial Performance of the construction contract, unless waived or amended in writing by the Project Manager.

D9. DEFINITIONS

D9.1 When used in this Request for Proposal:

- (a) **“Alley”** means an open (traversable) right-of-way that has been designed, constructed and intended to provide access to, and service the rear of places of residence or business;
- (b) **“Asphalt Reconstruction”** means removal of pavement and approaches, excavation, construction or renewal of drainage infrastructure, construction of granular subbase and base course, adjustment of appurtenances in the pavement and boulevards, construction of asphalt pavement with curb and gutter, construction of asphalt or concrete approaches, and sidewalk renewal;
- (c) **“Capital Construction Estimate”** means the estimated value of the Construction Contract to be administered by the Consultant. The Capital Construction Estimate is only provided as an estimate of scale and scope for a Project and/or Project Package;
- (d) **“Concrete Reconstruction”** means removal of pavement and approaches, excavation, construction or renewal of drainage infrastructure, construction of granular subbase and base course, adjustment of appurtenances in the pavement and boulevards, construction of concrete pavement, construction of concrete approaches, and sidewalk renewal;
- (e) **“Estimated Scope”** means the scope of Services upon which the Project Estimate was based;
- (f) **“Local Street”** means an open (traversable) right-of-way that is not identified in Schedule E of the most recent City of Winnipeg Streets By-law No. 1481/77 (i.e. not a Regional Street);
- (g) **“Mill and Fill”** means planing of existing asphalt overlay, minimized localized joint and slab repairs, minimized sidewalk repairs, minimized curb renewal, placement of asphalt overlay;
- (h) **“Project Budget”** means the total available funding required for a Project or Project Location, including construction (Contract) costs (based on the Estimate Scope), utility

costs, Consulting Fee, and any associated costs identified in the additional comments of a project;

- (i) **“Project Location”** means an individual Right-of-Way location (typically Street, Alley, Sidewalk, Intersection, or Path) identified to make up a whole Project;
- (j) **“Regional Street”** means those streets listed in Schedule E of the most recent City of Winnipeg Streets By-law No. 1481/77;
- (k) **“Rehabilitation”** means pavement, curb and sidewalk repairs, replacement or adjustment of drainage infrastructure, adjustment of appurtenances in the pavement and boulevards, and an asphalt overlay.

SUBMISSIONS

D10. AUTHORITY TO CARRY ON BUSINESS

D10.1 The Consultant shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Consultant does not carry on business in Manitoba, in the jurisdiction where the Consultant does carry on business, throughout the term of the Contract, and shall provide the Project Manager with evidence thereof upon request.

D11. SAFE WORK PLAN

D11.1 The Consultant shall provide the Project Manager with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D11.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>

D12. INSURANCE

D12.1 The Consultant shall procure and maintain, at its own expense and cost, insurance policies with limits no less than those shown below.

D12.2 As a minimum, the Consultant shall, without limiting its obligations or liabilities under any other contract with the City, procure and maintain, at its own expense and cost, the following insurance policies:

- (a) Comprehensive or Commercial General Liability Insurance including:
 - (i) an inclusive limit of not less than \$2,000,000 for each occurrence or accident with a minimum \$2,000,000 Products and Completed Operations aggregate and \$5,000,000 general aggregate;
 - (ii) all sums which the Consultant shall become legally obligated to pay for damages because of bodily injury (including death at any time resulting therefrom) sustained by any person or persons or because of damage to or destruction of property caused by an occurrence or accident arising out of or related to the Services or any operations carried on in connection with this Contract;
 - (iii) coverage for Products/Completed Operations, Blanket Contractual, Consultant's Protective, Personal Injury, Contingent Employer's Liability, Broad Form Property Damage, Employees as Additional Insureds, and Non-Owned Automobile Liability;
 - (iv) a Cross Liability clause and/or Severability of Interest clause providing that the inclusion of more than one Insured shall not in any way affect the rights of any other Insured hereunder in respect to any claim, demand, suit or judgment made against any other Insured.

- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Consultant directly or indirectly in the performance of the Service. The limit of liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
 - (c) Professional Errors and Omissions Liability Insurance including:
 - (i) an amount not less than \$5,000,000 . per claim and \$5,000,000 in the aggregate.
- D12.2.1 The Consultant's Professional Errors and Omissions Liability Insurance shall remain in force for the duration of the Project and for twelve (12) months after Total Performance.
- D12.3 The policies required in D12.2(a) shall provide that the City is named as an Additional Insured thereunder and that said policies are primary without any right of contribution from any insurance otherwise maintained by the City.
- D12.4 The Consultant shall require any Consultants hired to perform geo technical drilling and sample collecting or closed-circuit television to procure and maintain, at its own expense and cost, comparable insurance to that set forth under D12.2(a) and D12.2(b).
- D12.5 The Consultant shall require each of its Subconsultants hired for design, architectural or engineering services as outlined in the Scope of Services to provide comparable insurance to that set forth under D12.2(a) and D12.2(c).
- D12.6 The Consultant shall provide the Project Manager with a certificate(s) of insurance in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Services, but in no event later than the date specified in C4.1 for the return of the executed Contract. Such certificates shall state the exact description of the Services and provide for written notice in accordance with D12.9.
- D12.7 The Consultant may take out such additional insurance as it may consider necessary and desirable. All such additional insurance shall be at no expense to the City.
- D12.8 All insurance, which the Consultant is required to obtain with respect to this Contract, shall be with insurance companies registered in and licensed to underwrite such insurance in the Province of Manitoba.
- D12.9 The Consultant shall not cancel, materially alter, or cause any policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the City.

SCHEDULE OF SERVICES

D13. COMMENCEMENT

- D13.1 The Consultant shall not commence any Services until it is in receipt of a notice of award from the City authorizing the commencement of the Services.
- D13.2 The Consultant shall not commence any Services until:
- (a) the Project Manager has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D10;
 - (ii) evidence of the insurance specified in D12.
 - (b) the Consultant has attended a meeting with the Project Manager, or the Project Manager has waived the requirement for a meeting.
- D13.3 The City intends to award this Contract by December 17, 2021.

D14. CRITICAL STAGES

- D14.1 The Consultant shall achieve critical stages of the Services for this Contract in accordance with the following requirements:
- (a) Preliminary Design Phase to be completed by January 31, 2022;
 - (b) All construction tenders, for each calendar year project, must be ready to be advertised on MERX's website by March 28, 2022, of the preceding calendar year. The actual advertising dates, corresponding construction contract schedules, and scopes of work for the construction contracts in each calendar year, will be established during the Detailed Design, in consultation with and approved by the Project Manager; and,
 - (c) Total Performance of all construction contracts by October 31, 2022.
- D14.2 Further to C1.1 (uu), Total Performance for this Contract will be after the issuance of the Certificate of Acceptance for the construction contract which is typically:
- (a) two (2) years from the Total Performance date of reconstruction and new construction projects; and
one (1) year from the Total Performance date for all other construction projects.

D15. COVID-19 SCHEDULE DELAYS

- D15.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Services shall be performed by the Consultant with due consideration to the health and safety of workers and the public, directives from health authorities and various levels of government and in close consultation with the Project Manager.
- D15.2 If the Consultant is delayed in the performance of the Services by reason of the COVID-19 pandemic, the Services schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D15.3 A minimum of seven (7) Calendar Days prior to the commencement of Services, the Consultant shall declare whether COVID-19 will affect the start date. The Consultant shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of material or work by others.
- D15.4 For any delay related to COVID-19 and identified after Services have commenced, the Consultant shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D15.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D15.5 The Services schedule, including the durations identified in the Contract, will be adjusted to reflect delays accepted by the Project Manager.
- D15.6 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Project Manager, shall be documented in accordance with C8.

THIRD PARTY AGREEMENTS

D16. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D16.1 In the event that funding for the Services of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D16.2 Further to D16.1, in the event that the obligations in D16 apply, actual costs legitimately incurred by the Consultant as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Consultant and not by the valuation method(s) outlined in C8.4. In all other respects Funding Costs will be processed in accordance with Changes in Services under C8.

D16.3 For the purposes of D16:

- (a) **“Government of Canada”** includes the authorized officials, auditors, and representatives of the Government of Canada; and
- (b) **“Government of Manitoba”** includes the authorized officials, auditors, and representatives of the Government of Manitoba.

D16.4 Modified Insurance Requirements

D16.4.1 If not already required under the insurance requirements identified in D12, the Consultant will be required to obtain and maintain professional liability insurance in an amount of no less than one million dollars (\$1,000,000) inclusive per claim. Such policy shall be maintained for at least twenty four (24) months after Total Performance.

D16.4.2 The Consultant shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.

D16.4.3 Further to D12.6 insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Services as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.

D16.4.4 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D16.5 Indemnification By Consultant

D16.5.1 In addition to the indemnity obligations outlined in C13 of the General Conditions for Consultant Services, the Consultant agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Consultant or arising from this Contract or the Services, or from the goods or services provided or required to be provided by the Consultant, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.

D16.6 Records Retention and Audits

D16.6.1 The Consultant shall maintain and preserve accurate and complete records in respect of this Contract and the Services, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Services during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.

D16.6.2 In addition to the record keeping and inspection obligations outlined in C7.16 of the General Conditions for Consultant Services, the Consultant shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D16.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D16.7 Other Obligations

- D16.7.1 The Consultant consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D16.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Consultant, the Consultant represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D16.7.3 The Consultant shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Services.
- D16.8 The Consultant shall properly account for the Services provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.

MEASUREMENT AND PAYMENT

D17. INVOICES

- D17.1 Further to C11, the Consultant shall submit monthly invoices to the Project Manager.
- D17.2 Invoices must clearly indicate:
- (a) the City's purchase order number;
 - (b) project file number;
 - (c) a breakdown by location of:
 - (i) Preliminary Design Fees;
 - (ii) Detailed Design Fees;
 - (iii) Contract Administration Fees including hours and hourly rates for Services provided in the invoice period;
 - (i) Allowable Disbursements shall be identified separately on each invoice.
 - (iv) Post Construction Service Fees including hours and hourly rates for Services provided in the invoice period;
 - (i) Allowable Disbursements shall be identified separately on each invoice.
 - (v) other Project costs and Subconsultant Fees in accordance with D4.7 including the invoiced amount plus an allowed 5% handling fee. Copies of invoices must be attached.
 - (d) the amount payable with GST and MRST (as applicable) shown as separate amounts; and
 - (e) the Consultant's GST registration number.
- D17.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.
- D17.4 Invoices must be submitted to the City of Winnipeg electronically to CityWPGAP-INVOICES@winnipeg.ca

PART E - SECURITY CLEARANCE

E1. SECURITY CLEARANCE

- E1.1 Each individual proposed to perform the following portions of the Services:
- (a) any Services on private property;
 - (b) communicating with residents and homeowners in person or by telephone;
- E1.1.1 Each Individual shall be required to obtain a Police Information Check from the police service having jurisdiction at his/her place of residence. Or
- (a) Sterling BackCheck – for existing account holders, log into your account to send individual invitations to employees requiring security clearance. For those that do not have an account, click on the following link to open an account:
<https://forms.sterlingbackcheck.com/partners/platform2-en.php?&partner=winnipegcity>
; or
 - (b) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <https://www.commissionaires.ca/en/manitoba/home>; or
 - (c) FASTCHECK Criminal Record & Fingerprint Specialists, forms to be completed can be found on the website at: <https://myfastcheck.com>
- E1.2 Prior to the award of Contact, and during the term of the Contract if additional or replacement individuals are proposed to perform Services, the Consultant shall supply the Project Manager with a Police Information Check obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Services.
- E1.3 Any individual for whom a Police Information Check is not provided, or for whom a Police Information Check indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Services specified in E1.1.
- E1.4 Any Police Information Check obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- E1.5 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated Police Information Check. Any individual who fails to provide a satisfactory Police Information Check as a result of a repeated Police Information Check will not be permitted to continue to perform any Services specified in E1.1.

PART F - SPECIFICATIONS

F1. AS-BUILT DRAWING REQUIREMENTS FOR PUBLIC WORKS PROJECTS (2019)

F1.1 AS-BUILT drawings are required for all Public Works construction projects except for Regional Street Mill & Fill projects and TBO projects, unless specifically declined, in writing, by the Project Manager. AS-BUILT drawing submissions are required for ALL Regional Street renewals, Local Street reconstructions, and any addition to infrastructure inventory such as new streets, street widening's and/or realignments as well as new multi-use paths.

F1.1.1 Though drawings may not be required, please note the location of any new or relocated sidewalks, approaches, curb inlets, or bus stops, or any other modifications, on existing streets or intersection improvements in the final project report.

F1.2 Initial submission of AS-BUILT drawings must be received no later than three months after Substantial Performance.

F1.2.1 If Substantial Performance will not be granted prior to year-end, contact Public Works to establish drawing submission requirements (i.e. for snow clearing updates).

F1.3 The drawings are to contain the following information, and be in the format specified below.

F1.4 Drawings are to:

- (a) Be in the AutoCAD format and indicate the version used
- (b) Be AS-BUILT with dimensions corrected in both TEXT and GRAPHICS
- (c) Show pavement dimensions to the "back of curb" (edge of pavement)
- (d) Be produced in the NAD 83, UTM, ZONE 14, (Global co-ordinate system) **NOTE: aerial/assessment data is available at <https://data.winnipeg.ca/>**
- (e) Indicate whether a scale factor was used, and if used the scale factor will be provided;
- (f) Show all bore holes and their UTM coordinates
- (g) Include, where applicable:
 - (i) Pavement cross-section(s)
 - (ii) Asphalt Supplier
 - (iii) Concrete Supplier
 - (iv) Geotextile used – type, manufacturer & supplier
 - (v) Sub-drains used – type, manufacturer & supplier
 - (vi) Other materials– type, manufacturer & supplier
 - (vii) Contractor and construction date

F1.5 In addition included on the files will be a separate drawing in AutoCAD format with the following (8) basic layers (none of which are to include text) and a list describing additional layers used:

Layer Names:

- | | |
|-------------------|--|
| 1) Street Surface | 5) Ramp Curb |
| 2) Walk | 6) Dimensions (to include all dimensions in the drawing) |
| 3) Alley | 7) Drainage Inlets |
| 4) Approach | 8) Elevations (min. all hi & low points) |

F1.6 Consultant to provide and submit separately a borehole .SHP File showing an updated Pavement Core/Test Hole Location Plan and for each location update the soil log to show the actual pavement structure constructed next to the existing.

(a) The provided .SHP file will:

- (i) Show all bore holes and their UTM coordinates.
- (ii) Include as attributes for each bore hole location:

◆ NORTHING

- ◆ EASTING
- ◆ PDF_FILE_NAME
- ◆ BH_ID
- ◆ BID_OPP
- ◆ CITY_FILE_KEY

- F1.7 The PDF provided will be a marked up version of the original soil log provided in the geotechnical report. The mark-up will:
- (a) Be created for each borehole location
 - (b) Show the original soil log unobstructed
 - (c) Show the new pavement structure accurately located vertically next to the existing soil log
 - (d) Show UTM coordinates of the soil log location
 - (e) Be labeled with a unique bore hole identification number
 - (f) Have a unique file name
- F1.8 Include a PDF copy of all as-built drawings
- F1.9 Two (2) copies of the AutoCAD Digital Drawings, borehole logs and PDF copies shall be submitted by either of the following ways;
- (a) USB flash drive. Both copies shall be clearly labelled identifying the Project number.
 - (b) Consultant FTP site.
- F1.10 As-built hard copy on Mylar or paper not required.
- F1.11 Draft as-builts to be sent to the appropriate Project Manager for review and approval. Final copies to be sent to;

Permits & Plan Approval – GIS Support Services
City of Winnipeg
Public Works Department
106-1155 Pacific Avenue
Winnipeg, MB R3E 3P1

F2. SEWER CONDITION ASSESSMENT & CCTV GUIDELINES (2017)

- F2.1 Perform condition assessment on all relevant sewers and manholes in the right-of-way within the limits of the street renewal. Condition assessment includes, but is not limited to, the following:
- (a) Review all sewer and manhole assets in the City of Winnipeg's Sewer Management System (SMS) application. Determine which assets are to be inspected using Closed-Circuit Television (CCTV) in accordance with Clause F4.2;
 - (b) Review existing CCTV inspections shown in SMS and new CCTV inspections performed in accordance with Clause F4.2;
 - (c) Confirm the appropriateness of existing Backlogged and Pending rehabilitation types and limits shown in SMS. If required, provide revised rehabilitation recommendations;
 - (d) For all inspections, recommend new rehabilitation types and limits not shown in SMS;
 - (e) Recommend what rehabilitation is to be done prior to the pavement renewal project; and
 - (f) Provide a rehabilitation summary and the new CCTV inspections and corresponding defect coding to WWD Asset Management Branch for review and approval.

- F2.2 The Closed-Circuit Television (CCTV) criteria provided below are general guidelines and are not intended to replace sound municipal engineering judgement specific to the individual project scope and/or location.
- (a) Clean & Inspect sewers and manholes in accordance with CW 2140 Sewer and Manhole Cleaning, and CW 2145 Sewer and Manhole Inspection;
 - (b) Where new inspections are required, provide a list of assets to qualified cleaning and inspection contractors;
 - (c) Inspect all sewers and manholes where no previous CCTV inspections have been completed;
 - (d) Re-inspect sewers and manholes with a Structural Performance Grade (SPG) of 3 or higher that have not been inspected in the previous 5 years, or sewers and manholes with an SPG of 1 or 2 that have not been inspected in the previous 20 years;
 - (e) Inspect sewers (regardless of SPG) if the street exhibits obvious distress at/along the underground plant;
 - (f) Inspect all CB leads to be reused as part of a street reconstruction, pavement rehabilitation, or mill and fill rehabilitation;
 - (g) CCTV inspection of sewers and manholes is not required on mill and fill pavement rehabilitation method and thin bituminous overlay (TBO) projects unless the street exhibits obvious distress at/along the underground plant; and
 - (h) Sewers and manholes located more than two metres from the work limits (i.e. not located under pavement) do not need to be re-inspected if previous CCTV inspection data exists.

F2.3 For any uncertain situations and/or locations, contact the City Project Manager.

F2.4 The Consultant is required to coordinate the sewer inspection contract and communicate the results to WWD Asset Management Branch in accordance with Clause F4.1. Provide the sewer inspections and corresponding defects data to WWD Asset Management Branch. Any repairs or other activities deemed necessary from these inspections must be reviewed and approved by WWD Asset Management Branch.

F2.5 Provide the post repair CCTV inspections and corresponding defect coding to WWD Asset Management Branch.

F3. SITE INVESTIGATION REQUIREMENTS FOR PUBLIC WORKS STREET PROJECTS

F3.1 This guideline provides basic principles and requirements for site investigations and testing with which to guide the designer in the preparation of proposals and completion of their investigations. Irrespective of the requirements listed in this document, it is important that the Engineer clearly outlines what assumptions were made in estimating the effort and resources necessary to complete the scope of work. A proposal should be submitted for approval to the City's Project Manager.

F3.2 When using this guideline, the designer remains responsible for the proposed plan in accordance to good engineering standards that address the specific needs and site conditions of the project. Without limiting that broad and general obligation, this guideline should be the minimum requirement.

F3.3 Boreholes and pavement core spacing, and material testing guidelines presented in this guide are only applicable to pavement investigations. Site investigation and testing may also be conducted as per common industry practice for other road elements such as sidewalks, boulevards, and medians. The City's Project Manager should be notified of any unusual conditions or difficulties encountered, and any changes made in the investigation program.

F3.4 New Construction and Reconstruction Projects

- (a) The number of boreholes can be calculated using Table 1.

Table 1 : Number of Boreholes and Depths

Lanes/Locals	Industrials and Collectors	Arterials
<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.45}$</p> <p>A minimum of two boreholes, 2 m ± 150 mm depth from the bottom of the proposed or the existing pavement per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.46}$</p> <p>A minimum of three boreholes, 2.5 m ± 150 mm depth from the bottom of the proposed or the existing pavement per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.48}$</p> <p>A minimum of three boreholes, 2.5 m ± 150 mm depth from the bottom of the proposed or the existing pavement per project location.</p>

¹If previous soil information is available and relevant, the number of boreholes can be reduced - confirm with the City's Project Manager.

²Additional boreholes should be undertaken where adverse soil conditions are expected or encountered during the course of field drilling.

- (b) Offset the boreholes as appropriate to provide coverage across the full width of the proposed construction. Boreholes should not be advanced on utility cut patching. The locations of the boreholes should be shown clearly on a scaled plan map of the site under investigation.
- (c) The following factors should be considered while selecting borehole locations:
 - (i) Visual sub-grade variability;
 - (ii) Significant pavement failures (rutting, fatigue cracking, settlement and faulting) which are often associated with sub-grade issues to diagnose the cause of these conditions; and,
 - (iii) Existing buried infrastructure.
- (d) Information regarding the sampler type, date and time of sampling, sample type and color, sample depth, ground water elevations, boreholes location, etc. should be shown in log form using notations and a graphical system. The log form should distinguish between visual evaluations of soil samples in the field versus a more precise laboratory evaluation supported by tests. Detailed boring logs including the results of laboratory tests should be included in the geotechnical report.
- (e) Measure and identify pavement materials (thickness and types of pavement structure materials). Photograph core samples recovered from the pavement surface (concrete, asphalt or composite).
- (f) Visual identification of the soil must be reported at the following depths from the bottom of the proposed or the existing pavement – 0.6 m, 0.9 m, 1.2 m, 1.6 m, 2.0 m, and 2.5 m (if required). Ensure that each soil type encountered in the boreholes is identified. The visual identification should describe the existing pavement structure, if any, including the materials encountered and the layer thicknesses.
- (g) Backfill boreholes with granular fill. Patch pavement surface with an approved cold patch asphalt or rapid set cementitious product to match the surface pavement type.
- (h) Where significant embankments are proposed along the roadway, specific testing and recommendations for the fill materials and placement should be made including expected settlements, load compensation requirements, and potential buoyancy of the embankment. The size, complexity and extent of the testing program will depend primarily on the type, height and size of embankment as well as the expected imported soil conditions – confirm with the City's Project Manager.
- (i) For embankments less than 100 m in length, a minimum of two boreholes are required. For embankments more than 100 m in length, the spacing between boreholes along the length of the embankment should not exceed 75 m with a minimum of two (2) boreholes. Extend the boreholes depths to a minimum of 2 m ± 150 mm below the proposed sub-grade level. At critical locations and where embankment heights exceed 1.0 m, a minimum of two (2) boreholes are required in the transverse direction to define the existing geological conditions for stability analyses.

- (j) Laboratory Testing Program
- (i) Determine the moisture content of the soils encountered in every borehole in accordance with ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass, at the following depths from the bottom of the proposed or existing pavement – 0.6 m, 0.9 m, 1.2 m, 1.6 m, 2.0 m, and 2.5 m (if required).
 - (ii) Classify and test the anticipated sub-grade soil in accordance with Table 2. The sub-grade soil is the material on which the pavement structure will be built; 0.6 m, 0.9 m, and 1.2 m may be used for locals, collectors, and arterials, respectively – confirm with the City’s Project Manager.

Table 2: Boreholes Testing Frequency

Lanes/Locals	Collectors	Arterials
<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2))^{0.4}$</p> <p>A minimum of two boreholes should be tested per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2))^{0.41}$</p> <p>A minimum of three boreholes should be tested per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2))^{0.42}$</p> <p>A minimum of three boreholes should be tested per project location.</p>

- (iii) The testing program should include:
 - ◆ Particle Size Analysis – ASTM D6913 Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis and ASTM D7928 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis;
 - ◆ Atterberg Limits – ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; and,
 - ◆ California Bearing Ratio (CBR) – ASTM D1883 Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils. CBR test shall be performed at 100 % maximum dry density and optimum water content. All samples shall be soaked prior to testing.
 - ◆ The sub-grade classification should be in accordance with:
 - ◆ ASTM D3282 - Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes; and,
 - ◆ ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes.
- (k) The designer should consider the site specific factors listed above for borehole locations while selecting testing location and frequency.
- (l) More advanced testing may be required depending upon site conditions including direct shear tests, triaxial tests, unconfined compressive tests, permeability tests, consolidation tests, point load tests, slaking tests, pinhole dispersion tests or other tests as deemed appropriate and justified by the designer – confirm with the City’s Project Manager.

F3.5 Rehabilitation Projects

- (a) For any rehabilitation projects (Concrete, Asphalt or Composite), measure and identify pavement materials (thickness and types of pavement structure materials). Photograph core samples recovered from the pavement.
- (b) For concrete rehabilitation projects, 150 mm-diameter cores shall be taken at joints to identify proper rehabilitation strategies (i.e. mill/fill, partial depth repair, full depth repair).

The number and location of cores will be determined by the designer after visiting the site – confirm with the City's Project Manager. A minimum of two (2) cores shall be collected mid-slab to determine the existing pavement thickness and concrete strength in accordance with CSA A23.2-14C – wet condition.

- (c) Factors that should be considered while selecting pavement core locations include but are not limited to:
 - (i) Significant variation in joint condition;
 - (ii) Pumping slabs, cracks or distress and perceived moisture issues from side slopes/edge cracking; and,
 - (iii) Significant changes in pavement structure thickness.
- (d) Non-destructive testing (i.e. Falling Weight Deflectometer and Ground Penetrating Radar) can be used to identify layer thicknesses and structural adequacy, load transfer at joints, and appropriate rehabilitation strategies, including partial depth repairs, full depth repairs, slab replacement, and overlays – confirm with the City's Project Manager.

APPENDIX A – DEFINITION OF PROFESSIONAL CONSULTANT SERVICES – ENGINEERING

1. DEFINITIONS

- 1.1 “Consulting Engineer” means the Professional Engineer or Professional Engineering firm engaged by the City to perform Consulting Engineering Services as described herein and within the Scope of Services of a Contract. The “Consulting Engineer” will hold and maintain, for the duration of the Project, a Certificate of Authorization from the Association of Professional Engineers and Geoscientists of Manitoba in the “Practicing Entity” category.
- 1.2 “Professional Engineer” means an individual engineer registered to practice in the Province of Manitoba by the Association of Professional Engineers and Geoscientists of Manitoba (APEGM), as required by the Engineering and Geoscientific Professions Act of the Province of Manitoba and the by-laws of the Association of Professional Engineers and Geoscientists of the Province of Manitoba.
- 1.3 “Professional Engineering” means the practice of professional engineering in the Province of Manitoba, as governed by the Engineering and Geoscientific Professions Act of the Province of Manitoba and the by-laws of the Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM).
- 1.4 “Seal” means the impression of the stamp issued by APEGM to registered Professional Engineers, plus the signature of the registered Professional Engineer, plus the date the signature was applied.

2. DEFINITIONS

- 2.1 Further to the General Conditions for Consultant Services, it is the intent of this Appendix to clarify the City’s specific requirements of the consulting services of Professional Engineers; to more fully identify the services to be rendered by Consulting Engineers to the City and to other parties on behalf of the City; and to provide a more clearly determined basis of obligation in respect thereof by Consulting Engineers to the City and to third parties in the provision of such services.

3. GENERAL REQUIREMENTS OF PROFESSIONAL ENGINEERS

- 3.1 All services described herein shall be performed in the City of Winnipeg, unless otherwise authorized in writing by the Project Manager, and under the direct supervision of a Professional Engineer registered in the Province of Manitoba.
- 3.2 All drawings, reports, recommendations and other documents originating therefrom involving the practice of Professional Engineering shall bear the Seal of a Professional Engineer.
- 3.3 Reports and documents not involving the practice of Professional Engineering, such as letters of information, minutes of meetings, construction progress reports, may be originated and signed by other responsible personnel engaged by the Consulting Engineer and accepted by the Project Manager. Progress estimates, completion certificates and other reports related to the technical aspects of a Project, must be endorsed by the Consulting Engineer in a manner acceptable to the Project Manager.
- 3.4 None of the services, tasks, actions or requirements described herein, nor any verbal instruction from the Project Manager, are intended to relieve the construction contractor of his contractual and/or other legal obligations in respect thereof, unless specifically indicated, in writing, by the Project Manager.

4. PROFESSIONAL ENGINEERING SERVICES – ADVISORY SERVICES

- 4.1 Advisory services have been referred to by the City of Winnipeg as “Type 1 Services”.
- 4.2 Advisory services are normally not associated with or followed by preliminary design and/or design services.

4.3 Advisory services include, but are not limited to:

- (a) Expert Testimony;
- (b) Appraisals;
- (c) Valuations;
- (d) Rate structure and tariff studies;
- (e) Management services other than construction management;
- (f) Feasibility studies;
- (g) Planning studies;
- (h) Surveying and mapping;
- (i) Geotechnical investigations;
- (j) Hydrological investigations;
- (k) Safety audits;
- (l) Value engineering audits;
- (m) Inspection, testing, research, studies, or reports concerning the collection, analysis, evaluation; and
- (n) Interpretation of data and information leading to conclusions and recommendations based upon specialized engineering experience and knowledge.

5. PROFESSIONAL ENGINEERING SERVICES – PRELIMINARY DESIGN

- 5.1 Preliminary Design services have been referred to by the City of Winnipeg as “Type 2 Services”.
- 5.2 Engineering services for preliminary design normally precede the detailed design of a Project.
- 5.3 Preliminary design services include, but are not limited to:
 - (a) Preliminary engineering studies;
 - (b) Engineering investigations;
 - (c) Surface and subsurface site explorations, measurements, investigations, and surveys;
 - (d) Operational studies including drainage studies, traffic studies, and noise attenuation;
 - (e) Functional planning;
 - (f) Formal and/or informal consultations with stakeholders and/or the general public;
 - (g) Physical, economical (capital and operating) and environmental studies including evaluation, comparison, and recommendation regarding alternative preliminary designs;
 - (h) Special applications to public agencies for necessary authorizations, preparation and submission of reports and drawings thereto and appearance before same in support of the application;
 - (i) Identification of the necessary authorizations from regulatory authorities and/or public agencies and determination of any related impacts and/or risks to the Project;
 - (j) Coordination with all the utilities including (but not limited to) hydro, telephone, gas, telecoms, fibre optics, traffic signals and other City or developer works with respect to location, relocation, construction and/or reconstruction;
 - (k) Preparation and submission of a report and appropriate drawings to the Project Manager, fully documenting data gathered, explaining adequately the assessment made, stating with clarity the resulting conclusions, and containing all recommendations which are relevant to this stage of Project implementation.

6. PROFESSIONAL ENGINEERING SERVICES – DETAILED DESIGN

- 6.1 Detailed Design services have been referred to by the City of Winnipeg as “Type 3 Services”.
- 6.2 Engineering services for detailed design normally involve preparation of detailed designs, construction contract specifications and drawings, analysis of bids and recommendations regarding construction contract award.
- 6.3 Detailed design services include, but are not limited to:
 - (a) Addressing alternative methods of accommodating; relocating; avoiding, and/or protecting utilities and railways; proposing alternative methods of solution, reviewing same with the appropriate regulatory approval agencies and stakeholders;
 - (b) Application to public agencies for necessary authorizations, preparation and submission of reports and drawings thereto, and appearance before same in support of the application;
 - (c) Formal and/or informal consultations with stakeholders and/or the general public;
 - (d) Preparation and submission of detailed engineering calculations, drawings, and criteria employed in the design(s), securing review of and acceptance by the Project Manager;
 - (e) Submission of engineering drawings and plans for circulation through the Underground Structures process;
 - (f) Preparation of detailed engineering drawings, specifications and tender documents consistent with the standards and guidelines of the City, securing review of and acceptance by the Project Manager;
 - (g) Preparation and provision to the Project Manager in written form, a fully detailed formal construction contract estimate;
 - (h) Provision of appropriate response to bidders and advice to the Project Manager during the tender advertising period and, subject to acceptance by the Project Manager, issuing addenda to the tender documents;
 - (i) Submission of a review, analysis, comparison, tabulation, calculation, and evaluation of the bids received, to the Project Manager, including a recommendation for construction contract award;
 - (j) Arranging and attending a pre-award meeting with the recommended construction contractor, the Consulting Engineer and the Project Manager;
 - (k) Preparation of a report including revised contract estimate, identifying and explaining variations from the earlier formal estimate.

7. PROFESSIONAL ENGINEERING SERVICES – CONTRACT ADMINISTRATION

- 7.1 Contract Administration services have been referred to by the City of Winnipeg as “Type 4 Services”.
- 7.2 Engineering services for Contract Administration are associated with the construction of a Project and include the office and field services required to ensure the execution of the Project in accordance with the intent of the City and in conformance with the particulars of the drawings and specifications.
- 7.3 Engineering services for Contract Administration can be generally divided into NON-RESIDENT and RESIDENT services.
- 7.4 NON-RESIDENT Contract Administration services include but are not limited to:
 - (a) Consultation with and advice to the Project Manager during the course of construction;

- (b) Review and acceptance of shop drawings and other submissions supplied by the construction contractor or supplier to ensure conformance with the drawings and specifications;
- (c) Review and report to the Project Manager upon laboratory, shop and other tests conducted upon materials and/or equipment placed or installed by the construction contractor to ensure conformance with the drawings and specifications;
- (d) Acceptance of and/or recommendations for alternate materials and methods, subject to the approval of the Project Manager;
- (e) Provision to the Project Manager of a complete, current monthly Project status report;
- (f) Provision to the Project Manager a current update of revised construction contract-end cost estimate on a monthly basis, or more frequently if necessary, with explanation and justification of any significant variation from the preceding construction contract-end cost projection;
- (g) Definition and justification of any changes to the construction contract for review by the Project Manager;
- (h) Supplying the Project Manager with a copy of all significant correspondence relating directly or indirectly to the Project, originating from or distributed to, parties external to the Consulting Engineer, immediately following receipt or dispatch;
- (i) Provision of adequate and timely direction of field personnel by senior officers of the Consulting Engineer;
- (j) Establishment prior to construction and submission to the Project Manager of written and photographic records of, and assessment of the physical condition of the project site and the properties, buildings, facilities, and structures adjacent to the project site sufficient to equip the Consulting Engineer to provide valid evidence and relevant testimony in settlement of any claim involving the City by any court of law, or by any other party for damages thereto arising from the Project;
- (k) Arranging and attending pre-construction meetings and on-site or off-site review meetings, including representatives of the construction contractor, the Project Manager, and other technical stakeholders as applicable;
- (l) The preparation and submission of:
 - i. a detailed design notes package including items such as structural, geotechnical, hydraulic and heating, air-conditioning and ventilation design calculations; mechanical and electrical design calculations related to process equipment and building services; process design calculations; and instrumentation and process control design calculations;
 - ii. approved related shop drawings and equipment process manuals all within one (1) month of completion of each separate installation construction contract required to complete the works.

7.5 RESIDENT Contract Administration services include but are not limited to:

- (a) Provision of qualified resident personnel – acceptable to the Project Manager – present at the Project site to carry out the services as specified below:
 - i. inspection of all pipe prior to installation;
 - ii. inspection and acceptance of excavation for, and full time inspection at the time of bedding placement, pipe laying and backfilling in respect of installation of watermains, land drainage sewers, and wastewater sewers;
 - iii. inspection of installation of all connections to watermains, sewers, manholes, valves, hydrants or house services, and excavation and/or exposing of all underground services, structures, or facilities;
 - iv. inspection of all excavations to determine soil adequacy prior to installation of base and subbase courses for sidewalks, public back lanes, and street pavements;

- (b) Further to 7.5(a), full time inspection will require assignment of qualified resident personnel – acceptable to the Project Manager – to each specific location when the referenced work is being undertaken by the construction contractor:
 - i. full-time inspection and/or testing of watermains and sewers;
 - ii. full-time inspection during pavement placement; during finishing of public sidewalks and public lanes and/or street pavements;
 - iii. full-time inspection during construction of bridge infrastructure and other structural works.
- (c) Conduct detailed inspection of construction sufficient to ensure that the construction carried out by the construction contractor conforms to the drawings and specifications;
- (d) Co-ordination and staging of all other works on the Project site including traffic signal installations, hydro, telephone, and gas utility work, railway work forces and/or other City or developer work;
- (e) With approval of the Project Manager, provision of notice to adjacent residents and businesses of those stages of construction of the Project that will interrupt public services or access thereto, sufficiently in advance of same to permit preparation therefore;
- (f) Enforcement of construction contractor conformance with the City of Winnipeg Manual of Temporary Traffic Control in Work Areas on City Streets and with reasonable standards of safety for motorists and pedestrians;
- (g) Provision of reference line and elevation to the construction contractor and checking upon the construction contractor's adherence thereto;
- (h) Representation of the City to the local residents and businesses and other inquiries in a professional manner, with responsible and prompt reaction to requests, minimizing impact and/or disruption of the Project to the extent possible;
- (i) Arranging for and carrying out of testing of materials utilized by the construction contractor to ensure conformance with the drawings and specifications;
- (j) Measurement, calculation, preparation, certification, and prompt submission of progress estimates to the Project Manager for payment to the construction contractor for construction performed in accordance with the drawings and specifications;
- (k) Arrange, attend and prepare and distribute records of and minutes for, regularly held on-site or offsite Project review meetings including representatives of the construction contractor and the City;
- (l) Promptly report any significant and unusual circumstances to the Project Manager;
- (m) Promptly arrange for and conduct a detailed final inspection of the Project with the construction contractor and the Project Manager prior to commencement of the period of contractor warranty specified in the construction contract for the Project, and providing to the Project Manager in written form an appropriate recommendation for commencement of the warranty period for the constructed or partially constructed Project;
- (n) Act as Payment Certifier and administer all construction contracts as required under the Builder's Liens Act of Manitoba;
- (o) Keep a continuous record of working days and days lost due to inclement weather during the course of construction contract works.

8. PROFESSIONAL ENGINEERING SERVICES – POST CONSTRUCTION SERVICES

- 8.1 Engineering Services in the post-construction phase of a Project are associated with the completion and close-out of the Project and generally considered part of Contract Administration (Type 4) Services.
- 8.2 The Consulting Engineer is required to provide post-construction services including but not limited to:

- (a) Preparation of a Certificate of Substantial Performance in the standard City of Winnipeg format;
- (b) Preparation of a Certificate of Total Performance in the standard City of Winnipeg format;
- (c) Provision of inspection services during the warranty period of the construction contract;
- (d) Provision of inspection services (as per 7.5a) for maintenance (paid) items within the warranty period of the construction contract;
- (e) Coordination of a detailed inspection of the Project with the construction contractor and the Project Manager prior to the end of the period of construction contract warranty specified in the construction contract for the Project;
- (f) Prompt resolution of:
 - i. deficiencies in design;
 - ii. outstanding construction contract warranty issues.
- (g) Submission of a final construction report within three (3) months of the Substantial Performance date of the construction contract, including final or projected final construction contract costs;
- (h) Provision of record drawings, within three (3) months of Substantial Performance date;
- (i) Preparation of a Certificate of Acceptance in the standard City of Winnipeg format.

9. PROFESSIONAL ENGINEERING SERVICES – ADDITIONAL SERVICES

- 9.1 Additional Services have been referred to by the City of Winnipeg as “Type 5 Services”.
- 9.2 Additional services are Consulting Engineering services that fall outside those described above and may or may not be associated with a construction project, but are not in place of or in substitution for those services elsewhere specified in the *Definition of Professional Consultant Services – Engineering*, with respect to other types or categories of Services.
- 9.3 Engineering Services called Additional Services include but are not limited to:
 - (a) Revision of completed, or substantially completed, drawings and/or specifications that were in conformance with the original intent of the City or had been accepted by the Project Manager;
 - (b) Preparation of operating manuals and/or training of operating personnel;
 - (c) Start-up and/or operation of operating plants;
 - (d) Procurement of materials and equipment for the City;
 - (e) Preparation for and appearance in litigation on behalf of the City;
 - (f) Preparation of environmental studies and reports and presentation thereof in public hearings;

Preparation and submission to the Project Manager, final quantities and dimensional measurements which the City requires for assessment of Local Improvement Levies within one (1) month of Project completion.

APPENDIX B - SITE INVESTIGATION REQUIREMENTS FOR PUBLIC WORKS STREET PROJECTS

General

This guideline provides basic principles and requirements for site investigations and testing with which to guide the designer in the preparation of proposals and completion of their investigations. Irrespective of the requirements listed in this document, it is important that the Engineer clearly outlines what assumptions were made in estimating the effort and resources necessary to complete the scope of work. A proposal should be submitted for approval to the City's Project Manager.

When using this guideline, the designer remains responsible for the proposed plan in accordance to good engineering standards that address the specific needs and site conditions of the project. Without limiting that broad and general obligation, this guideline should be the minimum requirement.

Boreholes and pavement core spacing, and material testing guidelines presented in this guide are only applicable to pavement investigations. Site investigation and testing may also be conducted as per common industry practice for other road elements such as sidewalks, boulevards, and medians. The City's Project Manager should be notified of any unusual conditions or difficulties encountered, and any changes made in the investigation program.

New Construction and Reconstruction Projects

The number of boreholes can be calculated using Table 1.

Table 1 : Number of Boreholes and Depths

Lanes/Locals	Industrials and Collectors	Arterials
<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.45}$</p> <p>A minimum of two boreholes, 2 m ± 150 mm depth from the bottom of the proposed or the existing pavement per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.46}$</p> <p>A minimum of three boreholes, 2.5 m ± 150 mm depth from the bottom of the proposed or the existing pavement per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.48}$</p> <p>A minimum of three boreholes, 2.5 m ± 150 mm depth from the bottom of the proposed or the existing pavement per project location.</p>

¹If previous soil information is available and relevant, the number of boreholes can be reduced - confirm with the City's Project Manager.

²Additional boreholes should be undertaken where adverse soil conditions are expected or encountered during the course of field drilling.

Offset the boreholes as appropriate to provide coverage across the full width of the proposed construction. Boreholes should not be advanced on utility cut patching. The locations of the boreholes should be shown clearly on a scaled plan map of the site under investigation.

The following factors should be considered while selecting borehole locations:

- Visual sub-grade variability;
- Significant pavement failures (rutting, fatigue cracking, settlement and faulting) which are often associated with sub-grade issues to diagnose the cause of these conditions; and,
- Existing buried infrastructure.

Information regarding the sampler type, date and time of sampling, sample type and color, sample depth, ground water elevations, boreholes location, etc. should be shown in log form using notations and a graphical system. The log form should distinguish between visual evaluations of soil samples in the field

versus a more precise laboratory evaluation supported by tests. Detailed boring logs including the results of laboratory tests should be included in the geotechnical report.

Measure and identify pavement materials (thickness and types of pavement structure materials). Photograph core samples recovered from the pavement surface (concrete, asphalt or composite).

Visual identification of the soil must be reported at the following depths from the bottom of the proposed or the existing pavement – 0.6 m, 0.9 m, 1.2 m, 1.6 m, 2.0 m, and 2.5 m (if required). Ensure that each soil type encountered in the boreholes is identified. The visual identification should describe the existing pavement structure, if any, including the materials encountered and the layer thicknesses.

Backfill boreholes with granular fill. Patch pavement surface with an approved cold patch asphalt or rapid set cementitious product to match the surface pavement type.

Where significant embankments are proposed along the roadway, specific testing and recommendations for the fill materials and placement should be made including expected settlements, load compensation requirements, and potential buoyancy of the embankment. The size, complexity and extent of the testing program will depend primarily on the type, height and size of embankment as well as the expected imported soil conditions – confirm with the City’s Project Manager.

For embankments less than 100 m in length, a minimum of two boreholes are required. For embankments more than 100 m in length, the spacing between boreholes along the length of the embankment should not exceed 75 m with a minimum of two (2) boreholes. Extend the boreholes depths to a minimum of 2 m ± 150 mm below the proposed sub-grade level. At critical locations and where embankment heights exceed 1.0 m, a minimum of two (2) boreholes are required in the transverse direction to define the existing geological conditions for stability analyses.

Laboratory Testing Program

Determine the moisture content of the soils encountered in every borehole in accordance with ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass, at the following depths from the bottom of the proposed or existing pavement – 0.6 m, 0.9 m, 1.2 m, 1.6 m, 2.0 m, and 2.5 m (if required).

Classify and test the anticipated sub-grade soil in accordance with Table 2. The sub-grade soil is the material on which the pavement structure will be built; 0.6 m, 0.9 m, and 1.2 m may be used for locals, collectors, and arterials, respectively – confirm with the City’s Project Manager.

Table 2: Boreholes Testing Frequency

Lanes/Locals	Collectors	Arterials
<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.4}$</p> <p>A minimum of two boreholes should be tested per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.41}$</p> <p>A minimum of three boreholes should be tested per project location.</p>	<p>Number of boreholes = $0.1 \times (\text{Street area (m}^2\text{)})^{0.42}$</p> <p>A minimum of three boreholes should be tested per project location.</p>

The testing program should include:

- Particle Size Analysis – ASTM D6913 Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis and ASTM D7928 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis;
- Atterberg Limits – ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; and,
- California Bearing Ratio (CBR) – ASTM D1883 Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils. CBR test shall be performed at 95 % maximum dry density and optimum water content. All samples shall be soaked prior to testing.

The sub-grade classification should be in accordance with:

- ASTM D3282 - Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes; and,
- ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes.

The designer should consider the site specific factors listed above for borehole locations while selecting testing location and frequency.

More advanced testing may be required depending upon site conditions including direct shear tests, triaxial tests, unconfined compressive tests, permeability tests, consolidation tests, point load tests, slaking tests, pinhole dispersion tests or other tests as deemed appropriate and justified by the designer – confirm with the City's Project Manager.

Rehabilitation Projects

For any rehabilitation projects (Concrete, Asphalt or Composite), measure and identify pavement materials (thickness and types of pavement structure materials). Photograph core samples recovered from the pavement.

For concrete rehabilitation projects, 150 mm-diameter cores shall be taken at joints to identify proper rehabilitation strategies (i.e. mill/fill, partial depth repair, full depth repair). The number and location of cores will be determined by the designer after visiting the site – confirm with the City's Project Manager. A minimum of two (2) cores shall be collected mid-slab to determine the existing pavement thickness and concrete strength in accordance with CSA A23.2-14C – wet condition.

Factors that should be considered while selecting pavement core locations include but are not limited to:

- Significant variation in joint condition;
- Pumping slabs, cracks or distress and perceived moisture issues from side slopes/edge cracking; and,
- Significant changes in pavement structure thickness.

Non-destructive testing (i.e. Falling Weight Deflectometer and Ground Penetrating Radar) can be used to identify layer thicknesses and structural adequacy, load transfer at joints, and appropriate rehabilitation strategies, including partial depth repairs, full depth repairs, slab replacement, and overlays – confirm with the City's Project Manager.