PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 321216 – Asphalt Paving

.2 Section 321313 – Concrete Paving

1.2 DESCRIPTION OF WORK

.1 The work performed and materials supplied under this section shall conform to the City of Winnipeg Standard Construction Specification CW 3110, latest edition for Sub-grade, Sub-base and Base Course Construction.

.2 The work described herein shall consist of the supply and construction of the sub-grade, sub-base and base course material.

PART 2 MATERIALS

2.1 SUB-GRADE, SUB-BASE AND BASE COURSE FOR SIDEWALK AND PAVEMENT AREAS

.1 Sub-base and base course materials shall be crushed limestone and conform to CW 3110, latest edition amended as follows:

1) Crushed limestone when subjected to the Los Angeles abrasion test shall have a loss of not more than thirty-two percent (32%).
2) Crushed limestone when subjected to the Magnesium Sulphate Soundness test shall have a loss of not more than eighteen percent (18%).

The sample material shall be crushed to 37.5 mm maximum aggregate size and tested in accordance with ASTM C131 - Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine and ASTM C88 - Soundness of Aggregates by Use of Magnesium Sulphate.

2.2 GEOTEXTILE

.1 Separation/reinforcement goetextile shall be Amoco 2006 woven fabric or equivalent approved by the Contract Administrator.

PART 3 EXECUTION

3.1 SUB-BASE AND BASE COURSE MATERIAL

.1 Sub-base and base course materials shall be placed and compacted as shown on the construction drawings, and as specified in CW 3110, latest edition.

3.2 SUB-GRADE PREPARATION

.1 Excavate and grade site as required to accommodate final pavement grades as shown on the construction drawings and as per CW 3110, latest edition. The Contractor shall make his own interpretation of the existing topography and investigate the site conditions to

calculate material volumes required to meet the proposed grades. Excess material shall be hauled off-site.

.2 Where fill is required to establish sub-grade elevations for new pavement areas, it shall be clean site or imported material free from silt and organic material. 50 mm-crushed limestone sub-base material shall be an approved equal to imported fill material.

.3 Prepare sub-grade in accordance with specifications and receive approval from Contract Administrator prior to commencing granular sub-base material placement. Contract Administrator shall perform Quality Control testing on the sub-grade material.

.4 In areas of unsuitable sub-grade, whether in a homogeneous mass or in isolated pockets, the excavation shall be extended either to the lower limit of the unsuitable material or to a depth as directed by the Contract Administrator. The Contractor shall obtain approval in writing from the Contract Administrator prior to excavating areas of unsuitable sub-grade.

.5 Contract Administrator approved areas of unsuitable sub-grade excavation, shall be backfilled with 150mm down crushed limestone over a separation/reinforcement woven geotextile fabric. Measurement for the removal and backfilling of unsuitable sub-grade material shall be measured on a volume basis by cross-sections taken prior to and after excavation and computed by the method of Average End Areas. Payment for the said work shall be based on a unit price per cubic metre for "Unsuitable Sub-Grade Excavation", as listed on Appendix 'B' Unit Prices of the Bid Form.

3.3 SUB-BASE COURSE MATERIAL

.1 Contractor to notify Contract Administrator of the completion of each compacted sub-base course material lift for Quality Control purposes. The Contract Administrator shall determine the testing frequency of each compacted layer during the construction process. Contractor shall not place additional granular material on the prepared lift until authorized by the Contract Administrator.

3.4 BASE COURSE MATERIAL

.1 Place and compact base course material to 100% Standard Proctor Density for the full width of the excavation unless shown otherwise on the construction drawings or as directed by the Contract Administrator.

.2 Contractor to notify Contract Administrator of the completion of each compacted base course material lift for Quality Control purposes. The Contract Administrator shall determine the testing frequency of each compacted layer during the construction process. Contractor shall not place additional granular material on the prepared lift until authorized by the Contract Administrator.

3.5 QUALITY CONTROL

.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic review and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any review 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 this Specification.

.2 The Contract Administrator shall be afforded full access for the site reviews and testing of materials, both at the site of work and at any plant or borrow pit used for the supply of the materials, to determine whether the material is being supplied in accordance with this Specification.

.3 Quality Control Tests shall be in accordance with CAN 2.4.2-M77 or ASTM D4632, D4533, D4833, D3786, D4491 and D4751.

PART 4 MEASUREMENT AND PAYMENT

4.1 SUB-GRADE, SUB-BASE AND BASE COURSE CONSTRUCTION

.1 Measurement and payment for Section 321123, Granular Base Courses shall be included with the project total Lump Sum Price and in accordance with Part A – Bid Submission of the Contract documents for Bid Opportunity No. 832-2007 – Construction of Bronx Park Community Centre and Home of Good Neighbours Senior Centre Winnipeg Manitoba.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 321123 – Granular Base Courses

1.2 DESCRIPTION OF WORK

.1 The work performed and materials supplied under this section shall conform to the City of Winnipeg Works and Operations Division, Standard Construction Specifications CW 3410, latest edition except as amended in these Specifications.

.2 The work described herein shall consist of the construction of asphaltic concrete pavement works including but not limited to the furnishing of all supervision, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all works herein after specified.

PART 2 MATERIALS

2.1 ASPHALTIC CONCRETE PAVEMENT

.1 Type 1A surface course for all asphalt pavement shown on the construction drawings and in accordance with Standard Specification CW 3410, latest edition.

PART 3 EXECUTION

3.1 PLACING ASPHALTIC CONCRETE PAVING MIXTURE

.1 The mixture shall be placed in two lifts. The first lift shall be placed such that the final lift or surface course is of uniform thickness and of minimum thickness of 40 mm.

3.2 QUALITY CONTROL

.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic review and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any review 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 this Specification.

.2 The Contract Administrator shall be afforded full access for the site reviews and testing of materials, both at the site of work and at any plant or borrow pit used for the supply of the materials, to determine whether the material is being supplied in accordance with this Specification. The Contract Administrator shall determine the testing frequency and location of required testing.

PART 4 MEASUREMENT AND PAYMENT

4.1 ASPHALTIC CONCRETE PAVEMENT WORKS

.1 Measurement and payment for Section 321216, Asphalt Paving shall be included with the project total Lump Sum Price and in accordance with Part A – Bid Submission of the Contract documents for Bid Opportunity No. 832-2007 – Construction of Bronx Park Community Centre and Home of Good Neighbours Senior Centre Winnipeg Manitoba.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 321123 – Granular Base Courses

1.2 DESCRIPTION OF WORK

.1 The work performed under this section shall conform to the City of Winnipeg Standard Construction Specifications CW 3310 and CW 3325, latest edition, except as amended in these Specifications.

.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all supervision, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of the construction of concrete approaches, sidewalks, curb and gutter, bullnoses, and related works.

PART 2 PRODUCTS

2.1 CEMENT

.1 All cement shall be type 10 Normal Portland Cement conforming to the requirements of CSA A5, Portland Cement. Cement shall be kept in weather tight storage that will protect if from moisture and contamination, and in such a manner as to permit inspection, sampling and identification, where required, of each lot. Note: Cement for concrete to be used for underground structures and works shall be in accordance with CW 2160, latest edition.

2.2 LIQUID MEMBRANE – FORMING CURING COMPOUND

.1 Curing compound shall be Type 2, white-pigmented, and water based liquid membrane-forming curing compound conforming to the requirements of ASTM Standard C309.

PART 3 EXECUTION

3.1 MIX DESIGN STATEMENT

.1 The Contractor shall submit a Mix Design Statement certifying the constituent materials and mix proportions that are proposed for use in the Portland Cement Concrete for approval by the Contract Administrator.

3.2 CONCRETE PLACEMENT

.1 No concrete shall be placed until the Contract Administrator has examined and approved the layout of the forms, reinforcing steel, dowels, tie bars and joints and the condition and grade of the compacted base course.

3.3 CONCRETE FINISHING

.1 Upon completion of finishing operations, and when excessive moisture has evaporated, the plastic surface of the entire approaches, curb, curb and gutter, carry-through, bullnoses, and sidewalk shall be given a textured finish by means of broom finishing with a steel or fibre broom of a type approved by the Contract Administrator at right angles to the direction of traffic. Surface depressions introduced by the broom strands in the brooming operations shall not be more than 3 mm deep.

3.4 CONCRETE CURING

.1 Immediately following concrete finishing and after any excess moisture due to bleeding has evaporated, the surface of the concrete shall be uniformly treated with a white-pigmented water based liquid membrane-forming curing compound, in accordance with the manufacturer's recommendations. The rate of application shall not be less than that recommended by the manufacturer. Where forms are used, as soon as the side forms are stripped, the edges of all concrete slabs shall be sprayed with liquid membrane-forming curing compound.

.2 After application, the white-pigmented liquid membrane-forming curing compound shall be protected as per the manufacturer's recommendations from rain or snow.

3.5 ADDING OF WATER AND/ OR AIR ENTRAINING ADMIXTURE

.1 After initial mixing no water and/or air entraining admixture may be added except if, at the start of discharge the measured slump of the concrete or the measured air content of the concrete is less than that specified and no more than 60 minutes have elapsed from the time of batching to the start of discharge. Water added shall not exceed 12 litres per cubic metre as measured by an approved measuring device.

.2 Air entraining admixture shall be added as required to meet specified allowable air content ranges. The mixer drum shall be turned a minimum of 30 revolutions at mixing speed and the slump and air content shall be retested.

3.6 BACKFILL BEHIND CURBS

.1 Place and compact suitable clay, till or granular material behind back of curbs up to a minimum 1.0 m wide and 100 mm below top of curb. Material shall be compacted to minimum 95% Standard Proctor Density.

PART 4 MEASUREMENT AND PAYMENT

4.1 PORTLAND CEMENT CONCRETE WORKS

.1 Measurement and payment for Section 321313, Concrete Paving shall be included with the project total Lump Sum Price and in accordance with Part A – Bid Submission of the Contract documents for Bid Opportunity No. 832-2007 – Construction of Bronx Park Community Centre and Home of Good Neighbours Senior Centre Winnipeg Manitoba.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 This Specification shall cover the supply and installation of unit pavers. 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 in accordance with City of Winnipeg specification CW3330-R3.

1.2 RELATED SECTIONS

.1 Section 31 22 13 - Rough Grading

.2 Section 32 16 15 - Concrete Walks, Curbs, and Gutters

1.3 MEASUREMENT PROCEDURES

.1 Unit paving will be measured for payment in square metres.

Part 2 Products

2.1 MATERIALS

.1 All materials shall be supplied in accordance with CW 3330-R3 and this specification

.2 All pavers shall be uniform in material, colour, size, and from one manufacturer.

.3 Unit pavers, as shown on the drawings, shall be:

.1 Barkman Concrete Holland Stone, colour: brown

.2 Barkman Concrete Holland Stone, colour: natural

Part 3 Execution

3.1 GENERAL

.1 Installation of unit pavers shall be as show on the drawings and as per CW 3330-R3.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 This specification shall cover all Work associated with the construction of concrete pavement and sidewalks, concrete curbs, and gutters. The Contractor shall furnish all superintendence, overhead, labour, excavation, base course preparation, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified. This specification shall supplement CW3310-R11 and CW3325-R2.

1.2 RELATED SECTIONS

.1 Section 31 22 13 - Rough Grading

.2 Section 32 14 10 - Unit Paving on Sand Bed

.3 Section 32 12 16 - Asphalt Paving

.4 CW 3110-R10 – Sub-Grade, Sub-Base and Base Course Construction

1.3 MEASUREMENT and PAYMENT PROCEDURES

.1 Concrete pavement and side walks: will be measured in square metres, which shall include all costs, including excavation, sub-base and base course preparation.

.2 Concrete curbs: will be measured in linear metres, which shall include all costs, including excavation, sub-base and base course preparation.

.3 Concrete gutters: will be measured in linear metres, which shall include all costs, including excavation, sub-base and base course preparation.

Part 2 Products

MATERIALS

.1 Material supply shall be as shown on the drawings and as per CW3310-R11 and CW3325-R2, and all other applicable City of Winnipeg Specifications, whether listed herein or not.

Part 3 Execution

3.1 GENERAL

.1 All work shall be undertaken in accordance with the drawings, CW3310-R11 and CW3325-R2, and all other applicable City of Winnipeg Specifications, whether listed herein or not.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDE

.1 This Specification shall cover the supply and installation of chain link fencing and gates. 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 in accordance with City of Winnipeg specification CW3550-R2. The specification shall supplement CW3550-R2.

1.2 MEASUREMENT PROCEDURES

.1 Supply and installation of chain link fence shall be measured in lineal metres for completed work, accepted by the Contract Administrator.

.2 Supply and installation of chain link fences gates shall be measured by the total number of gates installed, accepted by the Contract Administrator

Part 2 Products

2.1 MATERIAL

.1 All material shall be supplied in accordance with the drawings and CW3550-R2.

Part 3 Execution

3.1 INSTALLATION

.1 Installation of chain link fence and gates shall be as shown on the drawings and in accordance with CW 3550-R2.

END OF SECTION

□

Part 1 General

1.1 SECTION INCLUDES

.1 This specification shall cover the supply and installation of play equipment, play area surfacing, and site furnishings. The Contractor shall furnish 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 specified herein.

.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.

1.2 RELATED SECTIONS

.1 Section 31 22 13 - Rough Grading

.2 Section 06 10 10 – Landscape Rough Carpentry

1.3 MEASUREMENT PROCEDURES

.1 Supply and installation of play equipment under this section shall be measured on a unit basis for completed work, accepted by the Contract Administrator.

1.4 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures. Shop drawings shall clearly show all product and location dimensions, sizes, colour, layout, assembly, anchorage and installation details for all play equipment and areas specified.

Shop drawings must be approved by the Contract Administrator prior to ordering material and play equipment.

.3 All play equipment shall include the supply of maintenance kits for care and cleaning of play equipment for incorporation into manual. 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.

Part 2 Products

2.1 GENERAL

.1 All fabrication cuts, drill holes and weld joints shall be sprayed with a corrosion resistant coating prior to powder coating. The bottom end of the posts is to be sealed with a moisture barrier.

.2 All powder coating finishes shall meet or exceed ASTM standards for hardness, adhesion, impact and salt spray resistance.

.3 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

.4 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.

2.2 PLAY STRUCTURE

.1 Play Structure, as supplied by Crozier Enterprises Ltd., manufactured by PlayCore Inc., Part # CPSP-111307,"Custom POWERSCAPE accessible structure with 5" steel uprights", or approved Equal in accordance with B6.

.2 Contact for PlayCore Inc.

Farley Boutet
Sales Consultant
Crozier Enterprises Ltd.
8-1865 Sargent Avenue
Winnipeg, MB R3H 0E4

Telephone No. 1-800-665-3821 (Toll Free)
Telephone No. 1-204-774-6084
Facsimile No. 1-204-774-6099

.3 Structure shall meet City of Winnipeg Accessibility Design Standard, copies of which may be downloaded at: http://winnipeg.ca/ppd/pdf_files/Access_Design_Standards.pdf

.4 Metal Slide shall have North or East Orientation.

2.3 INDEPENDENT PLAY EQUIPMENT

.1 Independent Play Equipment, as supplied by Crozier Enterprises Ltd., manufactured by PlayCore Inc., as hereinafter specified, or approved Equal in accordance with B6.

.1 Part #6201 Tilted Sky Runner
.2 Part #3358 Free Standing Steering Wheel
.3 Part # 6142 Titled Whirlwind Seat
.4 Part #396 GameTime Saddle Mate Spring Toy – Mini Bike
.5 Part # 6415 Space Loop Climb Overhead
.6 CS 2 Coil Spring (for existing spring rider)

2.4 WOOD FIBRE SURFACING

.1 Wood Fibre product shall be Zeager Woodcarpet, or approved Equal in accordance with B6.

.2 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

.3 Wood Fibre surfacing shall include wood fibre, filter cloth, subsurface drainage system and mats for bottom of slides, if applicable, and under swings.

2.5 SWING STANDARD AND SEATS

.1 Swing Standard, as supplied by Crozier Enterprises Ltd., as hereinafter specified, or approved Equal in accordance with B6.

.1 Part # 12583C PrimeTime Swing – Powder Coated 3.5" inch frames

.2 Part # 12584C PrimeTime Swing – bay

.3 2 - #8693 Enclosed Tot Seats

2.6 BASKETBALL STANDARD

.1 Basketball Standard, as supplied by M3 Contracting Ltd. (o/a Playground-R-Us), manufactured by SportsPlay Inc., Model #541-616,"Heavy Duty Basketball Standard", or approved Equal in accordance with B6.

.2 Contact for SportsPlay Basketball Standard:

Jodi Marr
Sales Manager
M3 Contracting Ltd. / Playground-R-Us
250 Transport Road
Box 7, Grp 582, R.R. #5
Winnipeg, MB R2C 2Z2

Telephone No. 1-204-632-7000
Facsimile No. 1-204-632-7421

2.7 BASKETBALL HOOP

.1 Basketball Hoop, as supplied by M3 Contracting Ltd. (o/a Playground-R-Us), manufactured by Landscape Structure Inc., Model #10042A,"Drop Shot Basketball Hoop", or approved Equal in accordance with B6.

2.8 WELLNESS STATION

.1 Wellness Station, as supplied by The Playground Guys, manufactured by Playworld System Inc., " Model - Life Trail Outdoor Wellness Station Custom Design #076338.JEF", or approved Equal in accordance with B6.

.2 Contact for Playworld System Inc.:

Jeff Jackson
Territory Manager (Saskatchewan/Manitoba)
The Playground Guys
1735 Arthur Street
Regina, Saskatchewan
S4T 4W4

Telephone No. 1-866-757-5502 (Toll Free)
Telephone No. 1-306-352-7597
Facsimile No. 1-306-359-1457

2.9 PLAY EQUIPMENT FOUNDATIONS

.1 All play equipment (including, play structure, independent play equipment, swing standard, basketball standard, wellness station) posts, bases and anchors are to be set in concrete footings or piles to ensure stability and prevent frost heaving. The current Standard Construction Specifications of the City of Winnipeg, CW 2160-R4 - Concrete to be used in Underground Works, is to be utilized in the installation of the concrete works for all below ground components.

.2 The specific concrete requirements shall be:

.1 Sulfate resistant, Type 50 Cement;

.2 28 day compressive strength of 30 Mpa;

.3 maximum aggregate size of 20mm, nominal;

.4 slump 80 +/- 20mm;

.5 maximum water/cement ratio 0.49.

2.10 CITY OF WINNIPEG SITE FURNISHINGS

.1 Benches shall be Tache Bench Composite with Arms, as shown on the drawings

.2 Picnic Tables shall be Wheelchair Tache Style Metal Frame, modified to meet COW Accessibility Design Standards, c/w composite timber members, as shown on the drawings.

.3 Waste receptacles shall be Metal Slat Style, as shown on the drawings.

.4 City of Winnipeg Equipment shall be purchased by the Contractor through the following contact:

Aaron Lennon
Supervisor of Central Repair/Manufacturing Facility
City of Winnipeg
Fleet Management Agency Division
Public Works Department
215 Tecumseh St
Winnipeg. MB R3E 3S4

Telephone No. (204) 986-5505
Facsimile No. (204) 986-1248

Part 3 Execution

3.1 EQUIPMENT AND FURNISHINGS INSTALLATION

.1 The Contractor shall submit shop drawings clearing showing equipment and location for review and approval by Contract Administrator prior to installation.

.2 Play Equipment and site furnishings shall be located and installed in accordance with the Drawings and installed plumb and true to correct elevations.

.3 Play equipment shall be installed as per manufacturer's specifications and in accordance with the most recent Canadian Standards Association Standards. Install manufacturer's standard fittings, concrete footings, anchors, galvanized fastenings and installation hardware as required to ensure solid, durable, finished Work suitable for the purpose intended.

.4 All posts and other vertical items shall be plumb and true to vertical, if so designed.

.5 Benches shall be installed level. All play decks shall be level, if so designed.

.6 Swing seats shall not be installed until protective und surfacing has been installed.

.7 Install CS 2 Coil Spring for existing spring rider as per manufacturer's specifications and in accordance with Canadian Standards Association Standards.

.8 Contractor shall notify the Contract Administrator at least 48 hours prior to installation of concrete, so that footings may be inspected in advance of concrete being poured.

.9 All posts, supports and anchors shall have a minimum 300mm (12") diameter concrete foundations/footings and shall be centered in the concrete footing to provide a minimum 50mm (2") band of concrete on all sides.

.10 All play equipment concrete foundations/footings shall be a minimum of 3' depth, or in accordance with manufacturer's specifications, whichever is greater.

.11 All play equipment concrete foundations/footings shall be buried a minimum 75mm (3") below the top of protective surface where applicable; and have top corners rounded and all rough edges removed according to CSA standards.

.12 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.

.13 Impervious seal to be applied around all in-ground components, to prevent water seepage, as per manufacturer's specifications.

.14 Play Area Protective surfacing shall be installed to the depths shown on the drawings and as per manufacturer's specifications.

.15 Protect and maintain play equipment, including accessories, until acceptance of project work.

.16 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.

.17 Immediately remove from site, damaged equipment and accessories. Replace, repair, re-finish, or otherwise make good to approval of Contract Administrator.

3.2 WOOD FIBRE SURFACING

.1 Wood Fibre shall be installed within the play area, as defined by the timber edging (supplied and installed by others), to a minimum depth of 200 mm. In play areas where maximum fall height is greater than 2.4m (8'), depth of material to directly correspond to maximum fall height of play equipment in accordance with manufacturer's specifications.

.2 The installation of the Wood Fibre shall be done immediately after the play equipment has been installed.

.3 Installation of entire system, including fibre, filter cloth, subsurface drainage and mats shall be done according manufacturer's instructions. Adequate drainage within play equipment area must be ensured as per same.

.4 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.

END OF SECTION

Part 1 General

1.1 WORK INCLUDED

.1 This specification shall cover planting bed preparation. 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 specified.

1.2 RELATED WORK

.1 32 93 10 – Trees, Shrubs, and Ground Cover Planting

1.3 MEASUREMENT FOR PAYMENT

.1 Planting Bed Preparation will be measured on a square meter basis, as accepted by the Contract Administrator.

.2 Preparation of Raised Planter will be measured on a per unit basis as accepted by the Contract Administrator.

Part 2 Products

2.1 MATERIALS

.1 Planting Soil - General: 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.

.2 Tree Mulch: locally available Tree mulch, free of soil, stones or other deleterious material

.3 Water: potable and free of minerals which may be detrimental to plant growth.

.4 Insulation: planter insulation shall be 37mm thick rigid Styrofoam

.5 Waterproofing: planter waterproofing shall be “Bituthene 3000” membrane

.6 Filter Cloth: filter cloth to be Terra Fix 270R or approved equal.

.7 Watering Pipes: watering pipes to be perforated 100mm diameter (No.6) drain tile

.8 Granular: granular shall be clean and washed granite aggregate free of fine and small particles. Aggregate sizes to be no less than 25mm and no greater than 38mm diameter. Sample of granular base to be provided to Contract Administrator for approval prior to shipment to site.

Part 3 Execution

3.1 PLANTING BED PREPARATION

.1 The Contractor shall co-ordinate site excavation works with landscaping to ensure minimal additional excavation for shrub beds. All remaining areas to be excavated shall be to the shape shown on the drawings. Beds shall be excavated to the finished depth (including tree mulch) shown on drawings.

.2 Excavation shall be filled with soil mixture. After filling, excavation of top of bed shall be level with surrounding grade. Soil should be firmly compacted and indicated soil depths shall be depths after light compaction.

.3 All areas and locations provided for planting shall be staked 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.

.4 The contractor shall provide a planting bed with a crisp spade edge (where appropriate) around the existing shrubs and tree, complete with weed barrier, topsoil and bark mulch as indicated on the drawing.

3.2 RAISED PLANTER PREPARATION

.1 For planting beds in raised planters install waterproofing, pea gravel, filter cloth, and Styrofoam insulation in the planters as shown on the drawings. Install topsoil to within 100 mm of top planter and tree mulch to within 50mm of top of planter.

3.3 TREE WELLS

.1 The Contractor shall co-ordinate excavation / fill works for tree wells to ensure minimal additional excavation for tree wells required by Landscape Sub-contractor. Tree wells shall be excavated to the finished depths and widths as shown on drawings.

.2 Sub-grade shall be scarified to a minimum depth of 200mm.

.3 Excavation shall be filled with soil mixture. After filling, top of soil shall be level with surrounding grade, as determined by the Contract Administrator. Soil should be lightly compacted and indicated soil depths shall be depths after light compaction.

3.4 INSTALLATION OF MULCH

.1 Bark mulch shall be spread to a consistent depth over entire planting bed area, taking care not to damage the plants.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 This specification shall cover the supply, installation and maintenance of trees, shrubs and groundcovers. The Contractor shall furnish all labour, materials, equipment and services necessary to complete the work as shown on the drawings and specified herein.

1.2 RELATED WORK

.1 Section 31 22 13 - Rough Grading

.2 Section 32 93 09 - Plant Bed Preparation

.3 CW 3540-R5 – Topsoil and Finish Grading for Establishment of Turf Areas

1.3 REFERENCES

.1 Install trees, shrubs and ground covers work in accordance with the Canadian Standards for Nursery Stock Current Edition, published by the Canadian Nursery Trades Association, except where specified otherwise.

1.4 MEASUREMENT FOR PAYMENT

.1 Trees, Shrubs and Groundcovers will be measured on a per unit basis. The amount to be paid for shall be the total number of trees, shrubs and groundcovers supplied and installed in accordance with this specification, the drawings and as accepted by the Contract Administrator.

1.5 SOURCE QUALITY CONTROL

.1 All plant material shall be randomly inspected at the source upon request of the Contract Administrator.

.2 Trees are to be grown in nurseries under proper cultural practices as recommended by the Canadian Nursery Trades Association.

.3 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.

1.6 MAINTENANCE

.1 The Contractor shall be responsible for the maintenance of the planted material for a period of one (1) year from the date of Substantial 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.

.2 Water to ensure soil moisture conditions for optimum growth and health of plant material. Ensure watering techniques do not cause erosion.

.3 Reform damaged watering saucers.

.4 Remove weeds bi-monthly.

.5 Replace or re-spread damaged, missing or disturbed mulch.

.6 For non-mulched areas, cultivate monthly to keep top layer of soil friable.

.7 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.

.8 Apply fertilizer as directed by manufacturer’s specifications.

.9 Remove dead, broken or hazardous branches from plant material.

.10 Keep trunk protection and tree supports in proper repair and adjustment.

.11 Remove trunk protection, tree supports and level watering saucers at end of warranty period.

.12 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.

.13 Submit monthly written reports to Contract Administrator identifying:

.1 Maintenance work carried out.

.2 Development and condition of plant material.

.3 Preventative or corrective measures required which are outside Contractor's responsibility.

1.7 WARRANTY

.1 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.

.2 End-of-Warranty inspection will be conducted by the Contract Administrator.

.3 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.

1.8 REPLACEMENTS

.1 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.

.2 The Contractor shall extend Maintenance and Warranty on replacement tree for a period equal to the original Maintenance and Warranty Periods.

.3 The Contractor shall continue such replacement, Maintenance and Warranty until tree is acceptable.

Part 2 Products

2.1 MATERIALS

.1 Water shall be potable and free of minerals which may be detrimental to plant growth.

.2 Stakes shall be metal T-Bar, steel, 40x40x5x2440mm.

.3 Guying Wire shall be 3mm diameter multi-strand galvanized steel cable

.4 Guying Collar shall be plastic tube, 13mm diameter, nylon reinforced

.5 Trunk Protection shall be plastic perforated spiraled strip.

.6 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.

.7 Planting Soil shall be as per specification 02905 - Plant Bed Preparation.

.8 Root Ball Burlap shall be 150 g Hessian burlap, biodegradable.

.9 Anti-desiccant shall be a wax-like emulsion to provide film over tree leaf surfaces reducing evaporation but permeable enough to permit transpiration.

.10 Wound Dressing shall be a horticultural accepted non-toxic, non-hardening emulsion.

.11 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.

2.2 PLANT MATERIAL

.1 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.

.2 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.

.3 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 75 mm 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.

.4 All parts of the trees, especially the lower branches, are to be moist and show live, green cambium tissue when cut.

.5 Trees are to have only one, sturdy, reasonably straight and vertical trunk, and a well balanced crown with fully developed leader.

.6 Trees are to be free of disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5 cm 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.

.7 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.

.8 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.

.9 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.

.10 Balled and burlapped trees in excess of a 3 m 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 75 mm or more in caliper, wrap ball in double layer of burlap and drum lace with minimum 10 mm diameter rope. Protect root balls against sudden changes in temperature and exposure to heavy rainfall.

.11 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.

.12 Use of collected or native trees is not permitted.

2.3 TREE QUANTITY AND SIZE

.1 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.

.2 Any changes in planting locations will be determined on-site by the Contract Administrator.

.3 The Contractor shall supply trees as indicated in the Schedule of Prices and PLANT LISTS.

.4 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.

.5 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 15 cm 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.

2.4 SHIPMENT AND PRE-PLANTING CARE

.1 Coordinate shipping of trees and excavation of holes to ensure minimum time lapse between digging and planting.

.2 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.

.3 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.

.4 Remove broken and damaged roots with sharp pruning shears. Make clean cuts, and cover cuts over 10 mm diameter with a tree wound dressing.

.5 Keep roots moist and protected from sun and wind. Heel-in trees which cannot be planted immediately in shaded areas and water well.

Part 3 Execution

3.1 WORKMANSHIP

.1 Location of trees will be staked out or painted on Site by the Contractor. Locations shall be approved by the Contract Administrator prior to installation.

.2 Apply anti-desiccant in accordance with material manufacturer's instructions with prior approval of the Contract Administrator.

.3 Coordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto street pavement, grass or sidewalk.

3.2 PLANTING TIME

.1 Plant deciduous trees during dormant period before buds have broken. Trees noted for spring planting only, must be planted in dormant period.

.2 When permission has been obtained from the Contract Administrator to plant deciduous trees after buds have broken, spray plants with anti-desiccant to slow down transpiration prior to transplanting.

.3 Plant only under conditions that are conducive to health and physical conditions of trees.

.4 Provide planting schedule to Contract Administrator. Extending planting operations over long period using limited crew will not be accepted.

.5 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.

3.3 EXCAVATION

.1 Refer to Section 32 93 09 – Plant Bed Preparation for preparation of planting beds.

.2 Excavate planting pits as indicated by stakes or paint marks.

.3 Protect bottom of excavations against freezing.

.4 Remove water which enters excavations prior to planting. Ensure source of water is not ground water and notify Contract Administrator.

3.4 INSTALLATION

.1 Planting shall be done during periods of suitable weather conditions and in accordance with locally accepted practice.

.2 Trees are to be planted within forty eight (48) hours of excavation from the nursery.

.3 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.

.4 Loosen bottom of planting hole to depth of 100 - 150 mm. Cover bottom of each excavation with minimum of 150 mm topsoil mixture, incorporate with subgrade material.

.5 Plant trees vertically. Orient trees to give best appearance in relation to structure, roads and sidewalks.

.6 Place trees to depth equal to depth they were originally growing in nursery.

.7 With balled and burlapped root balls and root balls in wire baskets, loosen burlap and cut away the top 1/3 without disturbing root ball. Do not pull burlap or rope from under root ball. Non-biodegradable wrapping must be removed.

.8 Tamp planting soil around root system in layers of 150 mm eliminating air voids. Frozen or saturated planting soil is unacceptable. When 2/3 of planting soil has been placed, fill hole with water. After water has completely penetrated soil, complete backfilling.

.9 Each tree is to have an earth saucer at its base having a diameter as large as the excavation with a 10 cm lip formed at the perimeter of the saucer to retain water.

3.5 FERTILIZING

.1 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.

3.6 TRUNK PROTECTION

.1 Install trunk protection on trees as indicated

.2 Install trunk protection prior to installation of tree supports when used.

3.7 PRUNING

.1 The Contractor shall provide a Manitoba Certified Arborist for each work crew or work site.

.2 Prune trees after planting to compensate for loss of roots suffered during transplanting. Postpone pruning of those trees where heavy bleeding may occur, until in full leaf. Employ clean sharp tools and make cuts flush with main and secondary branch collars, smooth and sloping as to prevent accumulation of water.

.3 Remove projecting stumps on trunks or main branches. Remove dead and injured branches and branches that rub causing damage to bark. Trim out crown of trees without changing their natural shape. Do not damage lead branches or remove smaller twigs along main branches.

.4 Treat cuts in excess of 20 mm diameter and damaged parts with application of industry approved tree wound dressing.

3.8 WATERING

.1 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.

.2 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 the Scatliff+Miller+Murray - Fax: (204) 927-3443.

.3 Apply 40 litres of water per 25 mm 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.

END OF SECTION