PART 1 GENERAL

1.1 Administrative

.1 Submit to Contract Administrator submittals listed for review. Submit promptly and in an orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review by both Contractor and Contract Administrator is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Contract Administrator, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator’s review.

.10 Keep one reviewed copy of each submission on site.

1.2 Shop Drawings And Product Data

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit drawings stamped and signed by professional engineer registered or licensed in the province in which the Work takes place.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow a minimum of ten (10) working days for Contract Administrator 's review of each submission.

.5 Adjustments made on shop drawings by Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Contract Administrator prior to proceeding with Work.

.6 Make changes in shop drawings as Contract Administrator may require, consistent with Contract Documents. When resubmitting, notify Contract Administrator in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter or stamp containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.9 After Contract Administrator 's review, distribute copies.

.10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Contract Administrator may reasonably request.

.11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Contract Administrator where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Contract Administrator.

- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Testing to be in compliance with most recent version of the listed third party standard.

.13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Contract Administrator.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by Contract Administrator.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Contract Administrator.

.16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.17 Submit electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Contract Administrator.

.18 Delete information not applicable to project.

.19 Supplement standard information to provide details applicable to project.

.20 If upon review by Contract Administrator, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed as noted. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.3 Consultant Drawings

.1 Electronic files of drawings for the purpose of shop drawing preparation may be obtained from the Consultant’s provided a waiver is signed by the person or company requesting the drawings.

1.4 Samples

.1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Contract Administrator's business address as noted in the title sheet.

.3 Notify Contract Administrator in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Contract Administrator prior to proceeding with Work.

.6 Make changes in samples which Contract Administrator may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 Photographic Documentation

.1 Submit electronic copy of colour digital photography in jpg format, standard resolution monthly with progress statement.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Number of viewpoints: Minimum 2 locations, more for critical path and complex elements.

.4 Frequency of photographic documentation: monthly or as directed by Contract Administrator.

.1 At minimum produce site photos upon completion of Work.

.5 Provide digital photographs of site, adjacent public right-of-way, and existing and neighboring buildings prior to construction to serve as record for possible damages.

.6 Photographs documenting existing site conditions before construction and the completed work after construction shall be submitted by the Contract Administrator to the City of Winnipeg Public Works Department. These photographs will be used to verify that no new damage, deficiencies, or outstanding restoration requirements remain within the adjacent public right-of-way as a result of the Work.

1.6 Certificates And Transcripts

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

PART 2 PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Contract Administrator in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Contract Administrator's inspection.

.2 Contract Administrator's Inspection:

.1 Contract Administrator and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks:

.1 Submit written certificates confirming that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested, balanced, adjusted and fully operational.

.4 Certificates required by all Authorities Having Jurisdiction, Boiler Inspection Branch, Fire Commissioner, Utility companies: submitted.

.5 Operation of systems: demonstrated to the City's personnel.

.6 Work: complete and ready for final inspection.

.4 Submit written confirmation that following tasks have been performed

.1 Operation and Maintenance Manuals.

.2 Record and "as-built" drawings.

.3 Keys for equipment and building as specified, including related keying information and keying charts.

.4 Spare parts and maintenance materials have been turned over to the City.

.5 Written agreement on Service/Maintenance Contracts identified in project specifications.

.6 Warranty and Bond Certificates

.5 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Contract Administrator, and Contractor. Allow for a 10 working day notice.

.2 When Work is incomplete according to Contract Administrator, complete outstanding items and request re-inspection.

.6 Declaration of Substantial Performance: when Contract Administrator considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

.7 Commencement of Lien and Warranty Periods: date of the City's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.8 Final Payment:

.1 When Contract Administrator considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

.9 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.2 WARRANTY

.1 Contractor shall promptly correct any defects within warranty time period. Failure to do so will make Contractor financially responsible to the City for material and labour required for repairs by qualified personnel. The warranty shall not be nullified by emergency or other repairs by qualified personnel under the direction of the City.

.2 The City, Contract Administrator and Contractor shall conduct an inspection of project one month prior to the conclusion of the warranty period. Contractor shall promptly correct defects of the Work of Contract. Contractor shall remedy defects within time period mutually agreed to between the City and Contractor. Failure to do so will make Contractor financially responsible to the City for material and labour required for repairs by qualified personnel.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Requirements

.1 Bid Opportunity 903-2026

.2 CW 1110 General Instructions

.3 CW 1130 Site Requiements

.4 Section 01 33 00 - Submittal Procedures

.5 Section 01 77 00 - Closeout Procedures

.6 Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.2 Administrative Requirements

.1 Pre-warranty Meeting:

.1 Convene meeting at least one week prior to contract completion with Contract Administrator, in accordance with tender documents to:

.1 Verify Project requirements.

.2 Review warranty requirements manufacturer's installation instructions.

.3 Determine priorities for type of defects.

.4 Determine reasonable response time.

.2 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.

.3 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.3 Action And Informational Submittals

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit preliminary copies of operating manuals to the Contract Administrator six weeks in advance of Substantial Performance for review and comment by Contract Administrator.

.3 Revise operating and maintenance manuals as requested and submit final copies to the Contract Administrator two weeks prior to Substantial Performance of the Work.

.4 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

.5 Provide evidence, if requested, for type, source and quality of products supplied.

.6 Provide all submittals required by any Authorities Having Jurisdiction governing the Work.

1.4 Format

.1 Organize data as instructional manual and submit in both digital and paper formats in accordance with the following:

.1 Binders:

.1 Vinyl, hard covered, 3 'D' ring, with spine and face pockets.

.2 When multiple binders are used correlate data into related consistent groupings.

.3 Identify contents of each binder on spine.

.4 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.5 Text: manufacturer's printed data, or typewritten data.

.6 Drawings: provide with reinforced punched binder tab.

.7 Bind in with text; fold larger drawings to size of text pages.

.8 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.2 Digital Storage:

.1 Either CDs or a single USB flash drive of suitable size.

.2 Organize into separate folders for each Section, subfolders to be separated by products and/or systems.

.2 Arrange content by systems under Section numbers and sequence of Table of Contents.

.3 Provide 1:1 scaled CAD files in dwg format on CD or USB flash drive.

1.5 Contents - Project Record Documents

.1 Table of Contents for Each Volume: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Contract Administrator and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.2 Warranty for each product or system, organized as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work in addition to their inclusion in the project record binder.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittal.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.6 As-Built Documents And Samples

.1 Maintain, in addition to requirements in General Conditions, at site for Contract Administrator one record copy of:

.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Change Orders and other modifications to Contract.
.5 Reviewed shop drawings, product data, and samples.
.6 Field test records.
.7 Inspection certificates.
.8 Manufacturer's certificates and warranties.
.9 List of spare parts, extra stock material, special tools.

.2 Store record documents and samples in field office apart from documents used for construction.

.1 Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.

.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition.

.1 Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Contract Administrator.

.6 The General Contractor will be responsible for supplying the City and Prime Contract Administrator “as built” drawings in the following format:

.1 Complete “As Built” set to include all construction drawings whether modified or not during construction and shall be in both hard copy and digital format.
.2 Each “As Built” drawing shall be provided in both dwg format and portable document format file (PDF) on CD or USB flash drive.
.3 As Built drawings to reflect all changes made by change order and change directive as reflected on record documents.
.4 Each drawing document shall contain only that information related to that drawing number. All layers shall be active. All non-related layers and information to be removed. PDFs of drawing documents to be legible greyscale.
.5 Provide an AutoCAD font file of all fonts used.
.6 As Built drawings shall be completed to the satisfaction of the Contract Administrator.
.7 Submit to Contract Administrator within a reasonable timeframe as determined in conjunction with Contract Administrator.

.7 Cost to obtain drawing files in dwg file format from the Contract Administrator shall be set at $100.00 per drawing and the Contractor will be required to sign a waiver to be eligible to obtain the drawings for use as electronic As-Builts.

1.7 Recording Information On Project Record Documents

.1 Record information on set of opaque drawings, and in copy of Project Manual, provided by Contract Administrator.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 Referenced Standards to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain field test records, manufacturer's certifications, inspection certifications, required by individual specifications sections.

.7 Provide digital photos, if requested, for site records.

.8 Final payment on the Contract will not be made until correct record documents are received.

1.8 Final Survey

.1 Submit final site survey certificate certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.9 Materials And Finishes

.1 Products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.1 Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional requirements: as specified in individual specifications sections.

1.10 Maintenance Materials

.1 For all maintenance materials deliver to site, receive and catalogue items, submit inventory listing to Contract Administrator and include approved listings in Maintenance Manual.

.2 Spare Parts:

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Obtain receipt for delivered products and submit prior to final payment.

.3 Extra Stock Materials:

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Obtain receipt for delivered products and submit prior to final payment.

.4 Special Tools:

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

1.11 Delivery, Storage And Handling

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and for review by Contract Administrator.

1.12 Warranties And Bonds

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Contract Administrator approval. If no plan is submitted, Contractor to ensure all warranty conditions are met and documented in advance of pre-warranty conference.

.3 Warranty management plan to include required actions and documents to assure that Contract Administrator receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, Contract Administrator for approval prior to each monthly pay estimate in addition to inclusion of a complete set of warranty documents as part of the O&M manual.

.6 Assemble approved information in project record binder in addition to obtaining warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

.7 Except for items put into use with the City's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Conduct joint warranty inspections by Contract Administrator.

.9 Respond in timely manner to oral or written notification of required construction warranty repair work and ensure written verification to follow oral instructions. Failure to verify or

respond will be cause for the Contract Administrator to proceed with action against Contractor.

PART 2 PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

.1 All Division 1 Specification Sections
.2 CW1110 General Instruction
.3 CW1120 Site Requirements
.4 CW3170 Earthwork and Grading
.5 CW3540 Topsoil and Finish Grading

1.2 References

.1 Canadian Nursery Landscape Association (CNLA) – Canadian Standards for Nursery Stock - 8th Edition.
.2 Council of Tree and Landscape Appraisers (CTLA) – Guide for Plant Appraisal – 9th Edition, 2000.
.3 City of Winnipeg Tree Planting Standard for Downtown & Regional Streets
.4 Department of Justice Canada
  .1 Fertilizers Act (R.S. 1985, c. F-10).
  .2 Fertilizers Regulations (C.R.C., c. 666).

1.3 Submittals

.1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.4 Qualifications

.1 Arboricultural work (e.g. pruning, root cutting, fertilizing, tree maintenance, removal, etc.) by a Certified Arborist or approved tree care professional.

.2 A Certified Arborist shall hold a certification in good standing through the International Society of Arboriculture (ISA).

PART 2 PRODUCTS

1.1 Materials

.1 Temporary Protection Fencing: to conform with City of Winnipeg Standards:
  .1 Plastic snow fence: 1200mm height, in good condition;
  .2 Steel T-bar posts: 38 x 38 x 2400mm length

.2 Signage:
  .1 Tree Protection Sign 45 x 60cm in size

.3 Mulch:
  .1 Shredded cedar bark: varying in size from 25 to 75 mm in length.
  .2 Free of diseased wood, invasive species, weed seeds and deleterious material that could inhibit growth.

PART 3 EXECUTION

3.1 Identification And Protection

.1 Identify plants and the limit of their root system to be preserved as approved by City and/or Contract Administrator.

.2 The location and installation of tree protection fencing must be reviewed and approved in writing by the City and/or Contract Administrator prior to commencement of construction.

.3 No work and/or equipment shall be permitted on site until written approval by the City and/or Contract Administrator has been issued.

.4 Protect plants and root systems from damage, compaction and contamination resulting from construction as approved by City and/or Contract Administrator.

.5 Contractor is not permitted to change, alter, modify, or relocate the tree protection fencing without written approval by the City and/or Contract Administrator.

3.2 Tree Protection Zone

.1 Install tree protection fencing in accordance with Table 1 unless indicated otherwise. The following is a chart showing minimum required distances for determining a tree protection zone (TPZ). Some trees and some site conditions may require a larger or smaller TPZ. Any form of deviation shall be approved in writing by the City and/or Contract Administrator.

Table 1 – Tree Protection Zone (TPZ)

Trunk Diameter (DBH)*	Minimum Protection Distance Required**
< 10.1 cm	2.0 m
10.1 - 40 cm	2.4 m
40.1 - 50 cm	3.0 m
50.1 - 60 cm	3.6 m
60.1 - 70 cm	4.2 m
70.1 - 80 cm	4.8 m
80.1 - 90 cm	5.4 m
90.1 - 100 cm	6.0 m
> 100 cm	6.0 cm for each 1.0 cm of trunk diameter

.2 The following activities are not permitted within the Tree Protection Zone (TPZ) unless indicated otherwise:

.1 Alteration or disturbance to existing grades of any kind;
.2 Changes to the grade by adding fill, excavating or scraping;
.3 Stripping of topsoil or grubbing of understory;
.4 Storage of construction materials or equipment;
.5 Storage or stockpiling of soil, construction waste or debris;
.6 Disposal of any liquids (i.e. concrete sleuth, gas, oil, paint);
.7 Compaction from vehicles, equipment or pedestrians;

.3 Temporary attachments or supports for signs, lights, cables, etc., are not permitted on existing trees and shrubs.

.4 When roots are encountered outside the TPZ the contractor shall excavate by hand and cut roots with sharp disinfected cutting tools. Backfill with appropriate material without delay to prevent desiccation of the exposed roots.

.5 Locate storage for equipment and materials, access roads to the site, and traffic patterns within the site well away from preserved trees to avoid unnecessary root injury and soil compaction.

.6 Where fill or excavation material must be stored within 1m of the outside of the TPZ, a barrier of ¾" thick plywood must be securely installed along the outside of the fencing and must be long enough to accommodate the full extent or fill or excavated material to ensure that no material enters the TPZ.

3.3 Tree Protection Fencing

.1 Erect temporary tree protection fencing in accordance with applicable detail.

.2 The fence must be minimum 1.2 m in height to a maximum 2 m in height. Adjustments may be made where height interferes with the normal branching habit of the tree and as accepted by the Contract Administrator.

.3 Inspect tree protection fencing daily. Any failure, alteration, relocation or breach of the tree protection fencing shall be rectified within 24 hours.

.4 Tree protection fencing must remain in place until all construction activities are completed and approvals for removals have been granted by the City / Contract Administrator.

.5 Failure to install and maintain tree protection fencing will automatically place affected trees under warranty as noted in the contract documents.

3.4 Signage

.1 A "Tree Protection Zone" sign must be mounted on any side facing foot and vehicular traffic, including construction traffic. The sign shall be 45X60cm in size and made of white coroplast or as approved by the Contract Administrator.

3.5 Pruning

.1 Prune in accordance with City requirements.

.2 Pruning of tree roots and branches must be performed by a Certified Arborist or approved tree care professional and in accordance with good arboricultural standards.

.3 Prune and remove broken and/or dead branches that have become damaged during construction operations.

.4 Where limbs or portions of trees need to be removed to accommodate construction work, obtain written approval from the City prior to removal.

.5 Trees being removed shall be cut rather than pushed over or pulled out with equipment.

3.6 Watering

.1 Water preserved trees weekly in the absence of natural rainfall during the growing season. Soak area immediately below the tree crown.

.2 Water entire root zone to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion.

3.7 Mulching

.1 Apply a 100mm layer of shredded cedar mulch over the root system of trees within the confines of the TPZ prior to the commencement of construction. Do not apply mulch any deeper than 100mm and do not pile against trunk. Refer to contract drawings for specific locations.

3.8 Trenching And Tunnelling For Underground Services

.1 Centre line location and limits of trench/tunnel excavation to be marked on site and approved by City and/or Contract Administrator prior to excavation. Tunnel excavation to extend 2000 mm from edge of trunk on either side unless indicated otherwise.

.2 Manually excavate the instant when tree roots are encountered during construction. Do not sever roots greater than 40 mm diameter except when root depth is greater than 500 mm below existing grade. Protect roots,and cut roots cleanly with sharp disinfected tools.

.3 Minimum acceptable depth to top of tunnel: 1000 mm.

.4 Backfill for tunnel and trench to 85% Standard Proctor Density. Avoid damage to trunk and roots of tree.

3.9 Damage to Trees

.1 Any damage or injury to trees shall be reported to the City immediately so that mitigation can take place without delay.

3.10 Post-Construction Inspection And Assessment

.1 The City and/or Contract Administrator shall assess the condition of all preserved trees and shrubs prior to Substantial Performance.

.2 Should any trees or shrubs exhibit damage due to an unauthorized breach of the TPZ, including but not limited to unauthorized grade changes, surface treatment, compaction, excavation, stockpiling of any kind, or physical injury to trunk, crown or roots, then the contractor shall be responsible for the damage.

.3 The contractor shall be responsible to have a Certified Arborist monitor the changes to the health of all affected trees during the growing season and submit annual inspection reports for the entire warranty period at not cost to the City.

3.11 Acceptance

.1 Tree and shrub preservation zones will be accepted by the City at Substantial Performance provided that:
- .1 Preserved trees and shrubs exhibit healthy and vigorous growth;
- .2 Trees have been watered during construction.
- .3 Existing edge grades have been blended with new construction grades and surfaces.
- .4 Entire edge has been cleared of debris.
- .5 All broken or dead branches have been removed.
- .6 Tree preservation zone has not been breached.
- .7 All remediation work as recommended by a Certified Arborist has been completed.

3.12 Warranty

.1 If the TPZ has been breached during construction without the written approval from the City and/or Contract Administrator the protected tree(s) will automatically be included with the 12 month warranty period of the contract. Any damage or deterioration that occurs by the end of the warranty period will be the responsibility of the Contractor to replace in accordance with the Section 3.10 – Compensation

31.12 Maintenance During Construction Period

1. Shredded wood mulch shall be maintained to a depth of 75mm throughout construction period. Mulch and placement shall be monitored on a weekly basis.

2. Orange snow fencing shall be maintained, stand upright and be secure throughout construction period. Shall be monitored on a weekly basis and any breeches shall be corrected immediately.

3. Prune any dead or damages branches from trees and shrubs, maintain all plant material in a healthy growing condition and rectify and damage that occurs as a result of construction activities.

END OF SECTION

PART 1 – GENERAL

1.1 Related Sections

.1 All Division 1 Specification Sections
.2 CW 1110 General Instructions
.3 CW 1130 Site Requirements
.4 CW 3550 Fence and Drift Control Fence
.5 CW 2160 Concrete Underground Structures and Works

1.2 References

.1 American Society for Testing and Materials International, (ASTM).
  .1 ASTM A53/A53M-02, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  .2 ASTM A90/A90M-01, Standard Test Method for Weight Mass of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
  .3 A653/A653M-03, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  .4 ASTM C618-03, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.

.2 Canadian Standards Association (CSA International).
  .1 CAN/CSA-A23.1/A23.2-00 (August 2001), Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.
  .2 CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
  .3 CAN/CSA-A3000-98 (R2002), Cementitious Materials Compendium. Includes:
    .1 CAN/CSA-A23.5-98, Supplementary Cementing Materials
  .4 Department of Justice Canada (Jus)
    .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
  .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
    .1 Material Safety Data Sheets (MSDS).
  .6 Transport Canada (TC).
    .1 Transportation of Dangerous Goods Act (TDGA), 1992, c.34.

1.3 Submittals

.1 Submit final assembly drawings in accordance with Section 01 33 00 - Submittal Procedures and CW 1110.

.2 Shop Drawings are to be submitted for all new fencing.

1.4 Waste Management and Disposal

.1 Refer to CW 1130.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 – PRODUCTS

2.1 Materials

.1 Existing ornamental fence posts, gate posts, fence and gate panels to be removed and stored for reinstallation. Flange mounts to be installed on existing posts, where required.

.2 **New Ornamental Fence:**

.1 Acceptable Material: Iron Eagle 1, Style 2010 (or approved alternate)

1. Panel Size: 1067mm height to match existing panels. Contractor to site measure and verify panel size prior to shop drawing submittal.
2. Pickets: IE-2 Fleur De Lis
3. Fence Posts: Height above grade to match existing fence posts, Flat post cap to match existing posts
4. Gates: Existing gates and posts to be reinstalled in location shown on Drawing L1.00
5. Colour: Black (to match existing fence)
6. Installation: Concrete piles as per CW3550
7. Supplier: Wallace and Wallace
8. Contact Information: Ben Saunders bsaunders@wallacefences.com
   90 Lowson Crescent, Winnipeg, MB, R3P 2H8
   t: 204.452.2700

.3 **Concrete:**

.1 Concrete pile diameter and depth for terminal fence posts to be as per Table 2 CW3550 and gate posts concrete piles to be as per Table 1 CW3550.

.2 Concrete piles as specified for terminal post and gate post installation, the concrete shall conform to CW 2160 and be sulphate resistant type 50, minimum compressive strength of 25 MPa at 28 days, air content of 4% - 7%, maximum slump of 80 mm and a maximum size of course aggregate of 40 mm.

2.2 Setting Grout

.1 Concrete: Minimum 20 MPa. Refer to CW 2160.

.2 Grout: Premixed, factory packaged, nonstaining, noncorrosive grout. Refer to CW 2160. Provide type especially formulated for exterior application.

2.3 Finishes

.1 As per Manufacturer: Galvalume cold formed steel tubing, coated interior and exterior. Chromate conversion coting electrostatically applied thermally bonded polyester powder coating, minimum film thickness 2.5mm.

PART 3 – EXECUTION

3.1 Grading

.1 Remove debris and correct ground undulations along fence line to obtain smooth uniform gradient between posts.

.1 Provide clearance between bottom of fence and ground surface of 50mm to 100mm, to match alignment of adjacent existing fencing.

3.2 Erection Of Fence and Gates

.1 Erect fence along lines as indicated and to CAN/CGSB-138.3.

.2 New fence panels and posts to match existing fence heights.

.3 Install end posts at end of fence and at buildings. Flange mounts to be installed on existing posts, where required.

.4 Install brace between end posts and nearest line post.

.1 Install braces on both sides of corner and straining posts in similar manner.

.5 Install top rail between posts and fasten securely to posts and secure waterproof caps.

.6 Install all gates level and secure for full openings, without interference. Adjust and lubricate all gate hardware for smooth and efficient operation.

.7 Refer to manufacturer installation guidelines.

3.3 Touch Up

.1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply paint to damaged areas as per manufacturer.

3.4 Cleaning

.1 Clean and trim areas disturbed by operations.

.2 Dispose of surplus material as directed by Contract Administrator.

END OF SECTION