

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C117-95, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C131-96, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - .3 ASTM C136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .4 ASTM D698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
 - .5 ASTM D1557-00, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft³) (2,700kN-m/m³).
 - .6 ASTM D1883-99, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
 - .7 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
- .2 .Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
- .3 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Metric.
- .4 City of Winnipeg (CW)
 - .1 City of Winnipeg Standard Construction Specifications.

1.2 DELIVERY, STORAGE AND HANDLING

- .1 Deliver and stockpile aggregates in locations that are accessible to construction, but will not damage existing structures or landscape designated to remain. Stockpile minimum 50% of total aggregate required prior to beginning operations.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate metal, plastic, wood and corrugated cardboard packing and place in designated areas for disposal or recycling in accordance with Section 01 74 00 – Cleaning and Waste Management.

Part 2 Products

2.1 GRANULAR BASE MATERIAL

- .1 Class 'A' and Class 'B' aggregate in accordance with The City of Winnipeg Standard Construction Specifications CW 3110.

Part 3 Execution

3.1 PLACING

- .1 Place granular base after subgrade is inspected and approved by the Contract Administrator.
- .2 Construct granular base to depth and grade in areas indicated on drawings.
- .3 Ensure no frozen material is placed.
- .4 Place material only on clean, unfrozen surface, free from snow and ice.
- .5 Place granular base materials using methods which do not lead to segregation or degradation.
- .6 For spreading and shaping material, use spreader boxes having adjustable templates or screens which will place material in uniform layers of required thickness.
- .7 Place material to full width in uniform layers not exceeding 150mm compacted thickness.
- .8 Contract Administrator may authorize thicker lifts (layers) if specified compaction can be achieved.
- .9 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .10 Remove and replace that portion of layer in which material becomes segregated during spreading.

3.2 COMPACTION

- .1 Compact to density of not less than 98% corrected maximum dry density.
- .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
- .3 Apply water as necessary during compacting to obtain specified density.
- .4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Contract Administrator.
- .5 Compaction along building edges, curb faces, and around utilities to be completed with vibratory rammer (jumping jack).
- .6 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.3 SITE TOLERANCES

- .1 Finished base surface to be within 10 mm of elevation as indicated, but not uniformly high or low.

3.4 CLEANING

- .1 Perform cleaning after aggregate base course installation to remove construction and accumulated environmental dirt. Remove surplus materials, excess materials, rubbish, tools and equipment.

3.5 ACCEPTANCE

- .1 Obtain final approval of aggregate base courses via site inspection with the Contract Administrator.

3.6 PROTECTION

- .1 Maintain finished base in condition conforming to this section until succeeding base is constructed, or until granular base is accepted by the Contract Administrator.

END OF SECTION

Part 1 General

1.1 DESCRIPTION

- .1 Provide all labour, materials, methods, equipment and accessories for the construction of asphalt paving for parking lots, driveways, pathways, and playing surfaces as indicated.

1.2 RELATED SECTIONS

- .1 Section 32 11 23 – Aggregate Base Courses.

1.3 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves Testing, Woven Wire, Metric.
 - .3 CAN/CGSB-16.3-M90, Asphalt Cements for Road Purposes.
- .2 City of Winnipeg (CW)
 - .1 City of Winnipeg Standard Construction Specifications.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate metal, plastic, wood and corrugated cardboard packing and place in designated areas for disposal or recycling in accordance with Section 01 74 00 – Cleaning and Waste Management.

Part 2 Products

2.1 MATERIALS

- .1 Asphalt pavement: materials to conform to requirements of the City of Winnipeg Standard Construction Specifications CW 3410.

Part 3 Execution

3.1 PREPARATION

- .1 Shape or regrade granular base course as necessary to meet design grades.
- .2 Obtain approval of aggregate base course installations prior to proceeding with asphalt installation.

- .3 Apply prime coat and tack coat.
- .4 Prior to laying mix, clean surfaces of loose and foreign material.

3.2 ASPHALT

- .1 Supply, place, and compact asphalt in accordance with the City of Winnipeg Standard Construction Specifications CW 3410.
- .2 Typical Asphalt Paving Sections:
 - .1 Heavy Duty Asphalt: Driveways, Parking Lot Drive Lanes, Fire Truck Access Area and Approach
 - .1 100mm Asphalt, 375mm granular base
 - .2 Compact subgrade to 95% St. proctor and base to 98% St. proctor.
 - .3 Geotextile where necessary due to silt or soft spots.
 - .2 Light Duty Asphalt: Parking Stalls, Zamboni Travel Lane, Pedestrian Plaza and Walkways/Paths designated on drawings
 - .1 50mm Asphalt, 200mm granular base.
 - .2 Compact subgrade to 95% St. proctor and base to 98% St. proctor.
 - .3 Geotextile where necessary due to silt or soft spots.
 - .3 Outdoor Play Surface Asphalt: Area within the outdoor skating enclosure – not including within the players boxes as indicated on drawings
 - .1 75mm Type II asphalt pavement to City of Winnipeg Standard 3410.
 - .2 100mm compacted, crushed 19mm-down limestone base course to City of Winnipeg Standard 3110
 - .3 200mm compacted, crushed 50mm-down limestone sub base course to City of Winnipeg Standard 3110
 - .4 Compacted sub-grade to City of Winnipeg Standard 3110.
 - .4 Outdoor Play Surface – within the players boxes as indicated on drawings
 - .1 100mm compacted, crushed 19mm-down limestone base course to City of Winnipeg Standard 3110.
 - .2 200mm compacted, crushed 50mm-down limestone sub base course to City of Winnipeg Standard 3110/
 - .3 Geo-textile fabric.
 - .4 Compacted sub-grade to City of Winnipeg Standard 3110.

3.3 JOINTS

- .1 General:

- .1 Remove surplus material from surface of previously laid strip. Do not deposit on surface of freshly laid strip.
- .2 Construct joints between asphalt concrete pavement and Portland cement concrete pavement as indicated.
- .3 Paint contact surfaces of existing structures such as manholes, curbs or gutters with bituminous material prior to placing adjacent pavement.

.2 Transverse Joints:

- .1 Offset transverse joint in succeeding lifts by at least 600mm (2'-0")
- .2 Cut back to full depth vertical face and tack face with thin coat of hot asphalt prior to continuing paving.
- .3 Compact transverse joints to provide smooth playing surface. Use industry standard methods to prevent rounding of compacted surface at joints.

.3 Longitudinal Joints:

- .1 Offset longitudinal joints in succeeding lifts by at least at least 150mm (6").
- .2 Cold joint is defined as joint where asphalt mix is placed, compacted and left to cool below 100 degrees C, prior to paving of adjacent lane.
- .3 If cold joint cannot be avoided, cut back by saw cutting previously laid lane, by at least 150mm (6"), to full depth vertical face, and tack face with thin coat of hot asphalt of adjacent lane.
- .4 Overlap previously laid strip with spreader by 50mm (2").
- .5 Before rolling, carefully remove and discard coarse aggregate in material overlapping joint with lute or rake.
- .6 Roll longitudinal joints directly behind paving operation.
- .7 When rolling with static or vibratory rollers, have most of drum width ride on newly placed lane with remaining 150mm (6") extending onto previously placed and compacted lane.

3.4 FINISH TOLERANCES

- .1 Finished asphalt surface to be within 6mm (1/4") of design elevation, but not uniformly high or low.
- .2 Finished asphalt surface not to have irregularities exceeding 6mm (1/4") when checked with 4.88m (16'-0") straight edge placed in any direction.

3.5 DEFECTIVE WORK

- .1 Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required. If irregularities or defects remain after final

compaction, remove surface course promptly and lay new material to form true and even surface and compact immediately to specified density.

- .2 Repair areas showing checking, rippling, or segregation.
- .3 Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Materials and installation of standard manufactured catalogue items such as bike racks, bollards, parking wheel stops, waste receptacles, tables and benches.

1.2 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.
- .3 Indicate dimensions, sizes, assembly, anchorage and installation details for each furnishing specified.
- .4 Provide maintenance data for care and cleaning of site furnishings for incorporation into manual specified in Section 01 78 10 – Closeout Submittals.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 00 – Cleaning and Waste Management.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Fold up metal banding, flatten and place in designated area for recycling.

Part 2 Products

2.1 BOLLARDS

- .1 R-8410-RA Fixed bollard, 35.5" high x 4.5" wide, powdercoat finish as supplied by Reliance Foundry Co. Ltd., Unit 207, 6450 – 148 Street, Surrey, BC., phone 1-888-735-5680, www.reliance-foundry.com or approved equal.

2.2 SCHEDULE OF FURNISHINGS

Item	Name	Quantity	Mounting
2.2 BOLLARDS	R-8410-RA, Fixed bollard, Reliance Foundry Co. Ltd., or approved equal	2 Locations T.B.D.	Embedded

Part 3 Execution

3.1 INSTALLATION

- .1 Assemble furnishings in accordance with manufacturer's instructions.

- .2 Install furnishings true, plumb, anchored and firmly supported.
- .3 Touch-up damaged finishes to approval of the Contract Administrator.

END OF SECTION

Part 1 General

1.1 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements.

1.2 SOURCE QUALITY CONTROL

- .1 Advise Contract Administrator of sources of topsoil to be utilized 7 days in advance of stating time.
- .2 Contractor is responsible for soil analysis and requirements for amendments to supply topsoil as specified.
- .3 Soil testing by recognized testing facility for PH, P and K, and organic matter.

Part 2 Products

2.1 TOPSOIL

- .1 All topsoil required shall consist of a screened clay-textured or loam-textured dark topsoil, a fertile, friable material neither of heavy clay nor of very light sandy nature containing by volume, a minimum of four (4%) percent for clay loams and two (2%) percent for sandy loams to a maximum twenty-five (25%) percent organic matter (peat, rotted manure or composted material) and capable of sustaining vigorous plant growth.
- .2 Topsoil shall be free of subsoil contamination, roots, stones over 25mm in diameter, baler twine or subsoil clay lumps over 25mm in diameter and other extraneous matter.
- .3 Topsoil shall not contain quackgrass rhizomes, Canada thistle roots or other noxious weeds.
- .4 Upon delivery or thirty (30) days following delivery, salinity rating shall be less than 4.0mm hos/cm on a saturated paste basis. The pH range shall be between 6.0 - 8.0.
- .5 Topsoil may be either on-site topsoil or imported topsoil.
- .6 On-site topsoil which has been stockpiled, can be reused providing that it is shredded or screened prior to being re-spread and that it meets the requirements specified above for topsoil.
- .7 Topsoil shall not be blow-in dirt taken from wind erosion sites and topsoil shall not be taken from fields abandoned to corn production where such soil may contain soil incorporated herbicides, such as eradican and atrazine with lasting residual effects.

- .8 The Contractor shall inform the Contract Administrator of proposed source of topsoil to be supplied. The Contract Administrator reserves the right to reject topsoil not conforming to the requirements of this Specification.

2.2 FERTILIZER

- .1 Chemical fertilizer with an N-P-K analysis of 1-2-1 ratio at a rate to provide 48 kg actual Nitrogen, 96 kg actual Phosphate and 48 kg actual Potassium per hectare.
- .2 Fertilizer shall be standard commercial brands meeting the requirements of the Canada Fertilizer Act and the Canadian Fertilizer Quality Assurance Program.
- .3 All fertilizers shall be granular, pelletized or pill form, and shall be dry and free flowing.

Part 3 Execution

3.1 SITE SAFETY AND TRAFFIC CONTROL

- .1 Where work is to be done in boulevard and median areas adjacent to roadways, the Contractor shall maintain traffic and ensure that protection is afforded to the road user and that the Contractor's operations in no way interfere with the safe operation of traffic.
- .2 The Contractor shall supply, erect and maintain all applicable traffic control devices in accordance with the provisions of the latest edition of the Manual of Temporary Traffic Control in Work Areas on City Streets issued by the Public Works Department of the City of Winnipeg.

3.2 PREPARATION OF EXISTING GRADE

- .1 Subsoil shall be graded in accordance with Specification CW 3110 to eliminate uneven areas and low spots, ensuring positive drainage. Any soil contaminated by toxic materials shall be removed and disposed off site.
- .2 All surface debris, roots, vegetation, branches and stones in excess of 25mm shall be removed.
- .3 Grades on the area to receive topsoil that have been previously established in conformance with the
- .4 Construction Drawings and/or other applicable specifications shall be maintained in a true and even grade.
- .5 Prior to placing topsoil, all sub-grade areas within athletic fields and all athletic field "run out" areas as Identified on the construction drawings shall be scarified to a minimum depth of 75mm.
- .6 Topsoil shall be manually spread around trees, shrubs and other obstacles.
- .7 The Contractor shall ensure that topsoil does not come in contact with new asphaltic concrete pavement that is less than 2 weeks old.

3.3 APPLICATION OF FERTILIZER

- .1 The Contractor shall provide the Contract Administrator with a report for each work site indicating the fertilizer formulation used, the rate of application and the date of application.
- .2 Fertilizer shall be spread uniformly over the entire area of topsoil at a rate to provide 48 kg actual Nitrogen, 96 kg actual Phosphate and 48 kg actual Potassium per hectare.

3.4 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

- .1 Place topsoil after Contract Administrator has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 150 mm, over unfrozen subgrade free of standing water.
- .3 For sodded areas keep topsoil 50/100 mm below finished grade.
- .4 Spread topsoil as indicated to following minimum depths after settlement and 80% compaction:
 - .1 150 mm for seeded areas.
 - .2 135 mm for sodded areas.
 - .3 300 mm for flower beds.
 - .4 500 mm for shrub beds.
- .5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.5 FINISH GRADING AND ROLLING

- .1 The area shall be fine graded and the topsoil loosened. Eliminate rough spots and low areas to ensure positive drainage. Prepare a loose friable bed by means of cultivation and subsequent raking.
- .2 Topsoil shall be rolled with a mechanical roller of a minimum weight of 220kg, minimum width of 760mm roller, to consolidate it in areas to be seeded or sodded, leaving the surface smooth, uniform and firm against deep foot printing and to the satisfaction of the Contract Administrator.

3.6 ACCEPTANCE

- .1 Contract Administrator will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading. Approval of topsoil material subject to soil testing and analysis.
- .2 Testing of topsoil will be carried out by testing laboratory designated by Contract Administrator. Soil sampling, testing and analysis to be in accordance with Provincial regulations and standards. Contract Administrator will pay for cost of tests as specified in Section 01 45 00 – Quality Control.

3.7 RESTORATION OF STOCKPILE SITES

- .1 Restore stockpile sites acceptable to Contract Administrator.

3.8 SURPLUS MATERIAL

- .1 Dispose of materials not required where directed by Contract Administrator.

3.9 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 In accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit:
 - .1 Sod for each type specified.
 - .1 Install approved samples in one square metre mock-ups and maintain in accordance with maintenance requirements during establishment period.
 - .2 Bio-degradable geotextile fabric.
- .3 Obtain approval of samples by Contract Administrator.

1.2 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements.

1.3 SCHEDULING

- .1 Schedule sod installation when frost has left ground and Before June 15 or between August 15 and September 30.
- .2 Schedule sod laying to coincide with preparation of soil surface.

Part 2 Products

2.1 MATERIALS

- .1 Number One Turf Grass Nursery Sod: sod that has been especially sown and cultivated in nursery fields as turf grass crop.
 - .1 Number one Named Cultivars: Nursery Sod grown from certified seed.
 - .2 The Contractor shall supply turf grass sod with a mineral soil layer containing a minimum of seventy (70%) percent inorganic soil. Upon delivery or thirty (30) days following delivery, the salinity rating shall be less than 4.0 mm hos/cm on a saturated paste basis. The pH range shall be between 6.0 – 8.0. Sod supplied shall have been sown in nursery fields with Canada Certified No. 1 or Canada
 - .3 Certified No. 2 grass seed and mixed by percentage (%) of weight to meet the following certified seed blends or mixtures:
 - .4 Turf Grass Nursery Sod Quality:
 - .1 Shall not contain more than ten (10) broadleaf weeds per fifty (50) square metres
 - .2 Shall have been mowed to a height of 50 mm prior to delivery and be of sufficient density that no surface soil will be visible

- .3 Shall have a uniform inorganic soil layer thickness of not less than 12 mm and not greater than 19 mm and shall be consistent throughout all loads delivered to the work site
 - .4 Shall have the organic thatch layer within the sod not exceed an uncompressed thickness of 12 mm and in all cases, the final rolled and compacted topsoil/sod growing medium shall be maintained at not less than 100 mm in depth.
- .2 Sod establishment support:
- .1 Geotextile fabric: biodegradable, 25 mm square mesh.
 - .2 Wooden pegs: 17 x 8 x 250 mm.
- .3 Water:
- .1 Supplied by Contract Administrator at designated source.
 - .2 Potable, free of impurities.
- .4 Fertilizer:
- .1 To Canada "Fertilizers Act" and "Fertilizers Regulations".
 - .2 Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.

2.2 SOURCE QUALITY CONTROL

- .1 Obtain approval from Contract Administrator of sod at source.
- .2 When proposed source of sod is approved, use no other source without written authorization.

Part 3 Execution

3.1 PREPARATION

- .1 Verify that grades are correct and prepared in accordance with Section 32 91 19.13 - Topsoil Placement and Grading. If discrepancies occur, notify Contract Administrator.
- .2 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.
- .3 Fine grade surface free of humps and hollows to smooth, even grade, to contours and elevations indicated, to tolerance of plus or minus 8 mm, for Turfgrass Nursery Sod, and plus or minus 15 mm for commercial grade turfgrass nursery, surface to drain naturally.
- .4 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site in location as directed by Contract Administrator.
- .5 Cultivate fine grade approved by Contract Administrator to 25mm depth immediately prior to sodding.

3.2 SOD PLACEMENT

- .1 The sod shall be placed evenly and closely packed together, leaving no open joints and no overlap on adjacent pieces of sod. Joints in adjacent rows shall be staggered, as shown in City of Winnipeg Standard Detail SD-243. A full row of

- sod, not less than 450 mm in width shall be placed along the perimeter of the sodded area, parallel to planting or walkway areas.
- .2 Where big roll sod is to be placed, the Contractor shall ensure that any reinforcement netting that may be used to assist with the harvesting and/or placement of the sod roll is removed before final placement of the sod.
 - .3 On embankments, sod shall be placed lengthwise across the face of the slope. On slopes of 1 vertical to 3 horizontal (18 degrees) or steeper, in every second row on the slope and at the foot of the slope, each piece of sod shall be pegged with two minimum 250 mm long wooden pegs driven into the soil layer of the sod.
 - .4 For slopes of 1 vertical to 2 horizontal (26 degrees) or steeper, each piece of sod in every row shall be pegged as indicated above.
 - .5 Small, broken or irregular pieces of sod will be rejected.
 - .6 All visible joints, low, bare or dead spots shall be repaired to the satisfaction of the Contract Administrator prior to the commencement of the Thirty (30) Day Maintenance Period
 - .7 Sodding operations shall be completed within two working days after placing the sod. This shall be deemed to include watering, rolling, and repairing any visible joints and low, bare or dead spots within the sodded area.
 - .8 Sod shall not be placed in a frozen state, or when any other conditions unfavourable to the successful transplanting of sod exist.
 - .9 The Contractor shall not place sod after September 15 unless the Contract Administrator gives written approval to proceed.
 - .10 Should the Contract Administrator provide written approval to, or direct the Contractor to place sod after September 15, and termination of the sod maintenance period is not achieved in that same year, the Contractor will not be held responsible for sod damage over the winter due to winter-kill, ice damage, sand/salt applications on adjacent streets or from snow removal or spring clean-up equipment. When the Contract Administrator provides written approval, or direction to the Contractor to place the sod after September 15, the City will assume all costs related to the spring replacement of sod damaged over the winter provided that the layover was due only to the late season start and not defective sod or maintenance not conforming to this Specification.
 - .11 Where the Contractor places sod prior to September 15, and termination of the sod maintenance period is not achieved in that same year, the Contractor shall be responsible for replacement of any sod damaged over the winter due to winter-kill, ice damage, sand/salt applications on adjacent streets, or from snow removal or spring clean-up equipment.

3.3

WATERING AND ROLLING

- .1 Immediately after placement of sod, the Contractor shall water the area in sufficient quantities and frequencies required to obtain root development and sod growth. All costs to provide water for sodded areas shall be borne by the Contractor. These costs may include hydrant permit and meter rental fees.
- .2 After the sod and topsoil has dried sufficiently to prevent damage, the areas shall be rolled (the edges pounded if necessary) with a mechanical roller minimum weight of 220kg and minimum width of 760mm to form a uniform even surface and level with adjoining existing grades, sidewalks and curbs.
- .3 Heavy rolling to correct irregularities in grade will not be permitted. Sodded areas near existing fixtures that are unable to be rolled shall be thoroughly tamped to ensure a good bond between topsoil and sod.

3.4

COMMENCEMENT OF MAINTENANCE PERIOD

- .1 Immediately after the sod has been placed to the satisfaction of the Contract Administrator, the Contractor shall provide and pay for continuous maintenance of the sodded area until the criteria specified for termination of the maintenance period has been met.
- .2 The Contract Administrator will not allow the Thirty (30) Day Maintenance Period to commence until the following requirements are met:
 - .1 Written approval has been granted by the Contract Administrator to place sod if after September 15.
 - .2 The nursery sod supplied meets the seed mixture requirement specified above.
 - .3 The sod is free of bare and dead spots.
 - .4 The nursery sod does not contain more than 10 broadleaf weeds per 50 square metres.
 - .5 Sodded area has been rolled to form a firm, uniform even surface.
 - .6 The sod has sufficient shoot density that no surface soil is visible within sod.
 - .7 The height of the top growth of the sod is between 50 - 60 mm.
 - .8 The sodded area is free of any visual obstructions such as leaves.
 - .9 Sodded area is free of any turf damaging insects.
- .3 Any deficient, damaged or vandalized areas shall be re-sodded by the Contractor within three working days after receiving notification from the Contract Administrator and the area so re-sodded, shall be further maintained until it meets the criteria specified below.
- .4 In situations where the start of the Thirty (30) Day Maintenance Period is not granted by the Contract Administrator before the end of a growing season, the Thirty (30) Day Maintenance Period will commence on May 15 of the following year or such date as is mutually agreed upon by all parties, at which time all sodded areas must meet the requirements listed above.

3.5

MAINTENANCE OF SODDED AREA

- .1 The Contractor shall mow the turf area at regular intervals to a height of between 50 - 60 mm. Do not cut more than thirty (30%) percent of the grass height at any one mowing. Remove clippings that will smother grassed areas.
- .2 The Contractor shall water sodded areas in sufficient quantities and frequencies required to maintain sod growth. All costs to provide water for sodded areas shall be borne by the Contractor. These costs may include hydrant permit and meter rental fees.
- .3 The Contractor shall clean and remove all dead vegetation, leaves, debris and snowmold from turf areas to encourage healthy and uniform grass growth.
- .4 Given the need for weed control, the Contractor shall have in his possession a Pesticide Applicator's License and a Pesticide Use Permit for pesticide applications related to this Specification.
- .5 The Contractor shall apply herbicide when broadleaf weeds start developing in competition with grass. Apply herbicide in accordance with the City of Winnipeg Weed Control Standards and Procedures, manufacturer's instructions and the Manitoba Agriculture Guide to Crop Protection and Herbicide Recommendations for Landscape Applicators, latest editions and the following criteria:
- .6 The Contractor shall mow the turf area at regular intervals to a height of between 50 - 60 mm. Do not cut more than thirty (30%) percent of the grass height at any one mowing. Remove clippings that will smother grassed areas.
- .7 The Contractor shall water sodded areas in sufficient quantities and frequencies required to maintain sod growth. All costs to provide water for sodded areas shall

be borne by the Contractor. These costs may include hydrant permit and meter rental fees.

- .8 The Contractor shall clean and remove all dead vegetation, leaves, debris and snowmold from turf areas to encourage healthy and uniform grass growth.
- .9 Given the need for weed control, the Contractor shall have in his possession a Pesticide Applicator's License and a Pesticide Use Permit for pesticide applications related to this Specification.
- .10 The Contractor shall apply herbicide when broadleaf weeds start developing in competition with grass. Apply herbicide in accordance with the City of Winnipeg Weed Control Standards and Procedures, manufacturer's instructions and the Manitoba Agriculture Guide to Crop Protection and Herbicide Recommendations for Landscape Applicators, latest editions and the following criteria:
 - .1 Use 2,4-D Amine or MCPA Amine herbicide for susceptible broadleaf weeds.
 - .2 ii. Use a mixture containing 2,4-D Amine or MCPA Amine, Mecoprop and Dicamba for 2,4-D resistant plants.
 - .3 Do not apply to newly seeded turf until after the second or third mowing.
 - .4 Do not water within 24 hours after application.
 - .5 Apply when winds are less than 20 km/h and air temperature is above 10° (degrees) Celsius.
 - .6 Avoid use of pure Dicamba solutions near trees and shrubs.
- .11 Given the need for insect control, the Contractor shall have in his possession a Pesticide Applicator's License and a Pesticide Use Permit for pesticide applications related to this Specification. Use standard commercial products in accordance with the manufacturer's instructions and the Manitoba Agriculture Guide to Crop Protection (latest edition) for the particular insect/insects involved.
- .12 Copies of the Pesticide Applicator's License and the Pesticide Use Permit must be submitted to the Contract Administrator prior to commencement of pesticide application.
- .13 All persons handling pesticides shall be fully aware of toxicological rules and regulations governing their use.
- .14 The Contractor shall inform the Contract Administrator immediately of any dangerous occurrence.

3.6 SPRING CLEANUP

- .1 Where termination of the sod maintenance period has not been achieved prior to the end of a growing season, the Contractor shall complete all operations related to the clean-up of the work area in the following spring. This shall include the cleaning and removal of all dead vegetation, leaves, debris, snowmold and any sand or gravel resulting from winter sanding/deicing operations from turf areas to encourage healthy and uniform grass growth.
- .2 All costs for spring clean-up operations shall be borne by the Contractor if in the previous year, the termination of the sod maintenance period was not achieved in that same year or where the damage was due to defective sod or maintenance not conforming to this Specification.

3.7 TERMINATION OF MAINTENANCE PERIOD

- .1 The Contract Administrator will terminate the sod maintenance period after the following criteria has been met:
 - .1 The work site is clean and the sodded area is free of any visual obstructions such as leaves.

- .2 The sod is free of bare and dead spots and without more than 10 broadleaf weeds per 50 square metres.
- .3 Grass roots are well anchored into the underlying topsoil and the sodded area has established into a healthy, vigorously growing condition.
- .4 Sodded areas are free of visible joints.
- .5 The sod has sufficient shoot density that no surface soil is visible when the grass has been cut to a height of 50 – 60 mm.
- .6 Sodded area has been cut to a height of 50 – 60 mm within two working days before the final inspection.
- .7 Sodded area is free of any turf damaging insects.
- .2 If the sodded area does not meet the above criteria, the deficient area shall be resodded within three working days after receiving notification from the Contract Administrator and maintained by and at the expense of the Contractor.
- .3 In situations where the termination of the maintenance period is not granted by the Contract Administrator before the end of a growing season, the maintenance period will commence as described above.

3.8

CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION