PART E

SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at http://www.winnipeg.ca/matmgt.

E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.2 The following Drawings are applicable to the Work:

Drawing No.	Drawing
05523	Burrows Wastewater Pumping Station
05524	Holland Wastewater Pumping Station
05525	Kildonan Park Wastewater Pumping Station
05526	Manitoba Wastewater Pumping Station
05528	Pandora Wastewater Pumping Station
05529	Portsmouth Wastewater Pumping Station
05530	Grandmont Wastewater Pumping Station

GENERAL REQUIREMENTS

E2. DANGEROUS WORK CONDITIONS

E2.1 Further to clause GC 6.26 of the General Conditions, the Contractor shall be aware that underground chambers, manholes, and sewers are considered a confined space and shall follow the "Guidelines for confined Entry Work" as published by the Manitoba Workplace Safety and Health Division.

E2.2 The Contractor shall be aware of the potential hazards that can be encountered in underground chambers, manholes and sewers such as explosive gases, toxic gases and oxygen deficiency.

E2.3 The air in a confined space must be tested before entry and continuously during the time that personnel are inside the space. Equipment for continuous monitoring of gases must be explosion-proof and equipped with a visible and audible alarm. The principal tests are for oxygen deficiency, explosion range and toxic gases. Testing equipment must be calibrated in accordance with manufacturer's specifications.

E2.4 The Contractor shall ventilate all confined spaces including underground chambers, tunnels, pipes and shafts as required and approved by the Manitoba Workplace Safety and Health Act (the “Act”). If no ventilation is supplied, a worker must wear a respirator or supplied air to enter the confined space.

E2.5 Workers must wear a respirator or supplied air at all times when entering an underground chamber, manhole or sewer where live sewage is present.

E2.6 The Contractor shall provide a photoionization detector (PID) on site at all times to monitor potential hydrocarbon vapours in the confined spaces. The gas detector and safety equipment

conforming to the Act shall be made available to the Contract Administrator for his use during inspections. In addition, the Contract Administrator may collect discrete air samples for laboratory analysis.

E2.7 The Contract Administrator may issue a stop work order to the Contractor if the above guidelines are not being followed. The Contractor shall not resume his operations until the Contract Administrator is satisfied the Contractor is following the appropriate procedures. The Contractor shall have no claim for extra time or costs due to the stop work order for not following these safety guidelines.

E3. PROTECTION OF EXISTING TREES

E3.1 Do not remove existing trees and take the following precautionary steps to avoid damage from construction activities to existing boulevard trees within the limits of the construction area.

E3.1.1 Do not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.

E3.1.2 Strap mature tree trunks with 25 x 150 x 2400 wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.

E3.1.3 Excavations shall be carried out in a manner to minimize damage to existing root systems. Where roots must be cut to facilitate an excavation they shall be neatly pruned at the face of the excavation.

E3.1.4 Work on site shall be carried out in a manner to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch.

E3.1.5 American elm trees shall not be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.

E3.2 All damage to existing trees due to construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Parks and Recreation Department, Forestry Branch at the Contractor's expense.

E3.3 Costs for protection of trees will be included in the inlet control valve installation.

E4. SHOP DRAWINGS

E4.1 Description

(a) This Specification shall revise, amend and supplement the requirements of CW 1100.

(i) The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, which are to be provided by the Contractor to illustrate details of a portion of the work.

(ii) The Contractor shall submit specified shop drawings to the Contract Administrator for review. All submissions must be in metric units. Where data is in imperial units, the correct metric equivalent shall also be show on all submissions for Engineering review.

(b) Shop Drawings

(i) Original drawings are to be prepared by the Contractor, Subcontractor, Supplier, Distributor, or Manufacturer, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate sections.

(ii) Shop drawings for the following structural components shall bear the seal of a registered Engineer of Manitoba.

(a) Gate valves.
(b) Valve supports.
(c) Stem extensions.

(c) Contractor's Responsibilities

(i) Review shop drawings, product data and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.

(ii) Verify:
(a) Field measurements
(b) Field construction criteria
(c) Catalogue numbers and similar data

(iii) Coordinate each submission with requirements of work and Contract Documents. Individual shop drawings will not be reviewed until all related drawings are available.

(iv) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract Documents.

(v) Responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator's review of submission, unless Contract Administrator gives written acceptance of specified deviations.

(vi) Responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.

(vii) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on previous submission.

(viii) After Contract Administrator's review and return of copies, distribute copies to sub-trades as appropriate.

(ix) Maintain one (1) complete set of reviewed shop drawings, filed by Specification Section Number, at the site of the work for use and reference of the Contract Administrator and Subcontractors.

(d) Submission Requirements

(i) Schedule submissions at least 14 Calendar days before dates reviewed submissions will be needed, and allow for a 14 Calendar day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.

(ii) Submit five (5) paper prints of shop drawings. The Contractor is advised that the Contract Administrator will retain three (3) copies of all submittals and return two (2) copies to the Contractor.

(iii) Accompany submissions with transmittal letter, containing:
(a) Date
(b) Project title and Bid Opportunity number
(c) Contractor's name and address
(d) Number of each shop drawing, product data and sample submitted
(e) Specification Section, Title, Number and Clause
(f) Drawing Number and Detail/Section Number
(g) Other pertinent data

(iv) Submissions shall include:
(a) Date and revision dates.
(b) Project title and Bid Opportunity number.
(c) Name of:
(i) Contractor
(ii) Subcontractor
(iii) Supplier

(iv) Manufacturer
(v) Separate detailer when pertinent

(d) Identification of product of material.
(e) Relation to adjacent structure or materials.
(f) Field dimensions, clearly identified as such.
(g) Specification section name, number and clause number or drawing number and detail/section number.
(h) Applicable standards, such as CSA or CGSB numbers.
(i) Contractor's stamp, initialled or signed, certifying review of submission, verification of field measurements and compliance with Contract Documents.

(e) Other Considerations

(i) Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.

(ii) Material and equipment delivered to the site of the works will not be paid for at least until pertinent shop drawings have been submitted and reviewed.

(iii) Incomplete shop drawing information will be considered as stipulated deductions for the purposes of progress payment certificates.

(iv) No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions and review of shop drawings.

E4.2 Measurement and Payment

(i) Preparation and submittal of Shop Drawings will be included in gate valve installation.

E5. FLOW CONTROL AND TEMPORARY BY-PASS PUMPING

E5.1 Description

E5.1.1 This specification covers flow control in existing sewers and temporary by-pass pumping of flow during installation of the inlet control valves.

E5.2 Materials

E5.2.1 Inflatable Rubber Sewer Plugs

(a) Made of rubber, capable of remaining in place when inflated to the pressure required able to withstand the expected sewer levels.

(b) Provided with an inflation/deflation hose, monitoring pressure valve, removal rope or cable and safety chain all of sufficient length to reach to ground elevation for monitoring and removal.

E5.2.2 Temporary By-Pass Pumping Equipment

(a) Non-clog, submersible pumping units sized to meet or exceed the required capacity. Complete with all required piping, fittings, floats and pump controls suitable for temporary installation a sewer manhole. Model and capacity to be approved by Contract Administrator.

(b) Power supply to be suitably sized for pumping equipment complete with all required controls. Fuel to be in lockable, tamperproof container. To be approved by Contract Administrator.

E5.2.3 Fittings and Appurtenances

(a) Fittings, couplings and appurtenances to be used for repairs to existing forcemains and sewers to be approved products for underground use in the City of Winnipeg.

E5.2.4 Bedding and Backfill

(a) Bedding and initial backfill material to be sand in accordance with CW 2030.

(b) Backfill excavations in pavement areas to be Class 3 in accordance with Clause 3.8.3 of CW 2030. Backfill in excavations in boulevard areas to be Class 5 in accordance with Clause 3.8.3 of CW 2030.

E5.3 Construction Methods

E5.3.1 General

(a) Maintain level of sewage in existing sewers below the critical basement elevation shown on the Drawings at all times for each location. The Contract Administrator will provide a mark at a convenient location for reference.

(b) Allowable shutdown times shown on the drawings are approximate and the Contractor must monitor the upstream system at all times to ensure the stored level of wastewater does not exceed the critical basement elevation.

(c) Provide a flow control plan for each location to the Contract Administrator for review before construction starts.

(d) Diversion of wastewater flow directly or indirectly to the environment, Land Drainage Sewers or Storm Relief Sewers will not be allowed.

E5.3.2 Expected Wastewater Flow to Pumping Stations

(a) The expected peak dry weather flows (PDWF) to the pumping stations included in this Contract are as follows.

(i) Burrows Pumping Station: PDWF = 35 l/s (554.8 US gpm)

(ii) Holland Pumping Station: PDWF = 15 l/s (237 US gpm)

(iii) Kildonan Park Pumping Station: PDWF = 5 l/s (79 US gpm)

(iv) Manitoba Pumping Station: PDWF = 20 l/s (317 US gpm)

(v) Pandora Pumping Station: PDWF = 20 l/s (317 US gpm)

(vi) Portsmouth Pumping Station: PDWF = 40 l/s (634 US gpm)

(vii) Grandmont Pumping Station: PDWF = 10 l/s (158.5 US gpm)

E5.3.3 Inflatable Sewer Plugs

(a) Only inflatable rubber sewer plugs shall be used to plug sewers.

(b) Clean sewer pipe as required to properly install inflatable sewer plug(s) in accordance with the manufacturer's instructions at the locations shown on the Drawings to isolate the installation location. Installation of inflatable sewer plugs at other locations to be approved by the Contract Administrator before construction starts.

(c) Secure inflatable sewer plugs at or near the ground surface.

(d) Continuously monitor air pressure while sewer plug is in place and have proper inflation equipment available at all times.

E5.3.4 Temporary By-Pass Pumping

(a) Provide one or two submersible pumps, each or both together with a capacity equal to or greater than the listed PDWF for the pumping station shall be provided. One standby pump shall also be available on site at each location ready to be installed immediately if an installed pump fails.

(b) Temporary by-pass pumping shall be from Manhole A to Manhole B or to the forcemain connection location shown on the Drawings.

(c) Provide detailed information for pumping equipment to be used including pump capacity and dimensions, depth of submergence, pump controls and installation details to the Contract Administrator for review before construction starts.

(d) Power supply to be approved by the Contract Administrator before set-up. Locate the power supply where it will not adversely affect local residences. Location to be approved by the Contract Administrator before construction starts.

(e) Provide suitable traffic ramps approved by the Contract Administrator where the by-pass pumping discharge pipe and power supply cables are laid across vehicle or pedestrian traffic areas.

(f) Clear snow and ice from street, boulevard and sidewalk areas affected by traffic barricades and by-pass pumping activities during construction as directed by the Contract Administrator.

(g) Protect discharge pipe from freezing during winter months by methods approved by the Contract Administrator.

(h) Provide a check valve on the by-pass pumping discharge pipe to prevent cycling when the pumping station is activated.

(i) The Contractor is advised that the pumping stations will remain in service while the work is being completed. The Contractor shall cooperate with to allow full access at all times for City staff to carry out maintenance and operational duties.

(j) Arrange construction activities and schedule to be able to remove temporary inflatable sewer plug(s) and restore pumping station operation at the end of each day's work.

(k) If a temporary pump fails and the flow level in the sewer rises to the mark established by the Contract Administrator, the inflatable sewer plug shall be deflated and flow allowed to go the pumping station.

E5.3.5 Temporary By-Pass Pumping Connection to Existing Forcemains and Sewers

(a) Locate and excavate the existing pumping station inlet sewer where required and discharge forcemain and make temporary by-pass pumping connection.

(b) Excavation and shoring to be in accordance with CW 2030. Cover and provide safety precautions acceptable to the Contract Administrator for excavations not backfilled until after temporary by-pass pumping is complete

(c) By-pass pumping discharge pipe connection to be in accordance with Clauses 3.13 or 3.14 of CW 2110 except that a concrete thrust block will not be required. Provide alternate method of thrust restraint as approved by the Contract Administrator.

E5.3.6 Repair of Existing Forcemain After Temporary By-Pass Pumping Connection

(a) Remove by-pass pumping connection from existing discharge forcemain once by-pass pumping is complete. Repair existing discharge forcemain as follows.

(i) Cut existing pipe square to its axis and remove a 1.00 metre long section of pipe.

(ii) Remove dirt, debris, rust, scale and other buildup from existing forcemain.

(iii) Install required length of AWWA C900, Class 150 PVC pipe and approved couplings.

(iv) Install a continuity bonding wire between ends of cast and ductile iron forcemain pipe. Prepare an area 50 millimetres square on the top of the forcemain pipe surface within 300 millimetres of each pipe end by grinding or filing to bare metal. Attach each end of the continuity bonding wire to the prepared pipe surfaces using the Thermite Welding Process (Cadwelding).

(b) Install bedding and initial backfill material in accordance with Clause 3.2 of CW 2030.

(c) Backfill excavations within pavement with Class 3 Backfill in accordance with Clause 3.8.3 of CW 2030. Backfill excavations within the boulevard with Class 5 Backfill in accordance with Clause 3.8.5 of CW 2030.

(d) Restore disturbed surface in accordance with E8 of this Specification.

E5.3.7 Repair of Existing Sewer Pipe After Temporary By-Pass Pumping Connection

(a) Repair existing sewer pipe damaged by temporary by-pass pumping connection in accordance with Clause 3.12 of CW 2130. Install bedding and initial backfill material in accordance with Clause 3.2 of CW 2030.

(b) Backfill the excavation with Class 5 Backfill in accordance with Clause 3.8.5 of CW 2030.

(c) Restore disturbed surface in accordance with E8 of this Specification.

E5.4 Measurement and Payment

E5.4.1 Flow control and temporary by- pass pumping will be measured on a unit basis and paid for at the Contract Unit Price for "Flow Control and Temporary By-Pass Pumping". Number of units to be paid for will be the total number of flow control and temporary by-pass pumping arrangements installed in accordance with this specification, accepted and measured by the Contract Administrator.

E6. SUPPLY AND INSTALLATION OF INLET CONTROL VALVES

E6.1 Description

E6.1.1 This specification covers the supply and installation of inlet control valves and related work on existing inlet sewers to wastewater pumping stations.

E6.2 Materials

E6.2.1 Cast Iron Gate Valves

(a) Cast iron body with flanged ends equipped with outside rising stem, screw and yoke; bronze trimmed cast iron wedge; bronze stem, double O-ring stem seals and 50 millimetre square operating nut.

(b) Flanges shall conform in dimension and drilling to ANSI/ASME B16.1, Class 125.

(c) Direction of opening shall be counter clockwise and shall be clearly stamped or indicated with raised letters and arrow.

(d) Manufacturer's nameplate shall be attached to the valve body with stainless steel fasteners.

(e) Gate valves shall be as manufactured by Clow Canada, Crane, Mueller Canada or approved equal.

(f) Submit shop drawings of gate valves in accordance with E4 of this specification.

E6.2.2 Gate Valve Stem Extensions

(a) 38 millimetre diameter ASTM A276, Type 304 stainless steel, schedule 40 pipe. One end finished with a 50 mm square operating nut and the other end with a socket to fit a 50 millimetre square operating nut.

(b) Submit shop drawings of the valve stem extensions in accordance with E4 of this specification.

E6.2.3 Valve Boxes

(a) Valve box upper section to be approved products for underground use in the City of Winnipeg.

(b) Valve box lower section to be AWWA C900, DR18 PVC Pressure Pipe.

E6.2.4 Flange Adapter and Wall Thimbles

(a) Pipe to be AWWA C115 Class 52 ductile iron suitable for installation and use as indicated on the drawings. Flanges shall conform in dimension and drilling to ANSI/ASME B16.1, Class 125.

E6.2.5 Miscellaneous Metal Fabrications

(a) Stainless steel to ASTM A240, Type 304.

(b) Materials to be new, straight and clean with sharply defined profiles.

E6.2.6 Anchor Bolts

(a) Anchor bolts and fasteners: to ASTM A276, Type 316 stainless steel, of ample section to safely withstand the forces created by operation of the equipment or the load to which they will be subjected.

E6.2.7 Concrete and Grout

(a) Concrete for use in headwall construction shall be a quick setting hydraulic concrete such as S.P.I. Rapid Repair Grout, Sika Grout 212 or approved equal. Only non-chloride concrete accelerator admixtures for quick setting concrete will be allowed.

(b) Grout to be S.P.I. Rapid Repair Grout Sika Grout 212 or approved equal.

E6.2.8 Bonding Agent

(a) Bonding agent to be Acrl Stix or approved equal.

E6.2.9 Reinforcing Steel

(a) Dowels to be in accordance with CW 2160.

(b) Epoxy resin for bonding dowels to hardened concrete to be ASTM C881, Type 1, Grade 3

E6.3 Construction Methods

E6.3.1 Flow Control and Temporary By-Pass Pumping

(a) Provide flow control measures and temporary by-pass pumping as shown on the Drawings and in accordance with E5 of this Specification.

E6.3.2 Construction Sequence

(a) Arrange construction activities and sequence to be able to remove temporary inflatable sewer plug(s) and restore pumping station operation at the end of each day's work.

E6.3.3 Existing Pump Controls and Float Alarms in Wet Wells

(a) Maintain and protect existing pump controls and float type alarms located in the wet wells.

E6.3.4 Wet Well Cleanout

(a) Cleanout the wet wells before starting valve installations.

(b) Use mechanical or manual methods to remove grit, tallow, grease and other build-ups to the satisfaction of the Contract Administrator.

E6.3.5 Gate Valve Installation

(a) Install gate valves, concrete headwalls, reinforcing steel, flange adapters, valve stems, valve boxes and support brackets as shown on the Drawings

(b) Thoroughly clean and roughen existing concrete surface and apply bonding agent in accordance with manufacturer's instructions.

(c) Install gate valves with stem in vertical position with valve stem extensions plumb from the valve operating nut to the surface.

(d) Make openings in existing concrete roof slabs using coring method.

(e) Gate valves shall be left in the open position after installation is complete

(f) Fabricate gate valve support brackets as shown on the drawings and in accordance with the following.

(i) Fabricate work square, true, straight and accurate to required size, with joints fitted and properly secured. Assemble work in such a way that no disfigurements will show in the finished work, or impair the strength.

(ii) Pieces shall be of the sizes indicated on the Drawings and shall not be built up from scrap pieces. Confirm sizes with field measurements.

(iii) Remove and grind smooth burrs, filings, sharp protrusions and projections from metal fabrications to prevent possible injury;

(iv) All steel welding shall conform to CSA Standard W.59. Fabricator shall be fully approved by the Canadian Welding Bureau, in conformance with CSA Standard W.47.1. Welding shall be done by currently licensed welders only.

(v) Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

E6.3.6 Modifications to Existing Metal Gratings

(a) Remove sections of metal grating floors where shown on the Drawings to facilitate installation of the gate valves. Cut floors neat and square and grind ends smooth. Weld in steel support pieces of similar dimension to the existing grating around the perimeter of the cut-out sections where directed by the Contract Administrator.

E6.3.7 Cleanup

(a) Cleanup construction debris and materials from wet wells at the end of each day before the inflatable sewer plug is removed and pumping station operation is restored.

E6.4 Measurement and Payment

E6.4.1 Maintaining and protecting existing pump controls in wet wells will be included with Installation of Inlet Control Valves.

E6.4.2 Wet well cleanout will be included with Installation of Inlet Control Valves.

E6.4.3 Supply and installation of inlet control gate valves will be measured on a unit basis and paid for at the Contract Unit Price for "Installation of Inlet Control Valves". Number of units to be paid for will be the total number of inlet control valves supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E6.4.4 Modifications to existing metal gratings will be included with Installation of Inlet Control Valves.

E6.4.5 Cleanup will be included with Installation of Inlet Control Valves.

E7. MODIFICATIONS TO EXISTING PRE-CAST CONCRETE WET WELLS

E7.1 Description

E7.1.1 This specification covers modifications to existing pre-cast concrete wet wells where the inlet control valves will be installed.

E7.2 Materials

E7.2.1 Pre-Cast Concrete Manhole/Wet-Well Riser Sections

(a) In accordance with section 2.7 of CW 2130 and as shown on the Drawings.

E7.2.2 Manhole Frames and Covers

(a) Standard size: to be cast iron in accordance with section 2.7 of CW 2130.

(b) Large diameter: to be Titan TF-114 cast iron frames and covers or approved equal. Covers to be unmarked. Frame to 225 millimetres high unless shown differently on the Drawings.

E7.2.3 Backfill

(a) In accordance with CW 2030. Class of backfill to be as shown on the Drawings.

E7.3 Construction Methods

E7.3.1 Excavation

(a) Excavation to be in accordance with CW 2030. Remove existing pre-cast riser and manhole sections as excavation progresses. Take care not to damage the remaining pre-cast sections.

(b) Cover and provide safety precautions acceptable to the Contract Administrator for excavations not backfilled until after temporary by-pass pumping is complete

(c) Remove excavated material from the site immediately. Excavated material shall not be stockpiled on-site unless it is determined by the Contract Administrator to be suitable for use as backfill.

E7.3.2 Existing Pump Controls, Telemetry and Float Alarms in Wet Wells

(a) Locate, maintain and protect existing pump controls, telemetry and float type alarms located in the wet wells.

(b) Remove existing pre-cast concrete sections in a manner that will allow the pump controls and float alarms to remain in service.

(c) Temporarily support and maintain pump controls and float alarms after removal of pre-cast concrete sections.

(d) Cut conduit for pump controls and float alarms as required to install new pre-cast sections, make hole in wall of new pre-cast concrete sections at required location, install conduit and wiring for pump controls and float alarms through hole and grout to be watertight.

E7.3.3 Relocate the existing steel vent pipe on the existing wet well at the Manitoba Pumping station as shown on the Drawings. Exact re-location to be determined in the field.

E7.3.4 Pre-Cast Concrete Manhole/Wet-Well Riser Sections

(a) Install pre-cast concrete riser sections as shown on the drawings in accordance with Clauses 3.8 and 3.9 of CW 2130.

E7.3.5 Existing Pump Controls and Float Alarms in Wet Wells

(a) Maintain and protect existing pump controls and float type alarms located in the wet wells.

(b) Remove existing pre-cast concrete sections in a manner that will allow the pump controls and float alarms to remain in service.

(c) Temporarily support and maintain pump controls and float alarms after removal of pre-cast concrete sections.

(d) Cut conduit for pump controls and float alarms as required to install new pre-cast sections, make hole in wall of new pre-cast concrete sections at required location, install conduit and wiring for pump controls and float alarms through hole and grout to be watertight.

E7.3.6 Cleanup

(a) Cleanup construction debris and materials from wet wells at the end of each day before the inflatable sewer plug is removed and pumping station operation is restored.

E7.3.7 Backfill

(a) Backfill excavations in pavement areas to be Class 3 in accordance with Clause 3.8.3 of CW 2030. Backfill in excavations in boulevard areas to be Class 5 in accordance with Clause 3.8.5 of CW 2030.

(b) Do not place backfill in a frozen state. Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.

E7.3.8 Restoration

(a) Restore disturbed surface in accordance with E9 of this Specification.

E7.4 Measurement and Payment

E7.4.1 Modifications to existing pre-cast wet wells will be measured on a unit basis and paid for at the Contract Unit Price for “Modifications to Existing Pre-Cast Concrete Wet Wells”. Number of units to be paid for will be the total number of existing pre-cast wet wells modified in accordance with this specification, accepted and measured by the Contract Administrator.

E8. SURFACE RESTORATION

E8.1.1 Temporary Surface Restoration

(a) Temporarily restore disturbed surfaces as follows.

(i) Boulevards and grassed areas: backfill to match existing surface elevation and level area.

(ii) Gravel surfaces: 75 millimetre thick layer of 19 millimetre granular material.

(iii) Asphalt and concrete pavements: 150 millimetre thick layer of stabilized cement fill.

(iv) Sidewalks: 50 millimetre thick layer of cold mix asphalt or stabilized cement fill.

(b) Maintain temporary surface restoration until permanent surface restoration is completed.

(c) If temporarily restored surfaces are not maintained within 24 hours of being notified to do so by the Contract Administrator, the work may directed to be done by City forces and the cost deducted from

E8.1.2 Permanent Surface Restorations

(a) Permanently restore all existing surface areas disturbed by construction activities including but not limited to areas disturbed by; construction equipment, placement of equipment trailer, snow clearing and where construction materials were stockpiled, shall be restored as follows:

(b) Boulevards and grassed areas: sodding using imported topsoil in accordance with CW3510.

(c) Gravel surfaces: in accordance with CW3150.

(d) Asphalt surfaces: match existing base course and asphalt thickness or a minimum or 150 millimetres of base course and 75 millimetres of Type 1A Asphaltic concrete whichever is greater, in accordance with CW 3410

(e) Miscellaneous concrete slabs (median slab, sidewalk, bullnose): in accordance with CW 3235

(f) Pavement slabs (including private approaches): in accordance with CW 3240.

(g) Interlocking stones: in accordance with CW 3330

(h) Concrete curb and gutter: in accordance with CW 3240

E8.1.3 Measurement and Payment

(a) Costs for temporary and permanent surface restoration will be included in the contract works.

E9. TRAFFIC CONTROL AND MAINTENANCE OF ACCESS

E9.1 The Contractor will comply with the requirements of CW 1130 for traffic control and maintenance of access.

E9.2 Do not park construction vehicles in a manner that will block traffic on streets adjacent to the site.

E9.3 Provide flag persons to direct traffic around construction vehicles that are loading or unloading equipment and materials at the Site.

E9.4 Do not stockpile materials in a location and manner that will obstruct the passage of pedestrians and the safe operation of motor vehicles past the Site.