



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 475-2016

EAST END CULTURAL & LEISURE CENTRE – SITE IMPROVEMENTS

TABLE OF CONTENTS

PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	3

PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Site Investigation	1
B4. Enquiries	1
B5. Confidentiality	1
B6. Addenda	2
B7. Substitutes	2
B8. Bid Components	3
B9. Bid	4
B10. Prices	4
B11. Disclosure	4
B12. Qualification	5
B13. Opening of Bids and Release of Information	6
B14. Irrevocable Bid	6
B15. Withdrawal of Bids	6
B16. Evaluation of Bids	7
B17. Award of Contract	7

PART C - GENERAL CONDITIONS

C0. General Conditions	1
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PART D - SUPPLEMENTAL CONDITIONS

General

D1. General Conditions	1
D2. Scope of Work	1
D3. Definitions	1
D4. Contract Administrator	1
D5. Contractor's Supervisor	1
D6. Ownership of Information, Confidentiality and Non Disclosure	1
D7. Notices	2

Submissions

D8. Authority to Carry on Business	2
D9. Safe Work Plan	3
D10. Insurance	3
D11. Performance Security	3
D12. Subcontractor List	4

Schedule of Work

D13. Commencement	4
D14. Critical Stages	4
D15. Substantial Performance	4
D16. Total Performance	5
D17. Liquidated Damages	5
D18. Scheduled Maintenance	5

Control of Work

D19. Job Meetings	5
D20. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	6
D21. The Workplace Safety and Health Act (Manitoba) – Qualifications	6

Measurement and Payment

D22. Payment	6
--------------	---

Warranty

D23. Warranty	6
Form H1: Performance Bond	7
Form H2: Irrevocable Standby Letter of Credit	9
Form J: Subcontractor List	11

PART E - SPECIFICATIONS

General

E1. Applicable Specifications and Drawings	1
E2. Pre-Construction Meeting	1
E3. Site Access	2
E4. Pedestrian Safety and Traffic Management	2
E5. Site Condition	2
E6. Protection of Existing Trees	2
E7. Existing Services and Utilities	3
E8. Permits, Notices, Licenses, Certificates, Laws and Rules	4
E9. Protection of Survey Infrastructure	4
E10. Stakes and Marks	5
E11. Site Enclosures	5
E12. Product Approvals	5
E13. Submittals	5

Site Development

E14. Removals & Site preparation	7
E15. Earthwork and Grading	8
E16. Base Course Material	10
E17. Culvert	11
E18. Concrete Formwork	12
E19. Cast In Place Concrete	13
E20. Unit Pavers on Concrete Base	14
E21. Pre-Cast Concrete Paving Slabs	16
E22. Asphalt Paving	17
E23. Crushed Granular Pathway	18
E24. Pavement Marking	19
E25. Play Equipment	21
E26. Foundations	23
E27. Safety Surfacing and Sub-Surface Drainage	24
E28. Site Furniture	27
E29. Custom Planters	30
E30. Gabion Wall	31
E31. Steel Bollards	34
E32. Chain Link Gates	35
E33. Gabion Bench	36
E34. Electrical and lighting	37
E35. Trees and Grasses Planting	38
E36. Topsoil and Sod	44
E37. No-Mow Turf	45
E38. Surface Restoration	46
E39. Site Clean Up	46

PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 EAST END CULTURAL & LEISURE CENTRE – SITE IMPROVEMENTS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, July 29, 2016.

B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator 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. SITE INVESTIGATION

B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. CONFIDENTIALITY

B5.1 Information provided to a Bidder by the City or acquired by a Bidder 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 Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

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

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6. ADDENDA

- B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B6.2 The Contract Administrator 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.
- B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>
- B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B6.2.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

- B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.

- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B8.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg, MB R3B 1J1
- B8.5.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B8.6 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B16.1(a).
- B8.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.
- B8.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B8.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

B9. BID

- B9.1 The Bidder shall complete Form A: Bid, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder 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.
- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.
- B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
 - (d) if the Bidder 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.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B9.4.2 All signatures shall be original.
- B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. DISCLOSURE

- B11.1 Various Persons provided information or services with respect to this Work. 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.

B11.2 The Persons are:

- (a) Michael Lacroix (Playground-R-U's)
- (b) Allie Perrin (PlayWorks)
- (c) Lee Day (Landscape Forms)
- (d) Stacy Haldeman (Graber Manufacturing Inc.)
- (e) Anthony Militano (Barkman Concrete)

B12. QUALIFICATION

B12.1 The Bidder 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; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work 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 <http://www.winnipeg.ca/matmgt/debar.stm>

B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work 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);

B12.4 Further to B12.3(c), if the Total Bid Price exceeds one hundred thousand dollars (\$100,000), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (c) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. OPENING OF BIDS AND RELEASE OF INFORMATION

B13.1 Bids will not be opened publicly.

B13.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B13.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

B13.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B14. IRREVOCABLE BID

B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B14.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

B15. WITHDRAWAL OF BIDS

B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B15.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.

B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative

Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B16. EVALUATION OF BIDS

B16.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B16.2 Further to B16.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.

B16.4 Further to B16.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices adjusted, if necessary, as follows:

- (a) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provision for the Work, no adjustment will be made to the Total Bid Price; or
- (b) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder exceeds the budgetary provision for the Work, the Total Bid Prices of all responsive Bids submitted by responsible and qualified Bidders will be adjusted by progressively deducting item(s):
 - (i) 19. Drop Shot c/w Conc. Footing
 - (ii) 20. Basketball Standard c/w Conc. Footing
 - (iii) 12. Multi-Use Court Line Painting
 - (iv) 11. Asphalt Paving for Multi-Use Court
 - (v) 30. Planting – Trees (c/w two year warranty and maintenance)
 - (vi) 21. U-Pot Table (2 Seats)
 - (vii) 22. Game Tables (Carousel 5 Seats)
 - (viii) 23. Game Tables (Carousel 6 Seats)
 - (ix) 24. Bench (Tache Composite Backless with Arms)
 - (x) 25. Bench (Tache Composite Backed with Arms)
 - (xi) 26. Waste Receptacles
 - (xii) 27. Bike Racks

in the order listed, until a Total Bid Price within the budgetary provision is achieved.

B16.4.1 Further to B16.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B17. AWARD OF CONTRACT

B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

- B17.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid 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.
- B17.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2016 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.
- B17.4 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B16.
- B17.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.
- B17.5 Notwithstanding C4, the City may issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B17.6 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* 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 Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of Site Improvement of East End Cultural & Leisure Centre at 575 Larsen Avenue.

D2.2 The major components of the Work are as follows:

- (a) Removal and disposal of existing bases and surfaces
- (b) Excavation, Earthwork and Grading
- (c) Supply and installation of paving
- (d) Supply and installation of play equipment and site furnishings
- (e) Supply and installation of light standard
- (f) Supply and installation of plant materials and sod.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**CSA**" means Canadian Standards Association;
- (b) "**ASTM**" means American Society for Testing and Materials;

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is Scatliff+Miller+Murray Inc., represented by:

Ms Cheryl Dixon
Landscape Architect

Telephone No. 204 927-3444

Email Address cdixon@scatliff.ca

D4.2 At the pre-construction meeting, Ms Dixon will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4.3 Bids Submissions must be submitted to the address in B8.

D5. CONTRACTOR'S SUPERVISOR

D5.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

- D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
 - (b) the Contract, all deliverables produced or developed; and
 - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

D7. NOTICES

- D7.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.1.
- D7.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:
- The City of Winnipeg
Chief Financial Officer
Facsimile No.: 204 949-1174
- D7.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:
- The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
Facsimile No.: 204 947-9155
- D7.5 Bids Submissions must not be submitted to this facsimile number. Bids must be submitted in accordance with B8.**

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

- D8.1 The Contractor 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 Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D9. SAFE WORK PLAN

- D9.1 The Contractor shall provide the Contract Administrator 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.
- D9.2 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/matmgmt/Safety/default.stm>

D10. INSURANCE

- D10.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. 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) all risks installation floater, carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D10.2 Deductibles shall be borne by the Contractor.
- D10.3 The Contractor shall provide the Contract Administrator 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 Work but in no event later than seven (7) Calendar Days from notification of the award of Contract by Purchase Order.
- D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. PERFORMANCE SECURITY

- D11.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
 - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.
- D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D11.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

D12. SUBCONTRACTOR LIST

D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

SCHEDULE OF WORK

D13. COMMENCEMENT

D13.1 The Contractor shall not commence any Work until he/she is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D13.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D8;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10;
 - (v) the performance security specified in D11;
 - (vi) the Subcontractor list specified in D12; and
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- (c) The Contractor has provided a written schedule of work outlining dates and duties to be performed.

D13.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.

D13.4 The City intends to award this Contract by August 5, 2016.

D13.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D14. CRITICAL STAGES

D14.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) All Site Work, except for installation of Site Furnishing, Play Equipment and Safety Surfacing to be achieved by September 21, 2016.

D15. SUBSTANTIAL PERFORMANCE

D15.1 The Contractor shall achieve Substantial Performance by October 6, 2016.

D15.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D15.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D16. TOTAL PERFORMANCE

D16.1 The Contractor shall achieve Total Performance by October 14, 2016.

D16.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D16.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D17. LIQUIDATED DAMAGES

D17.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:

- (a) All Site Work, except for installation of Site Furnishing, Play Equipment and Safety Surfacing, to be achieved by September 21, 2016. – Two Hundred dollars (\$200);
- (b) Substantial Performance – Two Hundred dollars (\$200);
- (c) Total Performance – Five Hundred dollars (\$500).

D17.2 The amounts specified for liquidated damages in D17.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D17.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D18. SCHEDULED MAINTENANCE

D18.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Maintenance of plant material as specified in E35.

D18.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D19. JOB MEETINGS

D19.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need

to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D19.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D20. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D20.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D21. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D21.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

MEASUREMENT AND PAYMENT

D22. PAYMENT

D22.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D23. WARRANTY

D23.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D23.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D23.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D23.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

BID OPPORTUNITY NO. 475-2016

EAST END CULTURAL & LEISURE CENTRE – SITE IMPROVEMENTS

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)
(See D11)**

(Date)

The City of Winnipeg
Legal Services Department
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 475-2016
EAST END CULTURAL & LEISURE CENTRE – SITE IMPROVEMENTS

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

_____ Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.3 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
CW 1110-R1	General Instruction
CW 1120-R1	Existing Services, Utilities and Structures
CW 1130-R3	Site Requirements
CW 2030-R7	Excavation Bedding and Backfill
CW 3160-R7	Concrete Underground Structure and Works
CW 3010-R4	Clearing and Grubbing
CW 3110-R19	Sub-Grade, Sub-Base and Base Course Construction
CW 3130-R4	Supply and Installation of Geotextile Fabrics
CW 3170-R3	Earthwork and Grading
CW 3250-R7	Joint and Crack Maintenance
CW 3310-R17	Portland Cement Concrete Pavement Works
CW 3325-R5	Portland Cement Concrete Sidewalk
CW 3330-R5	Installation of Interlocking Paving Stones
CW 3335-R1	Installation of Interlocking Stones on a Lean Concrete Base
CW 3410-R12	Asphaltic Concrete Pavement Works
CW 3510-R9	Sodding
CW 3540-R5	Topsoil and Finish Grading for the Establishment of Turf Areas
CW 3610-R5	Installation of Culverts

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
L1-R0	Existing and Removal Plan
L2-R0	Site Plan
L3-R0	Layout Plan
L4-R0	Grading Plan
L5-R0	Planting Plan
L6-R0	Details
SCD-119-R2	Waste Receptacle Metal Slat Type
SCD-121A-R2	Tache Bench Composite with arms
SCD-121C-R2	Tache Backless Bench Composite with arms
SCD-612-R1	Culvert Installation under Walkway

E2. PRE-CONSTRUCTION MEETING

- E2.1 The Contractor shall not begin the Work under this Contract until a pre-construction meeting has been held between representatives of the General Contractor, the City of Winnipeg, and the Contract Administrator.

E3. SITE ACCESS

- E3.1 All access to be on the designated routes through the Site. These routes will be determined at the pre-construction meeting.
- E3.2 Access to the Site as required by the Contractor shall be provided and maintained by the Contractor at his own expense and approved by the Contract Administrator.
- E3.3 The Contractor's operation shall be limited to the minimum area necessary for undertaking the Work and he shall be responsible for all damage resulting from his Work on private property. Damage to areas beyond the marked routes shall be repaired by and at the expense of the Contractor to the satisfaction of the Contract Administrator.

E4. PEDESTRIAN SAFETY AND TRAFFIC MANAGEMENT

- E4.1 Further to CW 1130-R2, the Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress is maintained to the Woodhaven Community Center, and along public access roadways and pedestrian routes adjacent to the Site. Any damage caused by the negligence of the Contractor or his Sub-Contractors to the adjacent Works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.
- E4.2 Ambulance/ Emergency vehicle access must be maintained at all times.

E5. SITE CONDITION

- E5.1 The Contractor and applicable Sub-Contractors shall examine the Site and make themselves familiar with the existing conditions (both above and below grade) and nature of Work to be done.
- E5.2 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. Surface and sub-surface conditions shown on the Drawings and included herein are provided for general information and variations there from shall not affect the terms of the Contract. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.
- E5.3 The Contractor shall set all necessary control lines, benchmarks, survey, elevation stakes and layout in accordance with the individual Site conditions and in consultation with the Contract Administrator.

E6. PROTECTION OF EXISTING TREES

- E6.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities:
- (a) All trees will have a 3m radius protective zone calculated from the circumference at the base of the trunk which will remain free of digging, trenching, grade changes, stock piling of materials and soil compaction, unless otherwise agreed to by the City and Contract Administrator throughout the duration of the Contract. Protective fencing around these areas is required.
 - (b) Trees within and immediately adjacent to proposed construction and those identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400 mm wood planks, or suitably protected as approved by the Contract Administrator. Do not use nails or other fasteners that penetrate the tree trunk. The width and length of strapping may be reduced to suit the tree being protected as approved by the Contract Administrator.
 - (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the

excavation shall be a minimum of 1.5 times the diameter (measured in inches) where 1 inch diameter equals 1 foot measured from the outside edge of the trunk of the tree at 6 inches above grade. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation. They must be properly trimmed with sharp tools to prevent crushing or being pulled by construction equipment. No paint is required. All exposed roots must be mulched until the excavated area is filled with clean earth to avoid exposure to sunlight and desiccation.

- (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the Work required. Equipment shall not be parked, repaired, refueled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-Site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.
- (f) Repair, replace and maintain tree protection materials during construction until the Project completion.
- (g) Carefully remove safety fencing and strapping material without harming the tree as soon as the construction and restoration Work is complete.

E6.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his designate.

E6.3 No separate measurement or payment will be made for the protection of existing structures, trees and property.

E7. EXISTING SERVICES AND UTILITIES

E7.1 This Specification shall amend and supplement CW 1120-R1.

E7.2 Other than required to be done by the Contractor under the Work of this Contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing plant material, pavements, streets, roads, boulevards, light standards, hydro poles, fences, fire hydrants, culverts, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred in the performance of the Work (either directly or indirectly), the Contractor shall either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to the Contract Administrator, and the cost of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City from all claims made directly or indirectly against it in respect to any such damage.

E7.3 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.

E7.4 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.

E7.5 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.

E7.6 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the Unit Prices bid for supply and installation of the items included under this Contract.

E7.7 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.

E7.8 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E8. PERMITS, NOTICES, LICENSES, CERTIFICATES, LAWS AND RULES

E8.1 Further to C6.12, the Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.

E8.2 The Contractor shall comply with all laws, ordinances, rules and regulations that would relate to the Work.

E8.3 All notices, consents, approvals, statements, authorizations, documents or other communications to the City shall be submitted to the Contract Administrator.

E8.4 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Act.

E8.5 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Fall Protection guidelines.

E8.6 The Contractor and Sub-Contractors must be fully aware of all Work involving hazardous materials. All Work must be performed in compliance with the Manitoba Department of Labour Workplace Health and Safety Guidelines and all other applicable codes. The Contractor is responsible for the immediate notification to the Contract Administrator of his/her encountering of suspected hazardous material during their course of Work.

E9. PROTECTION OF SURVEY INFRASTRUCTURE

E9.1 Notwithstanding clause 4 "Protection of Survey Bars" of the Standard Provisions; Current legislation, The Surveys Act, places the onus on those undertaking construction to protect the Survey Infrastructure from damage as a result of their activity.

E9.2 Further to C:6.26 (g), at least 72 hours prior to the commencement of the On-Site Work the Contractor shall contact the City of Winnipeg, Geomatics Services Branch at 204-918-1360 (8:00 am to 4:00 pm Monday to Friday excluding holidays) to obtain underground clearance. Geomatics Services will locate and mark all known outline survey monuments and geodetic control monuments and confirm the physical condition of those monuments upon completion of construction, at no cost to the Contractor.

E9.3 Where a survey post, bar or control monument lies in the line of the proposed Work and must be disturbed, the Contractor shall provide the Contract Administrator with 48 hours notice to permit referencing for future replacement, at no cost to the Contractor. Failure to provide the specified notice shall result in the Contractor paying for all costs associated with replacing or relocating the disturbed outline survey monuments and geodetic control monuments.

E9.4 Survey monuments and geodetic control monuments at or adjacent to the Site, not in the line of the proposed construction that are damaged or disturbed by the Contractor shall be replaced or relocated by the City or its agent and all associated costs shall be paid for by the Contractor. An approximate estimate of the costs involved to restore a legal survey monument is \$1,000 per bar and \$3,000 per control monument. Contractors must ensure their landscaping and other subcontractors are aware of this clearance procedure and the potential restoration costs.

E9.5 Where possible, amounts owed to the City in accordance with the above will be deducted from any payments to be made by the City to the Contractor.

E10. STAKES AND MARKS

- E10.1 The Contractor will mark, to the extent he determines to be necessary, the location, alignment and elevation of the Work by means of stakes or marks, for review and approval by the Contract Administrator. The Contractor shall make the completed Works conform to the lines and marks thus approved and indicated.
- E10.2 The Contractor shall notify the Contract Administrator immediately of the disturbance of any such stakes or marks. The cost of correcting any errors arising out of neglect of the Contractor to so notify the Contract Administrator shall be borne entirely by the Contractor, as well as the cost of replacing any disturbed stakes or marks.
- E10.3 Before commencing Work, the Contractor shall satisfy himself as to the meaning and correctness of all stakes and marks and no claims shall be entertained by the City on account of any alleged inaccuracies. If any error is suspected in the Drawings, Specifications or the directions of the Contract Administrator, Work shall be discontinued until the errors are rectified, but no claims shall be made on account of any delay occasioned thereby.
- E10.4 The Contractor shall determine and provide all dimensions and elevations measured from the stakes or marks.

E11. SITE ENCLOSURES

- E11.1 Temporary Site enclosures, as determined necessary at the pre-construction meeting, shall be erected and maintained as required for the duration of the construction period.
- E11.2 Site enclosures shall be considered incidental to the Contract Work.

E12. PRODUCT APPROVALS

- E12.1 The Contractor shall, following award, prepare a complete list of all material to be used on the project and submit the list to the Contract Administrator seventy-two (72) hours prior to start of construction.
- E12.2 The Contractor shall only use material which has been approved by City of Winnipeg or by the Contract Administrator. The list shall provide the product, the manufacturer and the supplier.
- E12.3 All Workmanship and materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator. The Contract Administrator reserves the right to reject any materials or Works which are not in accordance with the requirements of the Specifications.
- E12.4 The Contractor shall wholly be responsible for the supply, safe storage, and handling of all materials set forth in this specification, and the control of all operations, incidental thereto notwithstanding any inspection or approval that may have been previously given.

E13. SUBMITTALS

- E13.1 Contractor to submit to Contract Administrator product samples and other requirements as listed below for review and approval prior to commencement of associated Works.
- E13.2 Contractor to submit with reasonable promptness and in orderly sequence so as not to cause delays in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed. Notify Contract Administrator in writing at time of submission, identifying deviations from requirements of Contract Documents and stating reasons for deviations.
- E13.3 Work affected by submittal shall not proceed until review and approval by the Contract Administrator.

E13.4 Contractor's responsibility for errors and omissions in submission is not relieved by the Contract Administrator's review of submittals.

E13.5 PRODUCT SAMPLES

- a) The Contractor shall supply representative samples of:
 - i) Gabion Basket
 - ii) Stone Fill for Gabion Baskets
 - iii) Rock Fill for Custom Planter
 - iv) Black Granite Mulch
 - v) Enviro Mulch
- b) Contractor to supply product samples a minimum of 5 (five) Working Days prior to placing material order. No Product order shall be placed prior to approval by Contract Administrator.
- c) Photographs rather than physical samples may be acceptable for Stone Fill for Gabion Baskets only at the discretion of the Contract Administrator.

E13.6 SHOP DRAWINGS

- a) The Contractor shall supply shop drawings for Bollards and Gabion Planters for review and approval by the Contract Administrator in accordance with Specifications "Gabion Planters" and "Metal Site Features".
- b) Contractor to verify all dimensions and conditions on site prior to the submission of shop drawings.
- c) 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 coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design Drawings and Specifications.
- d) Shop Drawings shall be provided to Contract Administrator a minimum of ten (10) Working Days prior to scheduled fabrication to allow sufficient time for necessary review, comment, revision and approval.

E13.7 MOCK-UP

- a) The Contractor shall fabricate one Gabion Planter as a mock-up for review and testing prior to the commencement of any Work related to the overall fabrication of gabion planters.

E13.8 MAINTENANCE KITS

- a) Prior to completion of the Warranty period, the Contractor shall supply the Owner with a maintenance kit for all lighting, concrete and metal work. The maintenance kits shall include:
 - i) all product, installation and maintenance information and manuals;
 - ii) a replacement parts list;
 - iii) touch up paint/ anti-graffiti coating including all product, specification and colour details;
 - iv) any other information, parts or products deemed necessary by the Contract Administrator.
- b) All play equipment shall include the supply of maintenance kits. Maintenance kits shall include maintenance manuals, complete manufacturer's parts lists, touch-up paint, PVC

repair paint, 10% extra of each bolt, washer and any other hardware utilized on the play equipment, and all special tools necessary for assembly and maintenance.

- c) There shall be no payment for the maintenance kits.

E13.9 As-Built Drawings

- a) The Contractor shall provide the Contract Administrator As-Built Drawings for the installed play equipment (DWG format) once Total Performance is attained.

SITE DEVELOPMENT

E14. REMOVALS & SITE PREPARATION

E14.1 Description

E14.1.1 This Specification is supplemental to CW 3010 "Cleaning and Grubbing".

E14.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.

E14.1.3 Work shall include, but not necessarily confined to, the following:

- (a) Salvage and stockpile suitable, approved material on Site for reuse (including but not necessarily limited to clean topsoil, clay fill and gravel fill) in a secure location. Remove and legally dispose of unsuitable material. Stockpile location to be restored to original condition following removal and re-use of material;
- (b) Remove and legally dispose of existing site elements as per Drawing 2/L1.
- (c) Remove and legally dispose of portion of fence near Elmwood High School track as per Drawing 1/L1.

E14.2 Construction Methods

E14.2.1 General

- (a) Disposal of material shall be understood to mean the hauling of all unsuitable material from the Site and the unloading in a safe and legal manner acceptable to the Contract Administrator. If arrangements are made in advance excavated material may be disposed of on Site at a location designated by the Contract Administrator.
- (b) Prior to commencement of removals operations, Contractor to meet on Site with Contract Administrator and representative of the City of Winnipeg to verify limits of removals.
- (c) The Contractor shall remove paving to full depth of base course material.
- (d) The Contractor shall ensure that upon completion of the removal operations, the Site is left in a neat condition free from debris, etc. for approval by the Contract Administrator prior to placing clean fill.
- (e) Prevent damage to surface or underground utility lines which are to remain. Make good any damage.
- (f) Do not disturb soil within branch spread of trees to remain.
- (g) All extraneous materials to be removed from the Site and disposed of in a safe and legal manner.
- (h) Contractor must coordinate with the Contract Administrator for a site inspection to ensure all removals have occurred.

E14.2.2 Removal of Existing Elements

- (a) The Contractor shall remove and legally dispose off-site elements as indicated on Drawing L1.
- (b) Sawcut existing Asphalt Paving to separate area to be preserved for parking lot from area to be removed.
- (c) Remove existing asphalt and base materials only in the area designated on the Drawings. Preserve asphalt and base in the purposed parking lot.

E14.2.3 Removal and Salvage of Existing Chain Link Fence

- (a) Existing chain link fencing designated for removal shall be carefully removed.
- (b) Contractor shall remove the fence posts and concrete bases. The post holes remaining following the removal of the fencing shall be backfilled and compacted to the satisfaction of the Contract Administrator. All concrete rubble shall be removed and disposed of by the Contractor. Cost of backfilling post holes shall be incidental to the work. No separate payment will be made.

E14.3 Method of Measurement

E14.3.1 Removals and Site Preparation is a lump sum bid item. No measurement will be made for this work.

E14.3.2 Removal and Site Preparation for Trail Area be will be considered incidental to the work under "Site Preparation, Grading & Ditch Crossing (Culvert)", installed in accordance with this Specification and accepted by the Contract Administrator, and no separate measurement or payment will be made.

E14.4 Basis of Payment

E14.4.1 Removals and Site Preparation and related Work will be paid for at the Contract Lump Sum Prices. The amount to be paid for shall be for completed work, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E15. EARTHWORK AND GRADING

E15.1 Description

E15.1.1 This Specification shall amend and supplement CW 3110 "Sub-grade, Sub-base and Base Course Construction" and CW 3170 "Earthwork and Grading".

E15.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.

E15.1.3 Work shall include, but not necessarily be confined to, the following:

- (a) Excavation, removals, sawcutting, disposal, subgrade compaction and rough grading of the existing Site for the construction of paving areas, sodded areas and play areas to the design requirements noted on the Drawings and the Specifications, approved on site by the Contract Administrator, to depths as required for each surface;
- (b) Excavate, remove and legally dispose of unsuitable subgrade and replace with compacted granular material;
- (c) Earthwork and grading of the existing Site (cut and fill including compaction of subgrade and fill material) to ensure positive drainage in accordance with specifications and drawings;
- (d) Finish grading of bermed area as identified on the Drawings;
- (e) Excavate, Remove, Legally Dispose, Rough Grade and Fill areas where items were removed and will not be replaced.

E15.2 Materials

E15.2.1 All imported and salvaged fill materials shall conform to CW 3170.

E15.3 Construction Methods

- E15.3.1 The Contractor shall construct the Site, within the limits indicated, to the design elevations and gradients noted on the Drawings (less the appropriate surface treatment depths specified) and shall excavate, remove and dispose of all unsuitable or surplus materials of whatever nature encountered.
- E15.3.2 Disposal of material shall be understood to mean the hauling of all unsuitable material from the Site and the unloading in a legal manner and in accordance with Section 3.4 of CW 1130 "Site Requirements".
- E15.3.3 The Contractor shall construct all sub-grades in accordance with Specification CW 3110. Excavation will be performed as per Section 4.3 of CW 3110.
- E15.3.4 Excavated or graded materials to be approved before use as fill for grading Work. Protect such approved material from contamination. Stockpile in approved locations. Protection and stockpiling are incidental to unit price bid for Earthwork and Grading.
- E15.3.5 The Contractor shall excavate topsoil as per Section 4.3 of CW 3110. Topsoil excavation is incidental to the unit price bid for Earthwork and Grading.
- E15.3.6 Except for drainage trench, swales, berms and embankments indicated, the design gradient for all other areas shall be considered to be straight grade between the design elevations shown. Changes in grade at trench, swales, berms, embankments and field shall be gently contoured as directed by the Contract Administrator to provide future ease of grass mowing operation.
- E15.3.7 In fill areas, where the difference between the existing grade elevation and the design elevation is less than 300mm the Contractor shall scarify the existing ground to a minimum depth of 150mm prior to placement of any fill.
- E15.3.8 The Contractor is advised that there may be useable clay and gravel fill on site. All suitable material will be reviewed and approved by Contract Administrator and then re-used on site. The re-use of this material on site may reduce the quantity of imported gravel and clean earth fill required. The Contractor shall re-use existing site material prior to delivering new material to the Site. No separate payment will be made for placing and grading of existing fill as all costs for this Work is incidental to the lump sum price bid for Earthwork and Grading.
- E15.3.9 Prevent damage to surface or underground utility lines which are to remain. Make good any damage.
- E15.3.10 Do not disturb soil within branch spread of trees to remain, unless otherwise agreed to by the City and the Contract Administrator.
- E15.3.11 Areas to Fill
- (a) Fill low and excavated areas to be sodded with excavated clay material free from roots, muskeg, organic or cohesive matter, building debris, waste materials, rubble, rubbish, frozen portions, soluble materials and rocks larger than 25mm (1") in diameter and capable of sustaining plant and seed growth. Compact to 90% S.P.D. in 150mm (6") lifts.
 - (b) Prior to placing fill over existing ground, scarify surface to depth of 150mm. Maintain fill and existing surface at approximately the same moisture content to facilitate bonding.
- E15.3.12 The Contractor shall construct all subgrades in accordance with Specification CW 3110. This shall include the use of sheep's foot or other suitable compaction equipment as approved by the Contract Administrator to achieve a minimum compaction of 98% Standard Proctor Density below all paved areas, and 90% Standard Proctor Density in all other areas disturbed under this Contract unless otherwise indicated.

- E15.3.13 Following earth moving, rough grading and compaction the Work areas shall be fine graded to provide a maximum deviation of 50mm in 10 metres from the design grade with no low areas that hold water. The finished surface of all disturbed areas shall be dragged and smoothed in such a manner that there are no loose soil particles greater than 50mm in maximum dimensions.
- E15.3.14 If required and at locations directed by the Contract Administrator the Contractor shall excavate and remove unsuitable subgrade material and replace it with compacted granular material in accordance with Specification CW 3110.
- E15.3.15 The Contractor is to coordinate the layout of play area with the Play Equipment supplier to ensure that CSA requirements are met. Final layout of all play spaces has to be approved by Contract Administrator prior to any construction or removal.
- E15.3.16 Excavation should be coordinated with the installation of play equipment so as not to leave an open excavation area subject to ponding water.

E15.4 Method of Measurement

- E15.4.1 Earthwork and Grading is a lump sum bid item. No measurement will be undertaken for this work.
- E15.4.2 Site Preparation, Grading & Ditch Crossing (Culvert) for Trail Connection is a lump sum bid item. No measurement will be undertaken for this work.

E15.5 Basis of Payment

- E15.5.1 Earthwork and Grading will be paid for at the Contract Lump Sum price. The amount to be paid for completed work, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.
- E15.5.2 Site Preparation, Grading & Ditch Crossing (Culvert) for Trail Connection will be paid for at the Contract Lump Sum price. The amount to be paid for completed work, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E16. BASE COURSE MATERIAL

- E16.1 The Specification shall supplement Standard Construction Specification CW 3110 "Sub-Grade, Sub-Base and Base Course Construction" and CW 3130 "Supply and Installation of Geotextile Fabric".
- E16.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Supply and Placement of Base Course Material;
 - (b) Supply and Placement of Sub-Base;
 - (c) Supply and Installation of Separation/ Reinforcement Geotextile Fabric;
 - (d) Compaction.
- E16.3 There will be no separate measurement and payment for supply and placement of sub-base. All Work shall be considered incidental to this specification.
- E16.4 There will be no separate measurement and payment for supply and installation of Separation/ Reinforcement Geotextile Fabric. All Work shall be considered incidental to this specification.

- E16.5 There will be no separate measurement and payment for compaction. All Work shall be considered incidental to this specification.
- E16.6 All costs in connection with the testing and approval of base courses shall be considered incidental to this specification.
- E16.7 Method of Measurement and Basis of Payment
- E16.7.1 The Contractor is advised that all Work under this section is incidental to the unit prices bid in those items for which base course material is required under this Contract.

E17. CULVERT

E17.1 Description

- E17.1.1 This Specification shall supplement CW 3610 "Installation of Culverts" and SCD-612 "Culvert Installation Under Walkway".
- E17.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.
- E17.1.3 Work shall include, but not necessarily confined to the following:
- (a) Excavation, grading, supply and installation of culvert to the design requirements noted on the Drawings and the Specifications, approved on site by the Contract Administrator, to depths as required for each surface;
 - (b) Excavate, remove, legally dispose, rough grade and fill areas where items were removed and will not be replaced.
 - (c) Remedial work to repair pathway and surrounding area after culvert has been installed.

E17.2 Materials

- E17.2.1 All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator. All material shall conform to CW 3610.
- E17.2.2 Compacted Subgrade:
- (a) Subgrade to be compacted and backfill material as per CW 3110.
- E17.2.3 Sand in accordance with Section 2 of CW 2030. Sand shall be used as a levelling course.
- E17.2.4 Culvert shall be 200mm diameter High Density Polyethylene (HDPE).

E17.3 Construction Methods

- E17.3.1 The Contractor shall stake out location and extent of culvert installation prior to start of construction as shown on the Drawings. Layout to be approved by Contract Administrator prior to construction.
- E17.3.2 Contractor shall be responsible for interpretation of grades and protection of stakes. Layout to be approved by Contract Administrator prior to construction.
- E17.3.3 The Contractor shall construct the Site, within the limits indicated, to the design elevations specified and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.
- E17.3.4 Contractor shall visit the Site and verify all data and dimensions and report any errors, omissions or discrepancies to the Contract Administrator prior to any installation.
- E17.3.5 Culvert shall be installed in accordance with CW 3610 and SCD-612.

- E17.3.6 Ensure slope and invert elevation of culvert is consistent with swale grades and in the direction of drainage.
- E17.3.7 Turf shall be repaired as required in accordance with City of Winnipeg Standard Specifications for Topsoil and Sodding.
- E17.3.8 Sub-Grade
- (a) Prepare compacted sub-grade to the lines and grades as shown on Drawings. Impervious compacted clay bedding shall be provide for a minimum length of one (1) meter or two (2) times the diameter of the pipe, whichever is the greater, at both ends of the culvert to achieve a seal against seepage.
- E17.3.9 HDPE Culvert
- (a) HDPE Culvert shall be laid on prepared subgrade as indicated on SCD-612 Culvert Installation Under Walkway and;
- (b) HDPE Culvert shall be in accordance with Specification CW 3610.
- E17.4 Method of Measurement and Basis of Payment
- E17.4.1 The supply and installation of Culvert be will be considered incidental to the work under "Site Preparation, Grading & Ditch Crossing (Culvert)", acceptably installed in accordance with this Specification and accepted by the Contract Administrator, and no separate measurement or payment will be made.

E18. CONCRETE FORMWORK

- E18.1 General
- E18.2 This Specification shall supplement CW 3110 Sub-Grade, Sub-Base and Base Course Construction", CW 3310 "Portland Cement Concrete Pavement Works" and CW 3325 "Portland Cement Concrete Sidewalk".
- E18.3 Reference Standards
- E18.3.1 All concrete formwork is to be done in accordance with CAN/CSA-A23.1 and CAN/CSA-A23.2
- E18.4 Materials
- E18.5 Formwork lumber: plywood and wood formwork materials conform to CAN-086.
- E18.5.1 Plywood: Douglas Fir to CSA 0121, concrete form grade, square edge, 19mm thick.
- E18.6 Form ties: removal or snap-off metal ties, fixed of adjustable length, free of devices leaving holes larger than 25mm dia in concrete surface
- E18.7 Formwork release agent: chemically active release agents containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing concrete from sticking to forms.
- E18.8 Construction Methods
- E18.9 Erection
- E18.9.1 Verify lines, levels and dimensions before proceeding with formwork and ensure dimensions agree with drawings.
- E18.9.2 Construct forms to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN/CSA-A23.
- E18.9.3 Align form joints and make watertight. Keep form joints to minimum.
- E18.9.4 Clean formwork in accordance with CAN/CSA-A23:1. Only permitted if in good condition

E18.10 Method of Measurement and Basis of Payment

E18.11 The supply and installation of Concrete Formwork be will be considered incidental to the supply and placement of Cast in Place Concrete, acceptably installed in accordance with this Specification and accepted by the Contract Administrator, and no separate measurement or payment will be made.

E19. CAST IN PLACE CONCRETE

E19.1 GENERAL

E19.1.1 This Specification shall supplement CW 3110 Sub-Grade, Sub-Base and Base Course Construction”, CW 3310 “Portland Cement Concrete Pavement Works”, CW 3325 “Portland Cement Concrete Sidewalk”.

E19.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and installation of Cast in Place Concrete Surfacing including, but not limited to the installation of geotextile fabric, base course and reinforcing as indicated on the Drawings.
- (b) Supply and installation of Cast in Place Flush Concrete Curb including, but not limited to the installation of geotextile fabric, base course and reinforcing as indicated on the Drawings.
- (c) Concrete Pavement Restoration including, but not limited to the installation of geotextile fabric, base course and reinforcing as indicated on the Drawings.

E19.2 Related Sections

E19.2.1 All Concrete formwork to be done in accordance with CAN/CSA-A23.1-M77 and CAN/CSA-A23.2, except where specified otherwise.

E19.3 Materials

E19.3.1 Portland Cement to CAN3-A5-M 1983 and CW 3310.

E19.3.2 Sub Base and Base Course as per CW 3110

E19.3.3 Geotextile to be Terrafix 270R or approved equal

E19.3.4 Chemical admixtures to CAN3-A266.2-M78. Consultant to approve accelerating or set retarding admixtures during cold and hot weather placing. Use of calcium chloride is not permitted.

E19.3.5 Curing and sealing compound to: CAN/CSA-A23.1-M90, CPD Acrylic cure and seal or equal and to ASTM C309-81, Type 1 - chlorinated rubber.

E19.3.6 Accessories and Application Equipment: As per manufacturer’s specifications.

E19.3.7 Concrete Mixes

- (a) All concrete Work shall be in accordance with CSA A23.1 Concrete Materials and methods of concrete construction.
- (b) Proportion normal density concrete in accordance with CSA A23.1 to give the following properties:
 - (i) Cement: Type 50 Sulphate resistant
 - (ii) Maximum Coarse Aggregate: 20mm
 - (iii) Minimum Compressive Strength at 28 days: 32 Mpa
 - (iv) Maximum Water/Cement Ratio: 0.45

- (v) Class of Exposure: C-2
- (vi) Maximum Slump: 80mm + 30mm
- (vii) Air Content: 5-8%

E19.3.8 Reinforcing shall be as indicated on Drawings.

E19.4 Methods of Construction

E19.4.1 Contractor to stake or mark location for approval by Contract Administrator prior to excavation

E19.4.2 Excavate to lines and grades as indicated on drawings less material. All concrete paving, concrete repair, flush concrete curb and concrete piles to conform to CW3310 and the Drawings.

E19.4.3 Contractor to Sawcut new Concrete Surfacing to meet face of Gabion Wall.

E19.4.4 Surface finish:

- (a) Plaza paving shall be a smooth towelled finished.

E19.5 Method of Measurement

E19.5.1 All Cast in Place Concrete Surfacing shall be measured on an area basis. The area to be paid for shall be the total number of square meters installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E19.5.2 Cast in place Flush Concrete Curb shall be measured on a linear measure basis. The length to be paid for shall be the total number of linear meters installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E19.5.3 Concrete Pavement Restoration shall be consider incidental to the Unit Price for "Existing Pavement Restoration (Including Concrete & Parking Lot Asphalt Pavement, Joint & Crack Repair", and no separate measurement or payment shall be made.

E19.6 Basis of Payment

E19.6.1 Cast in Place Concrete Surfacing for Main Area will be paid for at the Contract Unit Prices per square meter for Item "CIP Concrete Surfacing (Main Area)" on Form B: Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E19.6.2 Cast in Place Concrete Surfacing for Trail Area will be paid for at the Contract Unit Prices per square meter for Item "CIP Concrete Surfacing (Trail Area)" on Form B: Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E19.6.3 Cast in Place Flush Concrete Curb will be paid for at the Contract Unit Prices per linear meter as measured and specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E20. UNIT PAVERS ON CONCRETE BASE

E20.1 Description

- E20.1.1 This Specification shall amend and supplement CW 3110 Sub-Grade, Sub-Base and Base Course Construction”, CW 3310 “Portland Cement Concrete Pavement Works”, CW 3325 “Portland Cement Concrete Sidewalk”, CW 3330 “Installation of Interlocking Paving Stones” and CW 3335 “Installation of Interlocking paving Stones on a Lean Concrete Base”
- E20.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Excavation, supply and installation of concrete pavers on concrete base for areas as indicated on the Drawing.
- E20.1.3 Submit Full size sample of paving stones for Contract Administrator’s approval. Deliver samples prepaid to Contract Administrator's business address and Notify Contract Administrator in writing, at time of submission of deviations in samples from requirements of Contract Documents
- E20.2 Material
- E20.2.1 Concrete Mix shall be supplied as specified in E19.
- E20.2.2 Unit Pavers: Endicott, Dark Ironspot colour. Sizes to be 203mm x 102mm x 57mm (8” x 4” x 2.25”);
- E20.2.3 Bedding sand shall be fine aggregate as specified in Section 5.3.1 of CW 3310 and Section 5.2.3 of CW 3330;
- E20.2.4 Filler Sand shall have a maximum aggregate size of 2.5mm.
- E20.3 Construction Methods
- E20.3.1 Excavation
- (a) Excavation shall comply with CW 3110.
- (b) The excavation shall not extend beyond the specified limits of excavation. The limits of excavation shall be taken as a vertical plane 150mm beyond the limits of the proposed walkway, unless otherwise specified on the Drawings or in the Specifications for the Work.
- (c) The sub-grade shall be excavated to the minimum depth as shown on the drawings, unless otherwise directed by the Contract Administrator.
- E20.3.2 Preparation of Sub-Grade, Concrete Base and Bedding Sand
- (a) The construction of sub-grade shall be completed in accordance with CW 3110, to the depth as specified on the Drawings and as per E16.
- (b) The concrete base shall be placed as specified in E19.
- (c) On top of the concrete base a 15mm layer of bedding sand shall be placed.
- (d) The bedding sand layer shall be spread and levelled so that the paving stones when installed are 5 mm higher than the finished grade. No more sand shall be spread than can be covered in one day by paving stones. The bedding sand layer shall not be compacted prior to laying the paving stones.
- (e) No paving stones shall be placed until construction of the underlying layers has been approved by the Contract Administrator.
- E20.3.3 Installation of Paving Stones
- (a) The paving stones shall be installed such that spaces between joints do not exceed 5 mm. Spaces between paving stones shall be uniform and consistent while maintaining straight and true patterns.

- (b) Work shall commence with edge stones along the longest straight section of curb or property line and work towards the opposite edge. Edge stones shall be used along the limits of the sidewalk.
- (c) If cutting of paving stones is required, the sawn or sheared edges shall be true, even and undamaged. Coloured mortar shall be used to fill small voids between blocks and curbs or other structures.
- (d) Paving stones shall be compacted into the sand layer using approved vibratory compactors until they are at the proper grade, uniformly level and free of any movement. Filler sand shall be swept into the joints until full.

E20.4 Method of Measurement

E20.4.1 Unit Paving on Concrete Base shall be measured on an area basis. The area to be paid for shall be the total number of square meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E20.4.2 The cost of supplying and placing bedding sand and filler sand shall be incidental to the installation of the paving stones. No separate measurement or payment will be made.

E20.4.3 The cost of supplying and placing concrete base is included under E19 - Cast In Place Concrete. No separate measurement or payment will be made.

E20.5 Basis of Payment

E20.5.1 Unit Paving on Concrete Base will be paid for at the Contract Unit Prices per square meter for Item "Unit Pavers on Concrete Base" on Form B: Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E21. PRE-CAST CONCRETE PAVING SLABS

E21.1 Description

E21.1.1 The specification shall supplement Specification CW 3330 "Installation of Interlocking Paving Stones".

E21.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of pre-cast concrete paving slabs.

E21.1.3 Submit Full size sample of paving slabs for Contract Administrator's approval. Deliver samples prepaid to Contract Administrator's business address and Notify Contract Administrator in writing, at time of submission of deviations in samples from requirements of Contract Documents

E21.2 Material

E21.2.1 Barkman Concrete Dynasty Pre-Cast Concrete Slabs, 600 x 400 x 45mm, Color: Slate, Charcoal.

E21.2.2 Crushed limestone shall conform to the requirement of Section 5 of CW 3110 for crushed limestone base course material.

E21.2.3 Bedding sand shall be fine aggregate as specified in Section 5.2.3 of CW 3330.

E21.3 Construction Methods

E21.3.1 Install Pre-Cast Concrete Slabs in accordance with CW 3330, the manufacturer's recommended installation specification and as shown in the Drawings. Install Slabs with 25mm leveling sand over compacted granular base.

E21.4 Method of Measurement

E21.4.1 Pre-Cast Concrete Slabs shall be measured on a unit basis. The number to be paid for shall be the total number of pre-cast concrete slabs that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E21.4.2 The cost of supplying and placing bedding sand and compacted granular base shall be incidental to the installation of the paving stones. No separate measurement or payment will be made.

E21.5 Basis of Payment

E21.5.1 Pre-Cast Concrete Slabs will be paid for at the Contract Unit Prices for Item "Pre-cast Concrete Slabs" on Form B: Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E22. ASPHALT PAVING

E22.1 Description

E22.1.1 The specification shall supplement City of Winnipeg Specification CW 3110 "Sub-Grade, Sub-Base and Base Course Construction", CW 3250 "Joint and Crack Maintenance" and CW 3410 "Asphaltic Concrete pavement Works".

E22.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of Asphalt Paving for Multi-Use Course
- (b) Supply and Installation of Asphalt pathway;
- (c) Pavement Restoration for Asphalt Paving, Joint and Crack Repair in Parking Lot..

E22.2 Material

E22.2.1 All material shall conform to Specification CW 3110, CW 3250, CW 3410 and all other applicable City of Winnipeg Specifications, whether listed herein or not.

E22.3 Supply of Materials and Equipment

E22.3.1 The Contractor shall supply all materials and use equipment in accordance with Specification CW 3110, CW 3250 and CW 3410

E22.4 Construction Methods

E22.4.1 No paving work shall commence until the excavation has been completed in accordance with Specification CW 3110 and the drawings and has been approved by the Contract Administrator.

E22.4.2 Sub-Grade, Sub-base and Base Course Construction shall be in accordance with Specification CW 3110.

E22.4.3 Asphalt Pathway shall be installed as shown on Drawings in accordance with Specification CW 3410.

E22.4.4 Pavement Restoration for Asphalt Paving, Joint and Crack Repair in Parking Lot and Play area as per CW 3250 and CW 3410.

E22.5 Method of Measurement

E22.5.1 Asphalt Paving for Multi-Use Course shall be measured on an area basis. The area to be paid for shall be the total number of square meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E22.5.2 Asphalt Pathway shall be measured on an area basis. The area to be paid for shall be the total number of square meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E22.5.3 Pavement Restoration for Asphalt Paving, Joint and Crack Repair in Parking Lot is a lump sum bid item. No measurement will be made for this work.

E22.6 Basis of Payment

E22.6.1 Asphalt Paving for Multi-Use Course will be paid for at the Contract Unit Prices per square meter for Item "Asphalt Paving for Multi-Use Course" on Form B: Prices and measured as specified herein, which price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E22.6.2 Asphalt Pathway will be paid for at the Contract Unit Prices per square meter for Item "Asphalt Pathway" on Form B: Prices and measured as specified herein, which price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E22.6.3 Pavement Restoration for Asphalt Paving, Joint and Crack Repair in Parking Lot will be paid for at the Contract Lump Sum Prices for Item "Existing Pavement Restoration (Including Concrete & Parking Lot Asphalt Pavement, Joint & Crack Repair)". The amount to be paid for shall be for completed work, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E23. CRUSHED GRANULAR PATHWAY

E23.1 Description

E23.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of granular base course, surface course materials and geotextile, for pathways as indicated on the Drawings;

E23.2 Material

E23.2.1 All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E23.2.2 Compacted Subgrade

- (a) Granular base course material for the pathway shall consist of 150mm of 20mm down crushed limestone and shall conform to CW3110 for crushed limestone base course material.

E23.2.3 Granular Surface Course for Crushed Limestone Pathway

- (a) Granular surface course material for the pathway shall consist of 25.4mm of crusher fines/ toppings crushed limestone.

E23.2.4 Geotextile Fabric

- (a) Geotextile fabric shall be in accordance with CW 3130.

E23.3 Construction Methods

E23.3.1 Construction method shall conform to Specification CW 3110 "Sub-Grade, Sub-Base and Base Course Construction".

E23.3.2 Contractor shall visit the Site and verify all data and dimensions and report any errors, omissions or discrepancies to the Contract Administrator prior to any installation.

E23.3.3 Contractor to layout pathways. Contractor shall be responsible for interpretation of grades and protection of stakes. Layout to be approved by Contract Administrator prior to construction.

E23.3.4 Sub-Grade

- (a) Prepare compacted sub-grade to the lines and grades as shown on Drawings. Contract Administrator to review sub-grade preparation prior to placement of granular base.

E23.3.5 Granular Base

- (a) Geotextile fabric to be placed between subgrade and granular base as per CW 3130;
- (b) Place granular base material to the lines and grades as shown on Drawings. Extend base minimum 150mm beyond width of surface course;
- (c) Compact material to a minimum of 95 percent Standard Proctor Density.

E23.3.6 Granular Surface Course

- (a) Place granular surface course material to the lines and grades as shown on Drawings;
- (b) Compact material to a minimum of 95 percent Standard Proctor Density.

E23.4 Method of Measurement

- (a) Crushed Granular Pathway shall be measured on a square meter basis. The total unit to be paid for shall be the total number of units that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E23.5 Basis of Payment

- (a) Crushed Granular Pathway will be paid for at the Contract Unit Prices per square meter for Item "Crushed Granular Path" on Form B: Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification.

E24. PAVEMENT MARKING

E24.1 Description

E24.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.

E24.1.2 Work shall include, but not necessarily confined to, the following:

- (a) Pavement Marking for Two (2) Four Squares

- (b) Pavement Marking for Parking Lot, including relocation of existing Pre-cast concrete bumper curbs.

E24.1.3 Reference:

- (a) CGSB1-GP-74M, Paint, Traffic, Alkyd

E24.2 Materials

E24.2.1 Paints:

- (a) To CGSB1-GP-74M, alkyd traffic paint
- (b) Colours:
 - (i) Yellow; Universal Traffic Yellow

E24.2.2 Thinner: to CAN/CGSB-1.5

E24.3 Construction Methods

E24.3.1 Equipment and Requirements

- (a) Paint applicator to be an approved pressure type [mobile] distributor capable of applying paint in single, double and dashed lines. Applicator to be capable of applying marking components uniformly, at rates specified, and to dimensions as indicated, and to have positive shut-off
- (b) Distributor to be capable of applying reflective glass beads as an overlay on freshly applied paint.

E24.3.2 Condition of Surface

- (a) Pavement surface to be dry, free from ponded water, frost, ice, dust, oil, grease and other foreign materials.
- (b) Remove and Stockpile existing Pre-cast concrete bumper curbs in secured location approved by Contract Administrator.

E24.3.3 Application

- (a) Unless otherwise approved by Consultant, apply paint only when air temperature is above 10 C, wind speed is less than 60 km/h and no rain is forecast within next 4 hours.
- (b) Apply traffic paint evenly at rate of 3 m²/L.
- (c) Paint lines to be of uniform colour and density with sharp edges.
- (d) Thoroughly clean distributor tank before refilling with paint of different colour.

E24.3.4 Tolerance

- (a) Paint markings to be within plus or minus 12 mm of dimensions indicated.

E24.3.5 Protection of Completed Work

- (a) Protect pavement markings until dry.
- (b) Pin Stockpiled Pre-cast concrete bumper curbs to the asphalt parking lot surface centred on the centreline of each parking stall and 0.5m from the front end of the stalls.

E24.4 Method of Measurement

E24.4.1 Pavement Marking for Multi-Use Court is a lump sum bid item. No measurement will be made for this work.

E24.4.2 Pavement Marking for Parking Lot is a lump sum bid item. No measurement will be made for this work.

E24.4.3 Removal, Stockpile and Reinstallation of Existing Pre-cast Concrete Bumper Curbs shall be incidental to the measurement of Pavement Marking for Parking Lot. No Separate measurement or payment shall be made.

E24.5 Basis of Payment

E24.5.1 Pavement Marking for Multi-Use Court will be paid for at the Contract Lump Sum Prices for Item "Multi-Use Court Line Painting" on Form B: Prices. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E24.5.2 Pavement Marking for Parking Lot will be paid for at the Contract Lump Sum Prices for Item "Parking Lot Line Painting" on Form B: Prices. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E25. PLAY EQUIPMENT

E25.1 Description

E25.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified, including but not necessarily confined to the following:

E25.3 The Play Equipment shall be installed in the play areas as shown on the attached Drawings. All play equipment and their safety zones must fit into the proposed play areas as shown on the drawing.

E25.3.1 All playground equipment supplied and the method of installation shall be in accordance with the latest edition of the "National Standard of Canada, CAN/CSA-Z614-07".

E25.3.2 The Play Equipment Contractor shall supply the Contract Administrator and the Site Works Contractor(s) with all dimensions and drawings necessary to accurately show the extents of all safety surfacing and non-encroachment zones required to meet CSA standards.

E25.3.3 Contractor to submit colour drawing of play equipment, colours and frame with Contract Administrator prior to ordering equipment.

E25.3.4 This Work to be coordinated with other Contractor(s) responsible for the excavation of play areas and the supply and installation of concrete paving for the containment of protective surfacing. Final layout of all play spaces has to be approved by Contract Administrator prior to any construction or removal.

E25.3.5 The coordination and timing of play area development (including excavation of play areas, supply and installation of play equipment, supply and installation of concrete surfacing and supply and installation of protective surfacing) to be coordinated at the pre-construction meeting.

E25.4 The Contractor shall obtain all approvals required to conduct Work described herein.

E25.5 Components which are unacceptable are the following:

- (a) Wooden structures;
- (b) Tube (enclosed) slides and crawl tubes;
- (c) Play panels with many small moving parts;
- (d) Cable rides;
- (e) Sand diggers;

- (f) Merry-go-rounds;
- (g) Tire Swings;
- (h) Talk tubes;
- (i) Binoculars / telescopes;
- (j) Barrel rollers; and
- (k) Large number of plastic components.

E25.6 Play Structures and Play Components

E25.7 Description

E25.7.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified.

E25.7.2 Play equipment shall be installed in the play areas as shown on the attached Drawings. All play equipment and safety zones to fit within maximum areas of play spaces with the exception of proposed ground-level play components with zero (0) fall height such as play panels.

E25.8 Materials

E25.8.1 General

- (a) Play equipment is to be provided by Playgrounds R Us. Playground design as shown on the drawing and is on-file with Playgrounds R Us (Drawing #160323M-2-1, Colour Palette Q). Play Equipment includes the following:
 - (i) Model #164094B Bongo Reach Panel Ground Level
 - (ii) Model #127439A Navigator Reach panel Ground Level
 - (iii) Model #164148B Ring-A-Bell Reach Panel Ground Level
 - (iv) Model #111404J 76" Aluminum PlayBooster Posts (4)
 - (v) Model #146813A Sky Rail Climber, Direct Bury
 - (vi) Model #2015160A Smart Play Cube 2-5 Year Olds, Direct Bury
 - (vii) Model #168990A Sensory Play Centre c/w XyloFun/ Alphamaze Panels, DB
 - (viii) Model #173592A Oodle Swing, DB Only
 - (ix) Model #186579A Acorn Seats, Direct Bury (5)
 - (x) Model #182503B Welcome Sign Ages 2-12, Direct Bury
- (b) Drop Shot is to be provided by Playgrounds R Us:
 - (i) Model #100042A Drop Shot
 - (ii) Colour: Buttercup Post, Leaf Top
- (c) Basketball Standard is to be provided by Playground-R-U's, manufactured by SportsPlay Inc., Model #541-616,"Heavy Duty Basketball Standard" c/w 4.5" O.D. galv. Post, 4' gooseneck, aluminum fan-shaped backboard with target & border, Double rim goal with chain net, 10' high or substitute acceptable to Contract Administrator in accordance with B7.

E25.8.2 Contact for Play Equipment:

Michael Lacroix
Playgrounds R Us
Box 7, Group 582, R.R. 5
Winnipeg. MB R2C2Z2

Telephone No. (204) 632-7000
Facsimile No. (204) 632-7421
Email: mike@pru.ca

- E25.8.3 All materials shall be structurally sound and suitable for safe play. Durability shall be ensured on all parts and materials.
- E25.8.4 Finishes shall meet or exceed ASTM standards for hardness, adhesion, impact and salt spray resistance. All fabrication cuts, drill holes and weld joints shall be sprayed with a corrosion resistant coating
- E25.8.5 All hardware shall be tamper-proof in design and requiring special tools. It shall be either carbon steel plated with zinc/nickel and iridescent chromate finish or stainless steel. All necessary hardware and tools shall be provided.
- E25.9 Installation
- E25.9.1 Play equipment shall be installed as per manufacturer's specifications and in accordance with the most recent Canadian Standards Association Standards.
- E25.9.2 All posts and other vertical items shall be plumb and true to vertical, if so designed.
- E25.9.3 Concrete footings/ foundation shall be in accordance with E26.
- E25.9.4 Installation of play structures shall be coordinated with associated site development Work. The play structures shall be secured and rendered unusable until the safety surface is in place.
- E25.10 Method of Measurement and Basis of Payment
- E25.10.1 Method of Measurement shall be as follows:
- (a) Play Equipment will be measured on a per unit basis. In regard to the play structure, the single unit price shall include all play equipment attached to, or functionally linked to the structure.
 - (b) Drop Shot will be measured on a per unit basis.
 - (c) Basketball Standard will be measured on a per unit basis. In regard to the basketball standard, the single unit price shall include all accessories attached to, or functionally linked to the structure.
- E25.10.2 Basis of Payment shall be as follows:
- (a) Play Equipment will be paid for at the Contract Unit Prices, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.
 - (b) Drop Shot will be paid for at the Contract Unit Prices, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.
 - (c) Basketball Standard will be paid for at the Contract Unit Prices, measured as specified herein, which price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work and accepted by the Contract Administrator.

E26. FOUNDATIONS

- E26.1 Description
- E26.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.
- E26.1.2 All playground equipment (including play structure, independent play equipment, basketball standard and drop shot) posts, bases and anchors are to be set in concrete footings or piles to ensure stability and prevent frost heaving. An alternative to concrete footings or

piles that may be approved includes a welded and secured rail mounting system. The current Standard Construction Specifications of the City of Winnipeg, CW 2160 – “Concrete Underground Structures and Works”, is to be utilized in the installation of the concrete works for all below ground components.

E26.2 Materials

E26.2.1 The specific concrete requirements shall be:

- (a) Sulfate resistant, Type 50 Cement;
- (b) 28 day compressive strength of 30 Mpa;
- (c) maximum aggregate size of 20mm, nominal;
- (d) slump 80 +/- 20mm;
- (e) maximum water/cement ratio 0.49.

E26.3 Installation

E26.3.1 All posts and supports shall be centered in the concrete footing such that there is a complete collar of concrete around each post and support. Where posts are not perfectly centered there should be a minimum of 2” concrete at any point around the post.

E26.3.2 All concrete footings for play equipment shall be a minimum of three feet (3’) depth, or in accordance with Manufacturer’s specifications, whichever is greater.

E26.3.3 All concrete footings for single post swing structure shall be a minimum of eight feet (8’) depth, or in accordance with Manufacturer’s specifications, whichever is greater.

E26.3.4 Concrete Bases shall be sized appropriately to withstand constant stresses and prevent any shifting of the components. Bidders shall be prepared to supply detailed dimension and specification for the concrete foundations/footings for all components.

E26.3.5 All posts and supports shall be wiped clean of extraneous concrete.

E26.4 Method of Measurement and Basis of Payment

E26.4.1 Method of Measurement shall be as follows:

- (a) Foundations shall be incidental to the measurement of Play Equipment. No separate measurement shall be made.

E26.4.2 Basis of Payment shall be as follows:

- (a) No separate payment shall be made for play equipment foundations.

E27. SAFETY SURFACING AND SUB-SURFACE DRAINAGE

E27.1 General Description

E27.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of wood fibre safety surfacing and associated subsurface drainage.

E27.2 Safety Surfacing

E27.2.1 Description

- (a) This Specification shall cover the supply and installation of wood fibre safety surfacing within the Play Equipment Areas.

E27.2.2 Material

- (a) Wood Fibre product shall be either Zeagar Woodcarpet or Fibar FibarSystem 300 products or substitute acceptable to Contract Administrator in accordance with B7 and E27.2.2(c).
- (b) Wood Fibre surfacing shall be supplied by an authorized distributor and delivery slips and/or a warranty certificate from an authorized supplier are to be submitted to the Contract Administrator prior to installation.
 - (i) Contact for Woodcarpet:
Zeagar Bros. Inc.
4000 East Harrisburg Pike ·
Middletown, PA 17057
USA

Ph: (1-888) 346-8524 or (717) 944-7481 ·
Fax (717) 944-7681
sales@zeager.com
 - (ii) Contact for FibarSystem 300:
The Fibar Group LLC
80 Business Park Drive, Suite 300
Armonk, NY 10504-1705
USA

Ph: (800) 342-2721
Fax: (914) 273-8659
info@FibarPlaygrounds.com
- (c) If substitute to Zeagar Woodcarpet or Fibar FibarSystem 300 is proposed, it must meet the following conditions:
 - (i) Materials must be IPEMA certified Engineered Wood Fibre
 - (ii) Material must consist of random-sized, clean, engineered hardwood chips. Standard wood chips or bark mulch are not acceptable.
 - (iii) Materials must meet or exceed ASTM F1292 standards for impact attenuation
 - (iv) Materials must be certified by the CSA and approved for playground use
 - (v) Materials must comply with ASTM F1951 for accessibility under the Canadians with Disabilities Act
 - (vi) Materials must be covered by \$10,000,000.00 product liability insurance as well as provide a minimum 10 year warranty against loss of resiliency
- (d) Safety surfacing shall include wood fibre, geotextile, safety surfacing drainage layer and mats under end of slides.
- (e) Granular Base for Safety Surfacing Drainage layer in accordance with manufacturer's specification.
- (f) Geotextile shall be a non-woven and meet or exceed the requirements of Separation Geotextile Fabric in CW 3130.
- (g) Mats are to be installed directly on top of the geotextile fabric and secured in place with two (2) duckbill anchors per mat.

E27.2.3

Construction Methods

- (a) Wood Fibre shall be installed within the play area, as defined by concrete surfacing to a minimum depth of 250 mm (after compaction). In the case where proposed play equipment includes a maximum fall height greater than 3.0m (10'), depth of material to directly correspond to maximum fall height of play equipment in accordance with manufacturer's specification.

- (b) The installation of the Wood Fibre shall be done immediately after the play equipment has been installed.
- (c) Installation of entire system, including fibre, Safety Surfacing Drainage layer, Geotextile and mats under slide ends shall be done according manufacturer's instructions. Adequate drainage within play equipment area must be ensured as per same.
- (d) Subgrade of play area shall be graded to drain to the edge of the play area and area cleared of any debris which inhibits proper drainage or installation of products. Drain pipe with granular trench shall be installed as per shown on the Drawings and approved by the Contract Administrator. The cost of this shall be included in the price for the supply and installation of safety surfacing.
- (e) Filter fabric must be cut and fit around playground equipment footings and overlap seams by 300mm.
- (f) During installation, it shall be the responsibility of the Contractor to remove any pieces of wood fibre that are in excess of 150mm (6") in length.
 - (i) The Contract Administrator will have the right to dig random test holes to confirm depth of safety surfacing and that sizing of wood fibre conforms to E27.3.3(d). If wood fibre sizing does not conform, the Contractor will have to rake surfacing and remove the pieces of wood fibre that do not comply with the satisfaction of the Contract Administrator prior to issuing any payment.
- (g) Installation shall be done by equipment sized to suit the Work being done and the Wood Fibre shall be spread by hand as necessary in the immediate vicinity of the play equipment so as not to damage same. The play equipment shall be swept clean to the satisfaction of the Contract Administrator after installation of the Wood Fibre.

E27.3 Sub-Surface Drainage

E27.3.1 Description

- (a) This Work shall consist of supplying and installing of Drainage Pipe, Granular Trench, Geotextile and all associated work as described on the drawings and herein. Sub-Surface Drainage system shall be installed in accordance with these specifications and in close conformity with the locations and dimensions as shown on the plans or specified by the Contract Administrator.

E27.3.2 Material

- (a) Drainage Pipe will be 200mm (8") diameter High Density Polyethylene (HDPE) Flexible Perforated Drain Pipe in Sock, or approved substitute in accordance with B7.
- (b) The fittings used with the edge drain shall be of a snap together design. In no case shall any drainage product be joined without the use of the manufacturers connector designed specifically for the purpose.
- (c) Backfill for Granular Trench shall be 13mm (1/2") Clean Stone Backfill as per CW 3110.
- (d) Geotextile shall be a non-woven and meet or exceed the requirements of Separation Geotextile Fabric in CW 3130.

E27.3.3 Construction Methods

- (a) The layout of the Granular Trench and Drainage Pipe is to be marked on Site and approved by the Contract Administrator prior to trenching.
- (b) Install Granular Trench and Drainage Pipe below geotextile and in conformance with details provided.
 - (i) Play area to be graded to drain toward the Granular Trench at the Perimeter of the Play Equipment Area. This sub-surface drainage system is to be used in conjunction with the appropriate safety surfacing drainage layer to bring excess water should drain away from Play equipment.

- (c) Contractor is to protect sub-surface drainage system from excessive weight during the duration of construction and to repair and make good any pipe collapsed prior to acceptance.
- (d) Fitting for the drain will be installed in accordance with the manufacturer's recommendations and Specification.
- (e) Any damaged edge drain will be replaced or repaired at the Contractor's expense. The repair must be in accordance with the manufacturer's specification and to the satisfaction of the Contract Administrator.

E27.4 Method of Measurement and Basis of Payment

E27.4.1 Method of Measurement shall be as follows:

- (a) Safety Surfacing (including Engineer Wood Fibre, Safety Surfacing Drainage layer, Mat, Geotextile and Sub-Surface Drainage System) is a lump sum bid item. No measurement will be made for this work.

E27.4.2 Basis of Payment shall be as follows:

- (a) Safety Surfacing (including Engineer Wood Fibre, Safety Surfacing Drainage layer, Mat, Geotextile and Sub-Surface Drainage System) will be paid for at the Contract Unit Prices as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- (b) This payment shall be understood to include all trenching, backfill, pipe, fittings, wood fibre, geotextile, mats, subsurface drainage and items incidental to the Work included in the Specification.

E28. SITE FURNITURE

E28.1 Description

E28.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Delivery and Installation of Benches;
- (b) Delivery and Installation of Waste Receptacles;
- (c) Supply and Installation of Game Tables;
- (d) Supply and Installation of U-Pot Table;
- (e) Supply and installation of Bicycle Racks;
- (f) Supply and installation of New Pre-cast concrete bumper curbs.

E28.2 Materials

E28.2.1 All materials supplied under this specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E28.2.2 Backed Bench shall be supplied by the City of Winnipeg FOB Central manufacturing facility at no cost to the Contractor. Bench shall be Tache Style Backed Bench Composite with Arms, as per SCD-121A, Product #52501085, **Black Powder Coated**, or substitute approved in accordance with B7.

E28.2.3 Backless Bench shall be supplied by the City of Winnipeg FOB Central manufacturing facility at no cost to the Contractor. Bench shall be Tache Style Backless Bench Composite with Arms, as per SCD-121C, Product #52501086, **Black Powder Coated**, or substitute approved in accordance with B7.

- E28.2.4 Waste Receptacle shall be supplied by the City of Winnipeg FOB Central manufacturing facility at no cost to the Contractor. Waste Receptacle shall be Metal Slat Type, **Black Finish**, as per SCD-119, Product **#52501063BLK**(metal slat WR) and Product **#52501058** (Wire Basket), or substitute approved in accordance with B7.
- E28.2.5 Contact for Benches and Waste Receptacles:
Aaron Lennon @ 204-986-5505
Supervisor of Central Repair/Manufacturing Facility
City of Winnipeg
Fleet Management Agency Division
Public Works Department
215 Tecumseh St
Winnipeg. MB R3E 3S4
Email: ALennon@winnipeg.ca
- E28.2.6 Games Tables
- (a) Games Tables shall be Landscape Forms: 6 seat Carousel Game Table, perforated metal seats, backless seats, perforated steelhead checkerboard table top, all metal finishes shall be powder coated black.
 - (b) Games Tables shall be Landscape Forms: 5 seat wheel chair accessible Carousel Game Table perforated metal seats, backless seats, perforated steelhead checkerboard table top, all metal finishes shall be powder coated black.
 - (c) Games Tables shall be surface mounted with corrosion resistant tamper proof anchor hardware. Refer to manufacturer's recommendation.
 - (d) Contact for Games Table:
Lee Day
Landscape Forms
P: (416) 968-6655
F: (416) 968-1944
M: (416) 821-4710
Email: LeeD@landscapeforms.com
- E28.2.7 U-Pod Table
- (a) U-Pod Table shall be Thomas Steele U-Pod Table, Item No. UPD-2, 2 Flat Seats, e-Steele Green Top and Seats, Silver Supports. Surface Mount.
 - (b) Contact for Games Table:
Stacy Haldeman
Graber Manufacturing Inc.
P: (608) 849-1080
F: (608) 849-1081
Email: shaldeman@madrax.com
- E28.2.8 Bicycle Racks
- (a) Bicycle Rack shall be Dero Hoop Rack as manufactured by Dero Bike Racks, surface mount, powder coated colour: Light Green RAL6018.
 - (b) Mounting hardware for bicycle racks shall be cadmium plated. All site furnishings shall include the supply of maintenance kits for care and cleaning. Maintenance kits shall include maintenance manuals, complete manufacturer's parts lists, touch-up paint, an extra of each bolt, washer and any other hardware utilized, and all special tools necessary for assembly and maintenance.
 - (c) Contact for Bicycle Racks:
Michael Lacroix
Playgrounds R Us
Box 7, Group 582, R.R. 5
Winnipeg. MB R2C2Z2
Telephone No. (204) 632-7000

Facsimile No. (204) 632-7421
Email: mike@pru.ca

E28.2.9 Pre-cast Concrete Bumper Curbs

- (a) Pre-cast Concrete Bumper Curbs shall be Barkman Concrete Pre-Cast Bumper Curbs, Item #105179 Parking, complete with anchor pins.
- (b) Contact for Pre-Cast Bumper Curbs:
Anthony Militano
Barkman Concrete
P: (204) 667-3310
F: (204) 663-4854
Email: AMilitano@BarkmanConcrete.com

E28.3 Construction Methods

- E28.3.1 Contractor shall obtain Benches and Waste Receptacle from the City and deliver to the jobsite.
- E28.3.2 Install as per manufacture's instructions, City of Winnipeg Details and the attached drawings.
- E28.3.3 Waste Receptacles - Contractor to secure wire basket to metal slat enclosure with chain and lock until Total Performance review when the City shall provide its own lock and chain for each waste receptacle.
- E28.3.4 Pre-Cast Concrete Bumper Curbs - Pin Pre-cast concrete bumper curbs to the asphalt parking lot surface centred on the centreline of each parking stall and 0.5m from the front end of the stalls.
- E28.3.5 All Work is to be located and installed in accordance with the drawings using approved non-rusting, vandal resistant fasteners to ensure solid, durable, finished Work suitable for the purpose intended. Fasteners and assembly hardware shall be incidental to the Work.
- E28.3.6 All furnishings and fixtures to be installed plumb and true to correct elevations and location, as directed the Contract Administrator. The Contractor shall confirm proposed locations of all Site furnishings with Contract Administrator prior to installation.
- E28.3.7 All powder coating finishes shall meet or exceed ASTM standards for hardness, adhesion, impact and salt spray resistance.
- E28.3.8 Smooth all cut edge and weld joints prior to hot dip galvanizing and ensure that all tubing is free from burrs, cracks, defects and other imperfections
- E28.3.9 All furnishings and fixtures to be carefully handled so that no parts will be bent, broken or otherwise damaged. Hammering, which will injure or distort fixture, is prohibited.

E28.4 Method of Measurement and Basis of Payment

E28.4.1 Method of Measurement shall be as follows:

- (a) All site Furnishings will be measured on a per unit basis. The total unit to be paid for shall be the total number of units that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E28.4.2 Basis of Payment shall be as follows:

- (a) All site furnishings will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E29. CUSTOM PLANTERS

E29.1 Description

E29.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of Custom Planer, including tanks, rock fill, geotextile, topsoil and grass.

E29.2 Materials

E29.2.1 All materials supplied under this specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E29.2.2 Tanks

- (a) Tanks shall be Global Industrial Tarter Galvanized Stock Tank 105 Gallon WTR32 – 36-3/4”L x 36-3/4”W x 23-3/4” H. **With No Stickers.**
- (b) Contact for Tanks:
Global Industrial Canada
10-35 Staples Avenue,
Richmond Hill, ON
L4B 4W6 Canada
P: (888) 645-0878
F: (888) 645-0881
Website: <http://www.globalindustrial.ca/>

E29.2.3 Rock Fill:

- (a) Locally available, clean, hard, durable, abrasion-resistant free from seams, cracks or other structural defects. Limestone shall be such that it will not disintegrate from action of wetting and drying, or freezing and thawing cycles.
- (b) Size range shall be between 100-200 mm in diameter. The Contractor is to note that no smaller stones will be accepted.
- (c) Stone infill to be 19mm (¾”) river washed stone, light in colour to match limestone rip rap.
- (d) Submit illustrative samples of Rock Fill in accordance with Specification “Submittals”.
- (e) Contractor to submit product samples five (5) Working Days prior to ordering material.

E29.2.4 Geotextile

- (a) Geotextile for base shall be in accordance with CW 3130, “Supply and Installation of Geotextile Fabric”

E29.2.5 Topsoil and Grasses

- (a) Topsoil and Grasses as per E35 “Tree and Grasses Planting”.

E29.3 Construction Methods

E29.3.1 General

- (a) Planters to be installed plumb and true to correct elevations and location, as directed the Contract Administrator. The Contractor shall confirm proposed locations of all planters with Contract Administrator prior to installation.
- (b) All planters to be carefully handled so that no parts will be bent, broken or otherwise damaged. Hammering, which will injure or distort fixture, is prohibited.

E29.3.2 Custom Planter Installation

- (a) Line inside of tanks with Geotextile Fabric. Geotextile is to be trimmed and shall not be visible after completion of Work.
- (b) Fill tanks with 300mm depth Limestone Rock fill
- (c) Once Rock Fill has been installed, fill in small gaps between stones with river washed stone infill to assure no gaps between stones are visible.
- (d) Install Geotextile fabric between Rock Fill and Topsoil Layer in accordance with the manufacturer's instructions. Geotextile shall be laid smooth and free of tension, stress, folds, wrinkles or creases.
- (e) Fill Custom Planter with 300mm depth topsoil
- (f) Place Topsoil and Plant Grasses as per E35 "Tree and Grasses Planting".

E29.4 Method of Measurement and Basis of Payment

E29.4.1 Method of Measurement shall be as follows:

- (a) Custom Planters will be measured on a per unit basis. The total unit to be paid for shall be the total number of units that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- (b) The cost of supplying and placing topsoil and grasses is included under E35 "Trees and Grasses Planting" and Item 31.a. – Ribbon Grass on Form B. No separate measurement or payment will be made.

E29.4.2 Basis of Payment shall be as follows:

- (a) Custom Planters will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E30. GABION WALL

E30.1 Description

E30.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of Gabion Baskets and Stone fill.

E30.2 Materials

E30.2.1 Product Sample

- (a) Submit illustrative samples of gabion basket and stone fill in accordance with Specification "Submittals".
- (b) Contractor to submit product samples five (5) Working Days prior to ordering material.

E30.2.2 All materials supplied under this specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E30.2.3 Geotextile:

- (a) Geotextile for base shall be in accordance with CW 3130, "Supply and Installation of Geotextile Fabric"

E30.2.4 Granular Base:

- (a) Granular Base shall be in accordance with CW 3110 "Sub-grade, Sub-Base and Base Course Construction"

E30.2.5 Gabion Baskets:

- (a) Gabion baskets shall be architectural welded wire with uniform square pattern in a 75x75mm grid. Wire shall be hot dip galvanized with minimum coverage of 260 g/m² to CSA G164. Interlocking wire fasteners shall be galvanized steel to ASTM A764, Finish 1, Class1, Type 3.
- (b) Contractor ensure that gauge of wire mesh identified for pricing purposes, gauge (4.11mm) provide enough support for the proposed filled platform construction.
- (c) The baskets shall be factory fabricated so that sides, ends, lid and internal diaphragms readily assemble on site into rectangular baskets of a size as indicated on Drawings. Baskets shall have single unit construction. When length exceeds horizontal width, provide diaphragms of same mesh as gabion walls to divide basket into equal cells of length not in excess of horizontal width.
- (d) Gabion baskets shall be connected together using stainless steel ring fasteners on exposed sides, lacing wire or ring fasteners may be used to connect other areas. All fasteners shall meet all of the closing requirements of the gabion manufacturer and be accepted by the Contract Administrator.

E30.2.6 Stone Fill:

- (a) Stone Fill shall be locally available, clean, hard, durable, abrasion-resistant field stone. No Limestone will be allowed Field Stone shall be such that it will not disintegrate from action of wetting and drying, or freezing and thawing cycles.
- (b) No Limestone will be allow. Any limestone to be removed from baskets prior to placement.
- (c) Colour TBD
- (d) Individual stones shall have a diameter of 100 mm minimum to 200 mm maximum. The Contractor is to note that no smaller stones will be accepted.
- (e) Stone infill to be 19mm (³/₄"), clean field stone, colour to match Field Stone Fill.

E30.3 Construction Methods

E30.3.1 Layout shall be marked on site by the Contractor and verified by the Contract Administrator prior to excavation.

E30.3.2 Excavate for foundation bed, compact subgrade and install geotextile in accordance with CW 3110 and CW 3170 respectively, as shown on the Drawings, and as directed by the Contract Administrator.

E30.3.3 Gabion Installation:

- (a) Care shall be taken during gabion installation to prevent damage to surrounding pavement.
- (b) The gabions shall be opened and unfolded on a flat hard surface to ensure no unwanted folds occur. The sides, ends, and diaphragms shall be lifted into place to form an open box, and all sides connected as per manufacturer's installation instructions.
- (c) After foundation preparation, the pre-assembled gabions shall be placed to lines and grades as indicated on Drawings and as verified by Contract Administrator. Placement, elevations and geometry shall be verified prior to filling with stones.
- (d) Cut and overlap baskets as required to meet geometry and connection requirements for round planters as identified on Drawings and as recommended by manufacturer. Contractor to ensure all cut baskets are installed in such a way as to ensure their structural integrity.

- (e) Adjacent baskets shall be connected as recommended by manufacturer prior to stone fill placement.
- (f) Gabions to sit flush against edge of adjacent Concrete Walls where appropriate with no visible gaps.

E30.3.4 Filling

- (a) After adjacent empty woven wire gabion units are set to the required line and grade and common sides connected, they shall be placed in straight line tension and stretched to remove any kinks from the mesh and to gain a uniform alignment. The gabions may be staked to maintain the established proper alignment or connected to concrete walls before the rock is placed. No stakes shall be placed through geotextile material. Connecting fasteners shall be attached during the filling operation to preserve the strength and shape of the structure.
- (b) The gabions shall be carefully filled with Stone by hand or a combined machine/ hand method to ensure alignment, avoid bulges, and provide a compact mass that minimizes voids. Machine method requires supplementing with hand work to ensure the desired result. On exposed faces of gabions, place stones by hand with flattest surfaces bearing against face mesh to produce a neat, compact placement with a uniform appearance.
- (c) Stone Fill should appear random in placement with no large gaps or unsecured stones.
- (d) Care shall be taken during delivery and installation to protect stones from breakage. Any Stone Fill smaller than 100mm in diameter will not be accepted due to the potential for vandalism.
- (e) Fill gabion cells in lifts not exceeding 300 mm and connect opposite walls with 2 tie wires after each lift. Each gabion shall appear, upon completion, to be aligned properly with adjacent gabions.
- (f) Once Stone Fill has been installed, fill in small gaps between stones with river washed stone infill to assure no gaps between stones are visible.
- (g) The last layer of rock shall be uniformly levelled to the top edges of the gabions. Lids shall be placed tight over the rock fill using only approved lid closing tools as necessary. The use of crowbars or other single point leverage bars for lid closing is prohibited as they may damage the baskets. The lid shall be stretched until it meets the perimeter edges of the front and end panels. The gabion lid shall then be secured to the sides, ends, and diaphragms with approved fasteners.
- (h) Any damage to the wire during assembly, placement, and filling shall be repaired promptly in accordance with the manufacturer's recommendations or replaced with undamaged gabion baskets.

E30.3.5 Placement of Geotextile and Topsoil

- (a) The Geotextile is to be placed prior to the commencement of backfilling with topsoil between the gabions.
- (b) Geotextile shall be laid smooth and free of tension, stress, folds, wrinkles or creases. Joints in the geotextile fabric shall be overlapped not less than 0.5 metres.
- (c) Securing pins with washers shall be inserted through the fabric at intervals not greater than 1.5 metres along a line 100 mm from both the lowest and highest exterior edge of the geotextile fabric.
- (d) Geotextile is to be trimmed and shall not be visible after completion of Work.
- (e) Precautions shall be taken when backfilling to avoid contamination of rock fill with topsoil.

E30.4 Method of Measurement

E30.4.1 Gabion Wall shall be measured on a linear meter basis. The area to be paid for shall be the total number of linear meters that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E30.5 Basis of Payment

E30.5.1 Gabion Wall will be paid for at the Contract Unit Prices per linear meter for "Gabion Wall" measured as specified herein, which price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E31. STEEL BOLLARDS

E31.1 Description

E31.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of Steel Bollards completed with concrete footings.

E31.2 Materials

E31.2.1 All materials supplied under this specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E31.2.2 Protection

- (a) The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification.
- (b) Prevent damage to roadways and sidewalk, landscaping, buildings, underground and surface or sub-surface utilities.

E31.2.3 Quality Assurance

- (a) All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Consultant including all operations from the selection and production of materials through to final acceptance of the specified Work.
- (b) The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Consultant reserves the right to reject any materials or Works that are not in accordance with the requirements of this Specification.

E31.2.4 General Workmanship

- (a) Finish all work straight, even, smooth and free of any defects to approved dimensions and details.

E31.2.5 Unacceptable Work

- (a) Any Work found to be unacceptable shall be immediately brought to the attention of the Contract Administrator and shall be corrected in accordance with A.W.S. D1.1, Subsection 3.7.
- (b) No repair shall be made until agreed to by the Consultant.

E31.2.6 General

- (a) Unless detailed or specified otherwise, standard products will be acceptable if construction details and installation meet intent of Drawings and Specifications in the opinion of the Contract Administrator.

- E31.2.7 Concrete Base
- (a) Concrete shall be supplied and installed in accordance with the City of Winnipeg's Standard Construction Specification CW 2160 – Concrete Underground Structures and Works.
 - (b) Concrete: 20Mpa
- E31.2.8 Steel Components
- (a) Steel components shall be defined as all steel other than fasteners.
 - (b) Shall be of a gauge and size as indicated on Drawings and/or as necessary for intended use.
 - (c) All steel components shall be hot dip galvanized after fabrication
 - (d) Concrete top shall be painted grey / silver to match steel pipe colour
- E31.2.9 Caulking: to be silicone, exterior grade, clear in colour.
- E31.2.10 Reflective Decal: to be premium exterior grade reflective decal, silver in colour.
- E31.3 Construction Methods
- E31.3.1 Transportation, Handling and Storage
- (a) Components shall be loaded in such a manner that they can be transported and unloaded at their destination without being excessively stressed, deformed or otherwise damaged.
 - (b) Material to be temporarily stored shall be placed on skids above the ground. Skids shall be kept clean and properly drained. Long members shall be supported on skids placed near enough to prevent injury from deflection.
- E31.3.2 Bollard Installation
- (a) Bollard shall be installed as indicated in Drawings and Specifications. Layout shall be marked on site and verified by Contract Administrator prior to excavation.
 - (b) Bollards shall be installed plumb and aligned with each other, top of bollards appear level in relation to each other.
 - (c) Reflective Decal to be installed as per manufacturer instruction, on clean, dry and smooth surfaces, straight with no fold or bubbles and with complete adhesion along edges.
- E31.4 Method of Measurement and Basis of Payment
- E31.4.1 Method of Measurement shall be as follows:
- (a) Steel Bollard will be measured on a per unit basis. The total unit to be paid for shall be the total number of units that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.
- E31.4.2 Basis of Payment shall be as follows:
- (a) Steel Bollard will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, including base and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E32. CHAIN LINK GATES

E32.1 Description

- E32.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of

all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of Chain Link Gates.

E32.2 Materials

E32.2.1 All materials supplied under this specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E32.2.2 Supply and install gate in accordance with the City of Winnipeg's Standard and Construction Specification CW 3550.

E32.2.3 Gate shall be 1.83m (6') high and one panel wide (as per existing fence).

E32.2.4 Gate shall include a pad lock protective box.

E32.3 Construction Methods

E32.3.1 Install gate as per manufacturer's recommendation and CW 3550.

E32.3.2 Layout shall be marked on site and verified by Contract Administrator prior to excavation.

E32.4 Method of Measurement and Basis of Payment

E32.4.1 Method of Measurement shall be as follows:

- (a) Chain Link Gate will be measured on a per unit basis. The total unit to be paid for shall be the total number of units that are installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E32.4.2 Basis of Payment shall be as follows:

- (a) Chain Link Gate will be paid for at the Contract Unit Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, including concrete base, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E33. GABION BENCH

E33.1 Description

E33.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified.

- (a) Supply and Installation of Gabion Bench.

E33.2 Material

E33.2.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or works, which are not in accordance with the requirements of the Specification.

E33.2.2 Gabion baskets shall be as per E30 – Gabion Baskets

E33.2.3 All fasteners shall be galvanized or chromium plated.

E33.2.4 All materials to be new and free of defects impairing strength, durability and appearance of the best commercial quality for the purpose specified;

- E33.2.5 Sizes as shown on drawings. Material shall be hand picked, tight knot; straight, and free of cracks, splits and waness;
- E33.2.6 Granular Base Course
- (a) Granular Base course material shall consist of 19mm down crushed limestone and shall conform to CW3110 for crushed limestone base course material.
- E33.3 Construction Methods
- E33.3.1 All Work is to be located and installed in accordance with the drawings using approved non-rusting, vandal resistant fasteners to ensure solid, durable, finished Work suitable for the purpose intended. Fasteners and assembly hardware shall be incidental to the Work.
- E33.3.2 The lumber shall be stored in an orderly fashion and must be stacked in neat regular piles. The bottom pieces in each pile shall be placed on blocks to prevent bending of the timber.
- E33.3.3 Construction method shall conform to Specification CW 3110 'Sub-grade, Sub-base and Base Course Construction'.
- E33.3.4 All furnishings to be installed plumb and true to correct elevations and location, as directed the Contract Administrator. The Contractor shall confirm proposed locations of all Site furnishings with Contract Administrator prior to installation.
- E33.4 Method of Measurement and Basis of Payment
- E33.4.1 Gabion Bench is a lump sum bid item. No measurement will be undertaken for this work.
- E33.4.2 Payment for Gabion Bench shall be paid for at the Contract Unit Price. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E34. ELECTRICAL AND LIGHTING

- E34.1 Description
- E34.1.1 This Specification shall include but not limited to:
- (a) Trenching, supply and installation of conduit and cabling for light standards along pathway.
- (b) Provide and install necessary wiring to make a complete and operating system.
- (c) Supply and install light standards and concrete piles as indicated on Drawing.
- E34.2 Material
- E34.2.1 This specification shall supplement the on-sheet Electrical and Structural Specifications for all fabrication and installation of components and the supply and installation of lighting fixtures.
- E34.2.2 The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification.
- E34.2.3 General Workmanship
- (a) Finish all work straight, even, smooth and free of any defects to approved dimensions and details.
- (b) Provide necessary angles, brackets, metal inserts, rivets, anchor bolts, frames, adjusting screws, gaskets and other items necessary for the complete installation of the work.
- (c) Concrete and Reinforcing Steel: in accordance with on-sheet Structural specifications,
- E34.3 Method of Measurement

E34.3.1 Electrical and lighting is a lump sum bid item. No measurement will be undertaken for this work.

E34.4 Basis of Payment

E34.4.1 Payment for Installation of Electrical and Lighting shall be paid for at the Contract Unit Prices for the "Items of Work" listed below. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

Item of Work:

39. – Lighting standards, power distribution and control system – 575 Larsen

40. – Lighting standards, power distribution and control system – Harbison to Raleigh

E35. TREES AND GRASSES PLANTING

E35.1 Description

E35.1.1 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Supply and Installation of trees.
- (b) Supply and Installation of grasses.

E35.1.2 Reference

- (a) Install trees and grasses work in accordance with the Canadian Standards for Nursery Stock Current Edition, published by the Canadian Nursery Trades Association, except where specified otherwise.

E35.1.3 Source Quality Control

- (a) All plant material shall be randomly inspected at the source upon request of the Contract Administrator.
- (b) Trees are to be grown in nurseries under proper cultural practices as recommended by the Canadian Nursery Trades Association.
- (c) Only those trees that have been grown for at least the four (4) previous years in local Manitoba nurseries located in an Agriculture Canada Plant Hardiness Zone designation of 2(a or b) or 3(a or b) and within a 250 kilometre radius of Winnipeg, will be accepted. Trees that have grown in plant hardiness zones 1 and 4 or greater will be rejected.

E35.1.4 Maintenance

- (a) The Contractor shall be responsible for the maintenance of the trees for a period of one (1) year from the date of Total Performance. Any areas planted after September 15th, the maintenance period will commence on May 15th of the following year or such date as mutually agreed upon by all parties.
- (b) The Contractor shall be responsible for the maintenance of the grasses for a period of thirty (30) calendar days from the date of Total Performance. Any areas planted after September 15th, the maintenance period will commence on May 15th of the following year or such date as mutually agreed upon by all parties.
- (c) Water to ensure soil moisture conditions for optimum growth and health of plant material. Ensure watering techniques do not cause erosion.
- (d) Reform damaged watering saucers.
- (e) Remove weeds bi-monthly.

- (f) Replace or re-spread damaged, missing or disturbed mulch.
- (g) For non-mulched areas, cultivate monthly to keep top layer of soil friable.
- (h) If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Contract Administrator prior to application.
- (i) Apply fertilizer as directed by manufacturer's specifications.
- (j) Remove dead, broken or hazardous branches from plant material.
- (k) Keep trunk protection and tree supports in proper repair and adjustment.
- (l) Remove trunk protection, tree supports and level watering saucers at end of warranty period.
- (m) Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
- (n) Submit monthly written reports to Contract Administrator identifying:
 - (i) Maintenance work carried out.
 - (ii) Development and condition of plant material.
 - (iii) Preventative or corrective measures required which are outside Contractor's responsibility.

E35.1.5 Warranty

- (a) The Contractor shall, at his/her expense, warrant the Work against any and all defects or deficiencies resulting from insect infestation, disease and mechanical damage due to improper handling, installation or maintenance, for a period of one (1) year from the date of the Total Performance. Nursery stock damaged by vandalism or reasons beyond the control of the Contractor shall be replaced by the client.
- (b) End-of-Warranty inspection will be conducted by the Contract Administrator.
- (c) The Contract Administrator reserves the right to request material replacement or extend the Contractor's Maintenance responsibilities for an additional one (1) year if, at the end of the Warranty Period, leaf development and growth are not sufficient to ensure future survival of the plant material.

E35.1.6 Replacements

- (a) During the Maintenance Period, the Contractor shall remove from Site any plant material that has died or failed to grow satisfactorily as determined by the Contract Administrator and replace as per Specifications within a maximum ten (10) day period from notification.
- (b) Defective plants shall be replaced within three (3) days of notification to the Contractor.
- (c) The Contractor shall extend Maintenance and Warranty on replacement tree for a period equal to the original Maintenance and Warranty Periods.
- (d) The Contractor shall continue such replacement, Maintenance and Warranty until tree is acceptable.

E35.2 Materials

E35.2.1 Planting Soil

- (a) Planting Soil shall consist of black top soil, a fertile friable natural loam containing by volume not less than 4% and no more than 25% of organic matter for clay loams, and not less than 2% and no more than 25% for sandy loams, with an acidity value ranging from pH 6.0 to 8.0 and capable of sustaining vigorous plant growth. Topsoil is to be free of any mixture of subsoil, clay lumps and free of stones and other extraneous matter. It is not to contain couch or crab grass rhizomes.

E35.2.2 Mulch

- (a) Granite Mulch shall be locally available black granite mulch free of leaves, branches and other extraneous matter. The recommended mulch shall consist of chips not less than 15mm not larger than 75mm in size and not more than 20mm thick.
- (b) Enviro Mulch shall be Charcoal Black Colour, free of leaves, branches and other extraneous matter. The recommended mulch shall consist of chips not less than 15mm not larger than 75mm in size and not more than 20mm thick.
- (c) All other tree pit and planting area unspecified to be covered with Enviro Mulch free of leaves, branches and other extraneous matter. The recommended mulch shall consist of chips not less than 15mm not larger than 75mm in size and not more than 20mm thick.
- (d) Contact for Enviro Mulch:
St. Boniface Pallet Company
220 Panet Road
Winnipeg. MB R2J 0S3

Telephone No. (204) 233-0383
Facsimile No. (204) 233-6633
Email: info@stbpallet.com

E35.2.3 Miscellaneous Materials

- (a) Water shall be potable and free of minerals which may be detrimental to plant growth.
- (b) Stakes shall be metal T-Bar, steel, 40x40x5x2440mm.
- (c) Guying Wire shall be 3mm diameter multi-strand galvanized steel cable.
- (d) Guying Collar shall be plastic tube, 13mm diameter, nylon reinforced.
- (e) Trunk Protection shall be plastic perforated spiraled strip.
- (f) Fertilizer shall be a slow release formulation of low nitrogen and high phosphorus e.g. 10-50-12. Apply quantities at rates stated by product manufacturer.
- (g) Root Ball Burlap shall be 150 g Hessian burlap, biodegradable.
- (h) Wire Baskets shall be horticultural accepted product designed to carry the weight and to contain a burlap-covered root ball. Minimum diameter basket size is to conform to the same minimum diameter of the tree root ball for the respective minimum tree caliper sizes.

E35.2.4 Plant Material

- (a) Nomenclature of specified trees is to conform to the International Code of Nomenclature for Cultivated Plants and is to be in accordance with the approved scientific names given in the latest edition of the Standardized Plant Names.
- (b) Trees are to be characteristically developed for their species and structurally sound, well branched, healthy and vigorous and densely foliated when in leaf. The tree is to have a healthy, well developed, fibrous root system which may be verified through a testing procedure that destructively samples one or more randomly selected root balls.
- (c) Trees are to have been root pruned regularly, but not later than one growing season prior to arrival on Site. The Contractor may be required to furnish documentation to the client on their root-pruning program. Trees in excess of 75mm caliper are to have been half root pruned during each of two successive growing seasons, the latter at least, one growing season prior to arrival on Site.
- (d) All parts of the trees, especially the lower branches, are to be moist and show live, green cambium tissue when cut.
- (e) Trees are to have only one, sturdy, reasonably straight and vertical trunk, and a well balanced crown with fully developed leader.

- (f) Trees are to be free of disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5cm in diameter, major forks or crooks in the trunk, broken branches, or angled leaders. Trees having the above defects will not be accepted by the Contract Administrator.
- (g) Trees having a leader which has developed at a sharp angle to the trunk as a result of pruning or trunk damage will not be accepted.
- (h) Trees exhibiting suppressed, weakly developed branches due to competition from other closely spaced trees in the nursery will not be accepted. Trees exhibiting dead branches will not be accepted.
- (i) Any tree that has come out of dormant stage and is too far advanced will not be accepted unless prior approval obtained. Approval is required for any tree which has been held in cold storage.
- (j) Balled and burlapped trees in excess of a 3m height must have been dug with large firm ball. Roots in root balls must be comprised of 75% fibrous and feeder root systems. Secure root balls with burlap, heavy twine and rope. For trees 75mm or more in caliper, wrap ball in double layer of burlap and drum lace with minimum 10mm diameter rope. Protect root balls against sudden changes in temperature and exposure to heavy rainfall.
- (k) Tree spade dug trees are to be dug with mechanized digging equipment with hydraulic spade. Lift root ball from hole, place in wire basket designed for purpose and lined with burlap. Tie basket to ball with heavy rope. Take care not to injure trunk of tree with wire basket ties or rope.
- (l) Use of collected or native trees is not permitted.

E35.2.5 Tree Quantity and Size

- (a) Trees are to be planted at the quantities and caliper listed on the Plant Lists which are shown on the drawings. Any variation from the specified quantity is to be clearly identified on the Schedule of Prices. Any variations to species, size or caliper of specified trees will require a request for approval from the Contract Administrator.
- (b) Any changes in planting locations will be determined on-site by the Contract Administrator.
- (c) The Contractor shall supply trees as indicated in the Schedule of Prices and PLANT LISTS.
- (d) Trees are to conform to the measurements specified in the on drawing PLANT LISTS, except that trees larger than specified may be used if approved by the Contract Administrator.
- (e) Trees are to be measured when the branches are in their normal position. Height dimensions specified are to refer to the main body of the tree and not from branch tip to root base. Where trees have been measured by caliper or diameter, reference is to be made to the diameter of the trunk measured 15cm above the ground as the tree stands in the nursery prior to lifting. Caliper of tree shall be appropriately designed on a permanently fixed tag on one of the branches.

E35.2.6 Shipment and Pre-Planting Care

- (a) Coordinate shipping of trees and excavation of holes to ensure minimum time lapse between digging and planting.
- (b) Tie branches of trees securely, and protect trees against abrasion, exposure and extreme temperature change during transit. Avoid binding of trees with rope or wire which would damage bark, break branches or destroy natural shape of tree. Give full support to root ball of trees during lifting.

- (c) Cover tree foliage with tarpaulin, and protect bare roots by means of dampened straw, peat moss, saw dust or other acceptable material to prevent loss of moisture during transit and storage.
- (d) Remove broken and damaged roots with sharp pruning shears. Make clean cuts, and cover cuts over 10mm diameter with a tree wound dressing.
- (e) Keep roots moist and protected from sun and wind. Heel-in trees which cannot be planted immediately in shaded areas and water well.

E35.3 Construction Methods

E35.3.1 Workmanship

- (a) All areas and locations provided for planting shall be staked out or painted on Site by the Contractor according to layout shown on the Drawings. Excavation shall not proceed until the layout has been inspected and approved by the Contract Administrator. Excavation shall not be undertaken until all underground utilities have been located and protected.
- (b) Coordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto street pavement, grass or sidewalk.

E35.3.2 Planting Time

- (a) Plant deciduous trees during dormant period before buds have broken. Trees noted for spring planting only, must be planted in dormant period.
- (b) Plant only under conditions that are conducive to health and physical conditions of trees.
- (c) Provide planting schedule to Contract Administrator. Extending planting operations over long period using limited crew will not be accepted.
- (d) The Contractor must obtain all above and below ground clearances from all the utilities as well as the appropriate District Operations Branch in a timely manner so as not to jeopardize the schedule of the complete tree planting Contract.

E35.3.3 Excavation

- (a) Tree Pit to be dug with back hoe.
- (b) Excavate tree pits as indicated by stakes or paint marks.
- (c) Protect bottom of excavations against freezing.
- (d) Remove water which enters excavations prior to planting. Ensure source of water is not ground water and notify Contract Administrator.
- (e) Upon excavation of the planting bed, the excavation shall be backfilled with a topsoil mixture to a depth to permit adequate installation and stabilization of the plant material. Topsoil shall be placed in accordance with City of Winnipeg Standard Construction Specification CW 3540 to a 300mm depth

E35.3.4 Installation

- (a) Planting shall be done during periods of suitable weather conditions and in accordance with locally accepted practice.
- (b) Trees are to be planted within forty eight (48) hours of excavation from the nursery.
- (c) No tree pit is to be left open at the end of the Contractor's Work Day. Planting program is to be planned to ensure that all approved trees delivered to the Site at designated planting locations are installed and thoroughly watered the same day as delivery.
- (d) With balled and burlapped root balls and root balls in wire baskets, burlap shall be loosened and cut away from the top 1/3 without disturbing root ball. Wire shall be cut away and removed from the top 1/3 of the root ball. Burlap or rope shall not be pulled from under root ball. Non-biodegradable wrapping shall be removed.

- (e) After inserting the tree and tamping the root system with topsoil in layer of 150mm, water shall be poured in until the pit is thoroughly soaked. Filling of the hole shall then be completed and the fill-in soil shall be packed firmly around the roots, leaving a concave surface for convenient watering. After filling, the planting shall be watered at frequent intervals.
- (f) Each tree is to have an earth saucer at its base having a diameter as large as the excavation with a 10cm lip formed at the perimeter of the saucer to retain water.
- (g) All nursery stock shall be set plumb in the centre of pits and at levels as shown on the planting details after settlement has taken place.
- (h) Nursery stock shall be faced to give the best appearance or relationship to adjacent structure and to the approval of the The City of his representative. Trees shall be placed equal to depth they were originally growing in nursery.

E35.3.5 Supply and Installation of Mulch

- (a) Contractor to supply and install mulch in tree pit, planters and in areas as indicated in the Drawings. Mulch supplied shall cover entire planting area to a consistent depth of 100mm.

E35.3.6 Fertilizing

- (a) When planting is completed, give surface of planting saucer dressing of fertilizer meeting the requirements of Specification. Mix fertilizer thoroughly with top layer of planting soil and water in well.

E35.3.7 Trunk Protection

- (a) Install trunk protection on trees as indicated.
- (b) Install trunk protection prior to installation of tree supports when used.

E35.3.8 Pruning

- (a) The Contractor shall provide a licensed Manitoba Certified Arborist for each work crew or work site.
- (b) Employ clean sharp tools and make cuts flush with branch collars. Remove dead and injured branches.

E35.3.9 Watering

- (a) Trees are to be watered during the planting procedure as described previously, and once a week thereafter, or more frequently if required, during the growing season.
- (b) A complete record is to be kept of each series of waterings for all planted trees noting: 1) location, and 2) date of watering. This record shall be sent bi-weekly to Scatliff+Miller+Murray Inc. - Fax: (204) 927-3443.
- (c) Apply 40 litres of water per 25mm caliper per application using deep root feeder or low/pressure nozzle and hose. The water stream must not gouge out a hole in the soil and mulch.

E35.4 Method of Measurement

E35.4.1 Installation of trees and grasses shall be measured on a per unit basis. The amount to be paid for shall be the total number of trees and grasses supplied and installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E35.4.2 Crushed Black Granite Mulch shall be measured on an area basis. The area to be paid for shall be the total number of square meters of Crushed Black Granite Mulch, installed in

accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E35.4.3 Enviro Mulch in Existing Planting Bed shall be measured on an area basis. The area to be paid for shall be the total number of square meters of Enviro Mulch, installed in accordance with this Specification and the Construction Drawings, and as acceptable to the Contract Administrator.

E35.4.4 Enviro Mulch areas other than the Existing Planting Bed as indicated on drawing, shall be incidental to the measurement of Installation of trees and grasses. No separate measurement or payment shall be made.

E35.5 Basis of Payment

E35.5.1 Payment for Installation of trees and grasses shall be paid for at the Contract Unit Prices for the "Items of Work" listed below. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

Item of Work:

30 – Planting – Trees (c/w one year warranty and maintenance)

31 – Planting – Grasses (c/w one year warranty and maintenance)

E35.5.2 Crushed Black Granite Mulch will be paid for at the Contract Unit Prices per square meter for Item "Crushed Black Granite Mulch (19mm down, 100mm depth)" on Form B: Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E35.5.3 Enviro Mulch in Existing Planting Bed will be paid for at the Contract Unit Prices per square meter for Item "Enviro Mulch in Existing Planting Bed (100mm depth)" on Form B: Prices and measured as specified herein. This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E36. TOPSOIL AND SOD

E36.1 Description

E36.1.1 The specification shall amend and supplement City of Winnipeg specification CW 3510 "Sodding" and CW 3540 "Topsoil and Finish Grading for the Establishment of Turf Area".

E36.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:

(a) Supply and Installation of imported topsoil, to a minimum 75mm compacted thickness, for areas to be sodded.

(b) Supply and Installation of mineral sod as required.

E36.2 Materials and Construction Methods

E36.2.1 The Contractor shall install topsoil and sod in any existing area where material is removed and not re-established as directed by the Contract Administrator.

- E36.2.2 The Contractor shall install topsoil and sod around the perimeter of the newly constructed area to clean up turf disturbed by the Work. Sod and topsoil shall be installed as shown on Drawings a distance of a maximum of 500mm from the pathway as per Drawings.
- E36.2.3 Damaged areas: Restoration of damaged areas other than as outlined above shall be incidental to the Work. No separate payment shall be made. Restoration shall be achieved using sod and topsoil unless otherwise directed by the Contract Administrator.
- E36.3 Method of Measurement
- E36.3.1 Supply, placement and maintenance of topsoil and sod will be measured on an area basis. The area to be paid for shall be the total number of square meters placed and maintained in accordance with this Specification and accepted by the Contract Administrator.
- E36.3.2 Quantities of units are based on the proposed design drawings as supplied by the Contract Administrator.
- E36.4 Basis of Payment
- E36.4.1 Supply, placement and maintenance of topsoil and sod will be paid for at the Contract Unit Prices per square meter for Item "Sod (c/w 75mm depth Topsoil)" and "Sod Repair (c/w 75mm depth Topsoil)" on Form B: Price and measured as specified herein. This price shall be for full payment for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E37. NO-MOW TURF

- E37.1 Description
- E37.1.1 The specification shall amend and supplement City of Winnipeg specification CW 3510 "Sodding" and CW 3540 "Topsoil and Finish Grading for the Establishment of Turf Area."
- E37.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Supply and Installation of imported topsoil, to a minimum 75mm compacted thickness;
 - (b) Supply and Installation of no-mow turf as required.
- E37.2 Materials and Construction Methods
- E37.2.1 No-mow turf shall be a blend of Sheep's and Hard Fescue grasses
- E37.2.2 The Contractor shall install topsoil and no-mow turf in area as indicated on the Drawings.
- E37.3 Method of Measurement
- E37.3.1 Supply, placement and maintenance of topsoil and no-mow turf will be measured on an area basis. The area to be paid for shall be the total number of square meters placed and maintained in accordance with this Specification and accepted by the Contract Administrator.
- E37.3.2 Quantities of units are based on the proposed design drawings as supplied by the Contract Administrator.
- E37.4 Basis of Payment
- E37.4.1 Supply, placement and maintenance of topsoil and no-mow turf will be paid for at the Contract Unit Prices per square meter for Item "No-mow Turf (c/w 75mm depth Topsoil)" on Form B: Price and measured as specified herein. This price shall be for full payment for

supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E38. SURFACE RESTORATION

E38.1 Further to Section 3.3 of CW 1130, the Contractor shall temporarily repair any Work commenced and not completed in the 2016 construction season to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E39. SITE CLEAN UP

E39.1 The Contractor shall upon the completion of Work each day, load and dispose of all excess asphalt cuttings, spoiled concrete, reinforcing steel, granular and other material associated with the Works from the Site. The Contractor shall secure or remove all of his machinery and equipment at the end of each day from the immediate Work Site. The Contractor will not be permitted to store machinery, equipment, or materials on public roads overnight.

E39.2 Unless otherwise specified the Contractor shall restore all areas which have been disturbed by his operations to as good as or better than original condition including removal of all construction debris, repair all vegetation, sod, concrete pavement, concrete curbs, concrete sidewalk and asphalt paving to remain etc. to the satisfaction of the Contract Administrator.

E39.3 Total Performance of the Work shall not be attained until the Contractor has cleaned up the Site and has removed all tools, equipment, waste, debris and surplus foundation earth to the satisfaction of the Contract Administrator. Unless otherwise specified, the Contractor shall restore all areas of the Site beyond the established limit of Work, which have been disturbed by the Contractor's operations to as good as or better than the original condition to the satisfaction of the Contract Administrator.

E39.4 Sod and Topsoil (repair to damaged areas). The Contractor shall install mineral sod and a minimum 75mm compacted thickness of topsoil, as required, and in accordance with CW 3510 and CW 3540.

E39.5 Any costs in connection with Site Cleanup Works are considered incidental and no payment shall be made.