

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA S350-M1980 (R1998), Code of Practice for Safety in Demolition of Structures.

1.2 SUBMITTALS

- .1 Before proceeding with demolition of load bearing or any other walls and where required by authority having jurisdiction submit for review by Contract Administrator.

1.3 SITE CONDITIONS

- .1 Review designated substance report and take precautions to protect environment.
- .2 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Contract Administrator immediately.
 - .1 Do not proceed until written instructions have been received from Contract Administrator.
- .3 Notify Contract Administrator before disrupting building access or services.

Part 2 Execution

2.1 PROTECTION

- .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and parts of building to remain in place. Provide bracing and shoring required.
- .2 Keep noise, dust, and inconvenience to occupants to a minimum.
- .3 Protect building systems, services and equipment.
- .4 Provide temporary dust screens, covers, railings, supports and other protection as required by relevant authorities.

2.2 DEMOLITION

- .1 Demolition and construction activities shall be in accordance with NBC 1995, Part 8.

2.3 DEMOLITION SALVAGE AND DISPOSAL

- .1 Remove parts of existing building(s) to permit new construction. Sort selected materials into appropriate piles for reuse and recycling.
- .2 Refer to drawings and specifications for items to be salvaged for reuse.
 - .1 Salvage glazing & metal panels removed from outdoor exhibit.
 - .2 Salvage steel guardrails & handrails from landings.
 - .3 Salvage steel guardrails & handrails from perimeter of seating area above indoor exhibit. Remove in largest possible lengths in order to be reused on new steel stairs.
- .3 Remove items to be reused, store as directed by Contract Administrator, and re-install under appropriate section of specification.
- .4 Trim edges of partially demolished building elements to tolerances as defined by Contract Administrator to suit future use.
- .5 Dispose of removed materials, except where specified otherwise, in accordance with authority having jurisdiction.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C117-95, Standard Test Method for Material Finer Than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D422-98, Standard Test Method for Particle-Size Analysis of Soils.
 - .4 ASTM D698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³) (600 kN-m/m³).
 - .5 ASTM D1557-00, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³) (2,700 kN-m/m³).
 - .6 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.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A3000-98-A5-98, Portland Cement.
 - .2 CAN/CSA-A23.1-00, Concrete Materials and Methods of Concrete Construction.

1.2 DEFINITIONS

- .1 Excavation classes: two classes of excavation will be recognized; common excavation and rock excavation.
 - .1 Rock: any solid material in excess of 0.25 m³ and which cannot be removed by means of heavy duty mechanical excavating equipment with 0.95 to 1.15 m³ bucket. Frozen material not classified as rock.
 - .2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.
- .2 Unclassified excavation: excavation of deposits of whatever character encountered in Work.

- .3 Topsoil: material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
- .4 Waste material: excavated material unsuitable for use in Work or surplus to requirements.
- .5 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.
- .6 Unsuitable materials:
 - .1 Weak and compressible materials under excavated areas.
 - .2 Frost susceptible materials under excavated areas.
 - .3 Frost susceptible materials:
 - .1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D422 and ASTM C136: Sieve sizes to CAN/CGSB-8.1 CAN/CGSB-8.2.
 - .2 Table

Sieve Designation	% Passing
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 45
 - .3 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.
- .7 Unshrinkable fill: very weak mixture of Portland cement, concrete aggregates and water that resists settlement when placed in utility trenches, and capable of being readily excavated.

1.3 SUBMITTALS

- .1 Samples:
 - .1 Submit 70 kg samples of type of fill specified.

1.4 PROTECTION OF EXISTING FEATURES

- .1 Protect existing features in accordance with Section 01560 - Temporary Barriers and Enclosures and applicable local regulations.
- .2 Existing buried utilities and structures:

- .1 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.
 - .2 Prior to commencing excavation Work, notify Contract Administrator or authorities having jurisdiction, establish location and state of use of buried utilities and structures. Contract Administrator or authorities having jurisdiction to clearly mark such locations to prevent disturbance during Work.
 - .3 Confirm locations of buried utilities by careful test excavations.
 - .4 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered
 - .5 Where utility lines or structures exist in area of excavation, obtain direction of Contract Administrator before removing / re-routing.
 - .6 Record location of maintained, re-routed and abandoned underground lines.
 - .7 Confirm locations of recent excavations adjacent to area of excavation.
- .3 Existing buildings and surface features:
- .1 Conduct, with Contract Administrator, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, survey bench marks and monuments which may be affected by Work.
 - .2 Protect existing buildings and surface features from damage while Work is in progress. In event of damage, immediately make repair to approval of Contract Administrator.

Part 2 Products

2.1 MATERIALS

- .1 Type 1 and Type 2 fill: properties to the following requirements:

- .1 Crushed, pit run or screened stone, gravel or sand.
- .2 Gradations to be within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.1, CAN/CGSB-8.2.

.3 Table

Sieve Designation	% Passing	
	Type 1	Type 2
75 mm	-	100
50 mm	-	-
37.5 mm	-	-
25 mm	100	-

Sieve Designation	% Passing	
	Type 1	Type 2
19 mm	75-100	-
12.5 mm	-	-
9.5 mm	50-100	-
4.75 mm	30-70	22-85
2.00 mm	20-45	-
0.425 mm	10-25	5-30
0.180 mm	-	-
0.075 mm	3-8	0-10

- .2 Type 3 fill: selected material from excavation or other sources, approved by Contract Administrator for use intended, unfrozen and free from rocks larger than 75 mm, cinders, ashes, sods, refuse or other deleterious materials.

Part 3 Execution

3.1 SITE PREPARATION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .2 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.2 STRIPPING OF TOPSOIL

- .1 Commence topsoil stripping of areas as directed by Contract Administrator after area has been cleared of brush, weeds, and grasses and removed from site.
- .2 Strip topsoil to depths as directed by Contract Administrator. Do not mix topsoil with subsoil.
- .3 Stockpile in locations as directed by Contract Administrator. Stockpile height not to exceed 2 m.
- .4 Dispose of unused topsoil as directed by Contract Administrator.

3.3 STOCKPILING

- .1 Stockpile fill materials in areas designated by Contract Administrator. Stockpile granular materials in manner to prevent segregation.
- .2 Protect fill materials from contamination.

3.4 DEWATERING AND HEAVE PREVENTION

- .1 Keep excavations free of water while Work is in progress.
- .2 Submit for Contract Administrator's approval details of proposed dewatering or heave prevention methods, such as dikes, well points, and sheet pile cut-offs.
- .3 Avoid excavation below groundwater table if quick condition or heave is likely to occur. Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.
- .4 Protect open excavations against flooding and damage due to surface run-off.
- .5 Dispose of water in manner not detrimental to public and private property, or any portion of Work completed or under construction.
- .6 Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, water courses or drainage areas.

3.5 EXCAVATION

- .1 Excavate to lines, grades, elevations and dimensions as indicated.
- .2 Excavation must not interfere with bearing capacity of adjacent foundations.
- .3 Do not disturb soil within branch spread of trees or shrubs that are to remain. If excavating through roots, excavate by hand and cut roots with sharp axe or saw.
- .4 For trench excavation, unless otherwise authorized by Contract Administrator in writing, do not excavate more than 100' of trench in advance of installation operations and do not leave open more than 50' at end of day's operation.
- .5 Keep excavated and stockpiled materials a safe distance away from edge of trench as directed by Contract Administrator.
- .6 Restrict vehicle operations directly adjacent to open trenches.
- .7 Dispose of surplus and unsuitable excavated material in approved location on site or off site as directed by Contract Administrator.
- .8 Do not obstruct flow of surface drainage or natural watercourses.
- .9 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

- .10 Notify Contract Administrator when bottom of excavation is reached.
- .11 Obtain Contract Administrator approval of completed excavation.
- .12 Remove unsuitable material from trench bottom to extent and depth as directed by Contract Administrator.
- .13 Correct unauthorized over-excavation as follows:
 - .1 Fill under bearing surfaces and footings with fill concrete.
 - .2 Fill under other areas with fill compacted to not less than 95 % of corrected maximum dry density. Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil. Clean out rock seams and fill with concrete mortar or grout to approval of Contract Administrator.

3.6 FILL TYPES AND COMPACTION

- .1 Use fill of types as indicated.

3.7 BEDDING AND SURROUND OF UNDERGROUND SERVICES

- .1 Place and compact granular material for bedding and surround of underground services as indicated.
- .2 Place bedding and surround material in unfrozen condition.

3.8 BACKFILLING

- .1 Do not proceed with backfilling operations until Contract Administrator has inspected and approved installations.
- .2 Areas to be backfilled to be free from debris, snow, ice, water and frozen earth.
- .3 Do not use backfill material which is frozen or contains ice, snow or debris.
- .4 Place backfill material in uniform layers not exceeding 150 mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.
- .5 Backfilling around installations.
 - .1 Place bedding and surround material as specified.
 - .2 Do not backfill around or over cast-in-place concrete within 24 hours after placing of concrete.

- .3 Place layers simultaneously on both sides of installed Work to equalize loading. Where temporary unbalanced earth pressures are liable to develop on walls or other structures:
 - .1 Permit concrete to cure for minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure and approval has been obtained from Contract Administrator or:
 - .2 If approved by Contract Administrator, erect bracing or shoring to counteract unbalance, and leave in place until removal is approved by Contract Administrator.
- .6 Compaction: compact each layer of material to the following densities for material to ASTM D 698-00a.
 - .1 To underside of basecourses: 95%.
 - .2 Basecourses: 100%.
 - .3 Elsewhere: 90%.
 - .4 Under slabs and paving:
 - .1 Use 95% up to bottom of granular base courses.
 - .2 Use 98% for base courses.
 - .5 In trenches:
 - .1 Up to 12" above pipe or conduit: sand placed by hand.
 - .2 Over 12" above pipe or conduit: native material approved by Contract Administrator.
 - .6 Under seeded and sodded areas: use site excavated material to bottom of proposed topsoil levels except in trenches and within acceptable distances of foundation.
 - .7 Against foundations (except as applicable to trenches and under slabs and paving): excavated material or imported material with no stones larger than 8" diameter within 24" of structures.
 - .8 Crawl space floor: cover graded crawl space "floor" within 2" thickness of coarse construction sand over 6 mil black polyethylene moisture barrier taped at all seams and penetrations and to perimeter with red 3M Contractors' sheathing tape minimum 2" wide. Provide continuous preserved wood batten and ramset strapping into concrete beam. Staple poly to batten at 8" centres. Trim poly to leave excess approximately equal to width of batten.

3.9 RESTORATION

- .1 Upon completion of Work, remove waste materials and debris, trim slopes, and correct defects as directed by Contract Administrator.

- .2 Replace topsoil as directed by Contract Administrator.
- .3 Reinstall lawns to elevation which existed before excavation unless otherwise noted in drawings and/or specification.
- .4 Reinstall pavements and sidewalks disturbed by excavation to thickness, structure and elevation which existed before excavation unless otherwise noted in drawings and/or specification.
- .5 Clean and reinstall areas affected by Work as directed by Contract Administrator.

END OF SECTION

Part 1 General

1.1 DESCRIPTION

- .1 Hot mix Asphalt Pavement will be supplied and installed in accordance with City of Winnipeg Standard Construction Specification CW 3410-R5 "Asphaltic Concrete Pavement Works".

Part 2 Products

2.1 MATERIALS

- .1 Hot mix Asphalt Pavement will be Type 1A as specified and to a thickness of 75 mm (3") as shown on the drawings.

Part 3 Execution

3.1 CONSTRUCTION METHODS

- .1 Hot mix Asphalt Pavement will be supplied and installed in accordance with the lines, grades and thickness shown on the Construction Drawings and to City of Winnipeg Standard Construction Specification CW 3410-R5. Asphalt shall be placed in one lift.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D698-91(1998), Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.2-98, Boiled Linseed Oil.
 - .2 CAN/CGSB-3.3-99, Kerosene.
- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1/A23.204, Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.

Part 2 Products

2.1 MATERIALS

- .1 Concrete mixes and materials: to Section 03300 - Cast-in-Place Concrete.
- .2 Joint filler Curing Compound: to Section 03300 - Cast-in-Place Concrete.
- .3 Granular base: to Section 02315 - Excavating, Trenching and Backfilling.
- .4 Non-staining mineral type form release agent: chemically active release agents containing compounds that react with free lime to provide water soluble soap.
- .5 Fill material: to Section 02315 - Excavating, Trenching and Backfilling.
- .6 Boiled linseed oil: to CAN/CGSB-1.2.
- .7 48" x 15" x 4" Pebble Stone Concrete Splash Pad - Supplied by Barkman Concrete (204) 667-3310 or approved equal in accordance with B6.

Part 3 Execution

3.1 GRADE PREPARATION

- .1 Do grade preparation work in accordance with Section 02315 - Excavating, Trenching and Backfilling.
- .2 Construct embankments using excavated material free from organic matter or other objectionable materials. Dispose of surplus and unsuitable excavated material as directed by Contract Administrator.
- .3 Place fill in maximum 150 mm layers and compact to at least 95% of maximum density to ASTM D698.

3.2 GRANULAR BASE

- .1 Obtain Contract Administrator's approval of subgrade before placing granular base.
- .2 Place granular base material to lines, widths, and depths as indicated.
- .3 Compact granular base to at least 95% of maximum density to ASTM D698.

3.3 CONCRETE

- .1 Obtain Contract Administrator's approval of granular base and reinforcing steel prior to placing concrete.
- .2 Do concrete work in accordance with Section 03300 - Cast-in-Place Concrete.
- .3 Immediately after floating, give sidewalk surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom in direction normal to centre line.
- .4 Provide edging as indicated with 10 mm radius edging tool.

3.4 TOLERANCES

- .1 Finish surfaces to within 3 mm in 3 m as measured with 3 m straightedge placed on surface.

3.5 EXPANSION AND CONTRACTION JOINTS

- .1 Install tooled transverse contraction joints after floating, when concrete is stiff, but still plastic, at intervals of 1.5 m.

- .2 Install expansion joints as indicated, as directed by Contract Administrator, at intervals of 5 m.
- .3 When sidewalk is adjacent to curb, make joints of curb, gutters and sidewalk coincide.

3.6 CURING

- .1 Cure concrete by adding moisture continuously in accordance with CAN/CSA-A23.1 to exposed finished surfaces for at least 1 day after placing, or sealing moisture in by curing compound approved by Contract Administrator.
- .2 Where burlap is used for moist curing, place two pre-wetted layers on concrete surface and keep continuously wet during curing period.
- .3 Apply curing compound evenly to form continuous film. In accordance with manufacturer's requirements.

3.7 BACKFILL

- .1 Allow concrete to cure for 7 days prior to backfilling.
- .2 Backfill to designated elevations with material approved by Contract Administrator. Compact and shape to required contours as indicated or as directed by Contract Administrator.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01330: Submittal Procedures
- .2 Section 02315: Excavating Trenching and Backfilling
- .3 Section 02741: Hot Mix Asphalt Paving
- .4 Section 02911: Topsoil and Finish Grading
- .5 Section 02933: Sodding

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D698-91(1998), Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).

Part 2 Products

2.1 MATERIALS

- .1 Granular base: to Section 02315 - Excavating, Trenching and Backfilling.
- .2 Fill material: to Section 02315 - Excavating, Trenching and Backfilling.
- .3 Flexi-Edge Recycled Rubber Edging System - Supplied by Softline Solutions AB Inc (780) 462-3133 or approved equal in accordance with B6.

Part 3 Execution

3.1 GRADE PREPARATION

- .1 Do grade preparation work in accordance with Section 02315 - Excavating, Trenching and Backfilling.
- .2 Construct embankments using excavated material free from organic matter or other objectionable materials. Dispose of surplus and unsuitable excavated material as directed by Contract Administrator.
- .3 Place fill in maximum 6" layers and compact to at least 95% of maximum density to ASTM D698.

3.2 GRANULAR BASE

- .1 Obtain Contract Administrator's approval of subgrade before placing granular base.
- .2 Place granular base material to lines, widths, and depths as indicated.
- .3 Compact granular base to at least 95% of maximum density to ASTM D698.

3.3 RUBBER EDGE CURB

- .1 Obtain Contract Administrator's approval of granular base prior to placing curbing.
- .2 Place flexible edge curb module units together overlapping joints to provide a continuous edge to required grade and contour. Refer to Manufacturers instructions.
- .3 Provide 1" space for drainage every 18'-0" or every 3 modular units. Cut curb edging unit lap joints to make flush at drainage spaces.
- .4 Pin flexible edge curb modular units together and into compacted granular base using 600mm concrete reinforcing steel pins according to Manufacturers instructions.

3.4 TOLERANCES

- .1 Install flexible edge curb min 4" +/- 1/4" above finished height of sloped asphalt pathway. Obtain contract Administrator approval before pouring sloped asphalt pathway.

3.5 BACKFILL

- .1 Allow 3 days from completion of sloped asphalt pathway prior to backfilling.
- .2 Backfill to designated elevations with material approved by Contract Administrator. Compact and shape to required contours as indicated or as directed by Contract Administrator.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01330: Submittal Procedures
- .2 Section 02315: Excavating Trenching and Backfilling
- .3 Section 02911: Topsoil and Finish Grading
- .4 Section 02933: Sodding

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D698-91(1998), Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³).
- .2 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1/A23.204, Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.

Part 2 Products

2.1 MATERIALS

- .1 Pre-cast Concrete Retaining Walls to be Barkman Concrete StackStone Retaining Wall system or approved equal in accordance with B6. Contact 204-667-3310. Colour to be "Sierra Grey".
- .2 Assembly adhesive to be LePage PL Landscape Block Adhesive or approved equal in accordance with B6.
- .3 Geotextile Fabric to be Typar Geotextile Fabric or approved equal in accordance with B6.
- .4 Granular base: to Section 02315 - Excavating, Trenching and Backfilling.
- .5 Fill material: to Section 02315 - Excavating, Trenching and Backfilling.

Part 3 Execution

3.1 GRADE PREPARATION

- .1 Do grade preparation work in accordance with Section 02315 - Excavating, Trenching and Backfilling.

- .2 Construct trench for granular base as per manufacturer's instructions.
- .3 Construct embankments using excavated material free from organic matter or other objectionable materials. Dispose of surplus and unsuitable excavated material as directed by Contract Administrator.
- .4 Place fill in maximum 150 mm layers and compact to at least 95% of maximum density to ASTM D698.

3.2 GRANULAR BASE

- .1 Obtain Contract Administrator's approval of subgrade before placing granular base.
- .2 Place granular base material to lines, widths, and depths as indicated in manufacturers instructions.
- .3 Compact granular base to at least 95% of maximum density to ASTM D698.

3.3 INSTALLATION

- .1 Obtain Contract Administrator's approval of granular base prior to placing Precast retaining walls.
- .2 Install precast blocks in accordance with manufacturer's instructions.
- .3 Provide backfill of $\frac{3}{4}$ " down clean limestone as drainage rock and compact in accordance with manufacturer's instructions.
- .4 Provide geotextile fabric to separate fill from drainage rock as per manufacturer's instructions.
- .5 Secure final coping course with landscape adhesive as per manufacturer's instructions.
- .6 Finish grading to be done in accordance with Section 02315 – Excavating, Trenching, and Backfilling, Section 02911 – Topsoil and Finish Grading, and Section 02933 – Sodding.

3.4 BACKFILL AND FINISH GRADING

- .1 Backfill to designated elevations with material approved by Contract Administrator. Compact and shape to required contours as indicated or as directed by Contract Administrator.
- .2 Conduct work in accordance with Section 02315 – Excavating, Trenching, and Backfilling, Section 02911 – Topsoil and Finish Grading, and Section 02933 – Sodding.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01330: Submittal Procedures
- .2 Section 02315: Excavating, Trenching and Backfilling
- .3 Section 02741: Hot Mix Asphalt Pavement
- .4 Section 02770: Concrete Walks Curbs and Gutters
- .5 Section 03300: Cast-in-Place Concrete

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D698-91(1998), Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-3.3-99, Kerosene.
- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1/A23.204, Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.

Part 2 Products

2.1 MATERIALS

- .1 Concrete mixes and materials: to Section 03300 - Cast-in-Place Concrete.
- .2 Joint filler Curing Compound: to Section 03300 - Cast-in-Place Concrete.
- .3 Granular base: to Section 02315 - Excavating, Trenching and Backfilling.
- .4 Non-staining mineral type form release agent: chemically active release agents containing compounds that react with free lime to provide water soluble soap.
- .5 Fill material: to Section 02315 - Excavating, Trenching and Backfilling.
- .6 20' Pre-sloped Trench Drain System - Supplied by McNichols Co. 1-800-237-3820 or approved equal in accordance with B6.

Part 3 Execution

3.1 GRADE PREPARATION

- .1 Do grade preparation work in accordance with Section 02315 - Excavating, Trenching and Backfilling.
- .2 Construct embankments using excavated material free from organic matter or other objectionable materials. Dispose of surplus and unsuitable excavated material as directed by Contract Administrator.
- .3 Place fill in maximum 150 mm layers and compact to at least 95% of maximum density to ASTM D698.

3.2 GRANULAR BASE

- .1 Obtain Contract Administrator's approval of subgrade before placing granular base.
- .2 Place granular base material to lines, widths, and depths as indicated.
- .3 Compact granular base to at least 95% of maximum density to ASTM D698.

3.3 PRE-CAST CONCRETE DRAIN TROUGH

- .1 Obtain Contract Administrator's approval of subgrade before placing drain trough.
- .2 Place reinforcing steel to support installation chairs according to manufacturers instructions.
- .3 Install presloped trench drain system as per manufacturers instructions.
- .4 Ensure drain system connects to existing site drainage. Pipe connections to be made watertight.

3.4 CONCRETE

- .1 Obtain Contract Administrator's approval of granular base, trench drain system, and reinforcing steel prior to placing concrete.
- .2 Do concrete work in accordance with Section 03300 - Cast-in-Place Concrete.
- .3 Immediately after floating, give exposed concrete surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom in direction normal to centre line.
- .4 Provide edging as indicated with 10 mm radius edging tool.

3.5 TOLERANCES

- .1 Finish surfaces to within 3 mm in 3 m as measured with 3 m straightedge placed on surface.

3.6 CURING

- .1 Cure concrete by adding moisture continuously in accordance with CAN/CSA-A23.1 to exposed finished surfaces for at least 1 day after placing, or sealing moisture in by curing compound approved by Contract Administrator.
- .2 Where burlap is used for moist curing, place two pre-wetted layers on concrete surface and keep continuously wet during curing period.
- .3 Apply curing compound evenly to form continuous film. In accordance with manufacturer's requirements.

3.7 BACKFILL

- .1 Allow concrete to cure for 7 days prior to backfilling.
- .2 Backfill to make good with existing elevations with material approved by Contract Administrator. Compact and shape to required contours as indicated or as directed by Contract Administrator.

END OF SECTION

Part 1 General

- 1.1** Topsoil and Finish Grading shall be done in accordance with City of Winnipeg's Standard Construction specification CW 3540-R4 Topsoil and Finish Grading for establishment of Turf areas.

Part 2 Products

2.1 TOPSOIL

- .1 Topsoil for sodded areas, planting beds: mixture of particulates, micro organisms and organic matter which provides suitable medium for supporting intended plant growth.
- .1 Soil texture based on The Canadian System of Soil Classification, to consist of 20 to 70 % sand, minimum 7 % clay, and contain 2 to 10 % organic matter by weight.
- .2 Contain no toxic elements or growth inhibiting materials.
- .3 Finished surface free from:
- .1 Debris and stones over 2" diameter.
- .2 Course vegetative material, 3/8" diameter and 4" length, occupying more than 2% of soil volume.
- .4 Consistence: friable when moist.

2.2 SOIL AMENDMENTS

- .1 Fertilizer:
- .1 Fertility: major soil nutrients present in following amounts:
- .2 Nitrogen (N): 20 to 40 micrograms of available N per gram of topsoil.
- .3 Phosphorus (P): 40 to 50 micrograms of phosphate per gram of topsoil.
- .4 Potassium (K): 75 to 110 micrograms of potassium per gram of topsoil.
- .5 Calcium, magnesium, sulfur and micro-nutrients present in balanced ratios to support germination and/or establishment of intended vegetation.
- .6 Ph value: 6.5 to 8.0.
- .2 Peatmoss:
- .1 Derived from partially decomposed species of Sphagnum Mosses.
- .2 Elastic and homogeneous, brown in colour.
- .3 Free of wood and deleterious material which could inhibit growth.
- .4 Shredded particle minimum size: 3/8".

- .3 Sand: washed coarse silica sand, medium to course textured.
- .4 Limestone:
 - .1 Ground agricultural limestone.
 - .2 Gradation requirements: percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 0.125 mm sieve.
- .5 Fertilizer: industry accepted standard medium containing nitrogen, phosphorous, potassium and any other micro-nutrients suitable to the specific plant species or application or defined by the soil test.

2.3 SOURCE QUALITY CONTROL

- .1 Advise Contract Administrator of sources of topsoil and manufactured topsoil to be utilized within 7 days in advance of starting work to allow time for testing.
- .2 Contractor is responsible for soil analysis and required amendments to supply topsoil as specified.

Part 3 Execution

3.1 STRIPPING OF TOPSOIL

- .1 Commence topsoil stripping of areas as directed by Contract Administrator after area has been cleared of brush, weeds, and grasses and removed from site.
- .2 Strip topsoil to depths as directed by Contract Administrator. Avoid mixing topsoil with subsoil where textural quality will be moved outside acceptable range of intended application.
- .3 Stockpile in locations as directed by Contract Administrator. Stockpile height not to exceed 6'.
- .4 Disposal of unused topsoil is to be in an environmentally responsible manner but not used as landfill as directed by Contract Administrator.
- .5 Protect stockpiles from contamination and compaction.

3.2 PREPARATION OF EXISTING GRADE

- .1 Verify that grades are correct. If discrepancies occur, notify Contract Administrator and do not commence work until instructed by Contract Administrator.

- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, and stones in excess of 2" diameter and other deleterious materials. Remove soil contaminated with calcium chloride, toxic materials and petroleum products. Remove debris which protrudes more than 3" above surface. Dispose of removed material off site.
- .4 Cultivate entire area which is to receive topsoil to minimum depth of 4". Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.3 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

- .1 Place topsoil after Contract Administrator has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 6".
- .3 For sodded areas keep topsoil 1/2" below finished grade.
- .4 Spread topsoil as indicated to following minimum depths after settlement.
 - .1 5 1/2" for sodded areas.
- .5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.4 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage. Prepare loose friable bed by means of cultivation and subsequent raking.
- .2 Consolidate topsoil to required bulk density using equipment approved by Contract Administrator. Leave surfaces smooth, uniform and firm against deep footprinting.

3.5 ACCEPTANCE

- .1 Contract Administrator will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.6 SURPLUS MATERIAL

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

END OF SECTION

Part 1 General

- 1.1 Sodding shall be done in accordance with City of Winnipeg's Standard Construction Specification CW3510-R8 Sodding for establishment of Turf areas.

END OF SECTION