

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises of interior renovation of the Weston Memorial Community Centre, located at 1625 Logan Avenue in Winnipeg, Manitoba. The existing building is comprised of two separate additions. For the purpose of this Work, the existing gymnasium is to remain as is unless otherwise noted in the construction documents. The scope of work includes, but is not limited to the following:
- .1 Demolition of existing interior concrete block partition walls to accommodate new layout;
 - .2 Demolition of existing finishes, millwork, mechanical and electrical as shown in construction documents;
 - .3 Installation of new steel stud and gypsum partition walls to suit new layout;
 - .4 Installation of new interior and exterior windows and installation of new interior and exterior doors including new steel angles/lintels as required by Structural;
 - .5 Concrete pad/ramp areas leading away from the building at new exit door locations;
 - .6 Installation of new millwork and plumbing fixtures in kitchen, bar, canteen, washrooms and MPR# 2 as shown in construction documents;
 - .7 Addition of one barrier-free and one universal washroom as shown on drawings;
 - .8 Installation of new mechanical and electrical equipment as shown in construction documents;
 - .9 Removal, relocation and addition of new light fixtures;
 - .10 Life safety upgrades including exit signs, smoke detectors and alarms;
 - .11 Installation of new finishes including skate, V.C.T and sheet flooring including base, paint throughout and blinds.

1.2 CONTRACT METHOD

- .1 Construct Work under Lump Sum contract.
- .2 Maintain fire access/control.

1.3 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site until Substantial Performance.
- .2 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .3 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .4 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.4 **EXISTING SERVICES**

- .1 Notify, Contract Administrator, utility companies and City of Winnipeg of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give City of Winnipeg 48 hours' notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Contract Administrator of findings.
- .4 Submit schedule to and obtain approval from City of Winnipeg for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .5 Provide temporary services when directed by City of Winnipeg to maintain critical building and systems.
- .6 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .7 Where unknown services are encountered, immediately advise Contract Administrator and confirm findings in writing.
- .8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .9 Record locations of maintained, re-routed and abandoned service lines.
- .10 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 **DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Other documents as specified.

Part 2 **Products**

2.1 **NOT USED**

.1 Not used.

Part 3 **Execution**

3.1 **NOT USED**

.1 Not used.

END OF SECTION

Part 1 General

1.1 IMPORTANT REQUIREMENTS

- .1 Review "City of Winnipeg Asbestos Inventory Control – Building Code CC-103 – Weston Memorial Community Centre" report dated February 19th, 2014, inspected by R Matthews & Matt Kanabe, for Asbestos Inventory Requirements.
- .2 City of Winnipeg will remediate areas containing asbestos as listed in the asbestos inventory above prior to turning over the facility to the Contractor for Work.
- .2 Site Investigation:
 - .1 Attend the site investigation as indicated in the bidding requirements.
 - .2 Related questions must be asked before the Bid Opportunity question-period deadline and must be accompanied by photographic and / or clear written descriptions indicating the affected locations and conditions.
 - .3 After award of the project to the successful bidder, requests for Change Orders may be denied if it is ascertained that the conditions related to the request were evident during the site visit.

1.2 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" Work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 Maintain existing egress routes on all floor areas.
- .3 Maintain existing elevator access routes to all floor areas.

1.3 USE OF SITE AND FACILITIES

- .1 Maintain existing services to building and provide for personnel, resident, and vehicle access.
- .2 Where security is reduced by Work, provide temporary means to maintain security.
- .3 Closures: protect Work temporarily until permanent enclosures are completed.
- .4 Keep within limits of Work and avenues of ingress and egress. Ingress and egress of Contractor vehicles at site is limited to arrangement made at the onset of construction.
- .5 Comply with City of Winnipeg allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.
- .6 During construction coordinate use of site and facilities through City of Winnipeg's procedures for intra-project communications: Submittals, reports, schedules, and resolution of ambiguities and conflicts.

- .7 Comply with instructions of City of Winnipeg for use of temporary utilities and construction facilities.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute Work with least possible interference or disturbance to existing conditions scheduled to remain as is. Make arrangements with City of Winnipeg to facilitate Work as stated.
 - .1 Work is permitted between the hours of 7am and 6pm.
 - .2 No Work is to occur on weekends without prior special approval.
- .2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Occupied areas of the building must be fully protected:
 - .1 Clearly demarcate and enclose construction areas to prevent accidental access.
 - .2 Areas of Work are to be enclosed and locked at all times to prevent access by occupants and unauthorized persons.
 - .3 Fully seal and protect existing areas from dust and debris generated by construction activities.
 - .4 Asbestos abatement and containment is to occur in strict accordance with the "City of Winnipeg Asbestos Inventory Control – Building Code CC-103 – Weston Memorial Community Centre" report dated February 19th, 2014, inspected by R Matthews & Matt Kanabe, for Asbestos Inventory Requirements.
 - .5 Regularly clean areas of Work and remove garbage to protected stockpiles and waste bins on a daily basis.
 - .6 Restrict site construction activities to area enclosed by contractor fencing.

1.5 EXISTING SERVICES

- .1 Notify, City of Winnipeg and utility companies of intended interruption of services and obtain required permission.
- .2 Provide for personnel, pedestrian and vehicular traffic.
- .3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers /Enclosures.

1.6 SECURITY

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

1.7 ON-SITE DOCUMENTS

- .1 Maintain at job site, one copy each of the following:
 - .1 Contract drawings & Specifications.
 - .2 Addenda.

- .3 Change orders.
- .4 Other modifications to Contract.
- .5 Field test reports.
- .6 Copy of approved Work schedule.
- .7 Copy of applicable MSDS and WHMIS.
- .8 Manufacturers' installation and application instructions.

END OF SECTION

Part 1 **General**

1.1 **Section Includes**

- .1 Separate pricing for alternatives, see Form B for detailed description.

END OF SECTION

Part 1 General

1.1 APPLICATIONS FOR PROGRESS PAYMENT

- .1 Make applications for payment on account as provided in Agreement monthly as Work progresses.
- .2 Date applications for payment last day of agreed monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.
- .3 Submit to the Contract Administrator, at least 14 days before first application for payment: Schedule of values for parts of Work, aggregating total amount of Contract Price, to facilitate evaluation of applications for payment.

1.2 SCHEDULE OF VALUES

- .1 Provide schedule of values supported by evidence as Contract Administrator may reasonably direct and when accepted by Contract Administrator, be used as basis for applications for payment.
- .2 Include statement based on schedule of values with each application for payment.
- .3 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as Contract Administrator may reasonably require to establish value and delivery of products.

1.3 PREPARING SCHEDULE OF UNIT PRICE TABLE ITEMS

- .1 Submit separate schedule of unit price items of Work requested in Bid form.
- .2 Make form of submittal parallel to Schedule of Values, with each line item identified same as line item in Schedule of Values. Include in unit prices only:
 - .1 Cost of material.
 - .2 Delivery and unloading at site.
 - .3 Sales taxes.
 - .4 Installation, overhead and profit.
- .3 Ensure unit prices multiplied by quantities given equal material cost of that item in Schedule of Values.

1.4 PROGRESS PAYMENT

- .1 Contract Administrator will issue to City of Winnipeg, no later than 10 days after receipt of an application for payment, certificate for payment in amount applied for or in such other amount as Contract Administrator determines to be due. If City of Winnipeg, amends application, City of Winnipeg, will give notification in writing giving reasons for amendment.

1.5 SUBSTANTIAL PERFORMANCE OF WORK

- .1 Prepare and submit to Contract Administrator comprehensive list of items to be completed or corrected and apply for a review by Contract Administrator to establish Substantial Performance or Interim Completion of Work or substantial performance of designated portion of Work when Work is substantially performed if permitted by lien legislation applicable to Place of Work designated portion which City of Winnipeg agrees to accept separately is substantially performed. Failure to include items on list does not alter responsibility to complete Contract.
- .2 No later than 10 days after receipt of list and application, Contract Administrator will review Work to verify validity of application, and no later than 7 days after completing review, will notify Contractor if Work or designated portion of Work is substantially performed.
- .3 State date of Substantial Performance of Work or designated portion of Work in certificate.
- .4 Immediately following issuance of certificate of Substantial Performance of Work, in consultation with City of Winnipeg, establish reasonable date for finishing Work.

1.6 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

- .1 After issuance of certificate of Substantial Performance of Work:
 - .1 Submit application for payment of holdback amount.
 - .2 Submit sworn statement that accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work and for which City of Winnipeg might in be held responsible have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.
- .2 After receipt of application for payment and sworn statement, Contract Administrator will issue certificate for payment of holdback amount.
- .3 Where holdback amount has not been placed in a separate holdback account, City of Winnipeg shall, 10 days prior to expiry of holdback period stipulated in lien legislation applicable to Place of Work, place holdback amount in bank account in joint names of City of Winnipeg and Contractor.
- .4 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Where lien legislation does not exist or apply, holdback amount is due and payable in accordance with other legislation, industry practice, or provisions which may be agreed to between parties. City of Winnipeg may retain out of holdback amount sums required by law to satisfy liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against City of Winnipeg.

1.7 PROGRESSIVE RELEASE OF HOLDBACK

- .1 Where legislation permits, if City of Winnipeg has certified that Work of Subcontractor or supplier has been performed prior to Substantial Performance of Work, City of Winnipeg

shall pay holdback amount retained for such subcontract Work, or products supplied by such supplier, on day following expiration of holdback period for such Work stipulated in lien legislation applicable to Place of Work.

- .1 7.5% of contract in holdback.
- .2 Lien period in Manitoba is 40 days after Substantial Performance, or Completion of project.
- .2 In addition to provisions of preceding paragraph, and certificate wording, ensure that such subcontract Work or products is protected pending issuance of final certificate for payment and be responsible for correction of defects or Work not performed regardless of whether or not such was apparent when such certificates were issued.

1.8 FINAL PAYMENT

- .1 Submit application for final payment when Work is completed.
- .2 Contract Administrator will, no later than 10 days after receipt of application for final payment, review Work to verify validity of application. Contract Administrator will give notification that application is valid or give reasons why it is not valid, no later than 7 days after reviewing Work.
- .3 City of Winnipeg will issue final certificate for payment when application for final payment is found valid.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Contract Administrator are specified under various sections.

1.2 APPOINTMENT AND PAYMENT

- .1 City of Winnipeg will appoint and pay for services of testing laboratory except follows:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
 - .4 Mill tests and certificates of compliance.
 - .5 Tests specified to be carried out by Contractor under supervision of City of Winnipeg.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Contract Administrator to verify acceptability of corrected Work.

1.3 CONTRACTOR'S RESPONSIBILITIES

- .1 Provide labour, equipment and facilities to:
 - .1 Provide access to Work for inspection and testing.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspection and test.
 - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify City of Winnipeg 48 hours minimum sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Contract Administrator.

1.4 SCHEDULE

- .1 Review testing requirements and intent with Contract Administrator prior to proceeding.

END OF SECTION

1.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the Work at the call of Contract Administrator.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Contract Administrator.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants, affected parties not in attendance and Contract Administrator.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

- .1 Within 7 days after receipt of Letter of Intent from the Award Authority authorizing commencement of Work, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Contract Administrator, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Delivery schedule of specified equipment.
 - .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
 - .10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .11 Monthly progress claims, administrative procedures, photographs, hold backs.

- .12 Appointment of inspection and testing agencies or firms.
- .13 Contract Documents, Insurances, transcript of policies.
- .14 Construction Products.
- .15 Execution of the Work.

1.3 PROGRESS MEETINGS

- .1 During course of Work, schedule progress meetings bi-weekly or as determined by the Contract Administrator.
- .2 Contractor, major Subcontractors involved in Work and Contract Administrator are to be in attendance.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding Work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Other business.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Actual Finish Date (AF): point in time that Work actually ended on activity
- .3 Actual Start Date (AS): point in time that Work actually started on activity.
- .4 Bar Chart (Gantt chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars.
- .5 Baseline: original approved plan (for Project, Work package, or activity), plus or minus approved scope changes.
- .6 Completion Milestones: they are firstly Interim Certificate and secondly Final Certificate.
- .7 Constraint: applicable restriction that will affect performance of Project. Factors that affect activities can be scheduled.
- .8 Control: process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.
- .9 Critical Activity: any activity on a critical path. Most commonly determined by using critical path method.
- .10 Critical Path: series of activities that determines duration of Project. In deterministic model, critical path is usually defined as those activities with float less than or equal to specified value, often zero. It is longest path through Project.
- .11 Critical Path Method (CPM): network analysis technique used to predict Project duration by analyzing which sequence of activities (which path) has least amount of scheduling flexibility (least amount of float).
- .12 Data Date (DD) : date at which, or up to which, Project's reporting system has provided actual status and accomplishments.
- .13 Duration (DU): number of work periods (not including holidays or other non-working periods) required to complete activity or other Project element. Usually expressed as workdays or work weeks.
- .14 Early Finish Date (EF): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can finish, based on network logic and schedule

- constraints. Early finish dates can change as Project progresses and changes are made to Project plan.
- .15 Early Start Date (ES): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can start, based on network logic and schedule constraints. Early start dates can change as Project progresses and changes are made to Project Plan.
- .16 Finish Date: point in time associated with activity's completion. Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.
- .17 Float: amount of time that activity may be delayed from its early start without delaying Project finish date. Float is mathematical calculation, and can change as Project progresses and changes are made to Project plan. This resource is available to both City of Winnipeg and Contractor.
- .18 Lag: modification of logical relationship that directs delay in successor task.
- .19 Late Finish Date (LF): in critical path method, latest possible point in time that activity may be completed without delaying specified milestone (usually Project finish date).
- .20 Late Start Date (LS): in critical path method, latest possible point in time that activity may begin without delaying specified milestone (usually Project finish date).
- .21 Lead: modification of logical relationship that allows acceleration of successor task.
- .22 Logic Diagram: see Project network diagram.
- .23 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .24 Milestone: significant event in Project, usually completion of major deliverable.
- .25 Monitoring: capture, analysis, and reporting of Project performance, usually as compared to plan.
- .26 Near-Critical Activity: activity that has low total float.
- .27 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.
- .28 Project Control System: fully computerized system utilizing commercially available software packages.
- .29 Project Network Diagram: schematic display of logical relationships of Project activities. Always drawn from left to right to reflect Project chronology.
- .30 Project Plan: formal, approved document used to guide both Project execution and Project control. Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. Project plan may be summary or detailed.

- .31 Project Planning: development and maintenance of Project Plan.
- .32 Project Planning, Monitoring and Control System: overall system operated by City of Winnipeg to enable monitoring of Project Work in relation to established milestones.
- .33 Project Schedule: planned dates for performing activities and planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy project objectives. Monitoring and control process involves using project schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .34 Quantified days duration: working days based on 5 day work week, discounting statutory holidays.
- .35 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.
- .36 Scheduled Finish Date (SF): point in time that Work was scheduled to finish on activity. Scheduled finish date is normally within range of dates delimited by early finish date and late finish date.
- .37 Scheduled Start Date (SS): point in time that Work was scheduled to start on activity. Scheduled start date is normally within range of dates delimited by early start date and late start date.
- .38 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.
- .39 Work Breakdown Structure (WBS): deliverable-oriented grouping of project elements that organizes and defines total Work scope of Project. Each descending level represents increasingly detailed definition of Project Work.

1.2 SYSTEM DESCRIPTION

- .1 Construction Progress Schedule (Project Time Management): describes processes required to ensure timely completion of Project. These processes ensure that various elements of Project are properly co-ordinated. It consists of planning, time estimating, scheduling, progress monitoring and control.
- .2 Planning: this is most basic function of management, that of determining presentation of action and is essential.
 - .1 It involves focusing on objective consideration of future, and integrating forward thinking with analysis; therefore, in planning, implicit assumptions are made about future so that action can be taken today.
 - .2 Planning and scheduling facilitates accomplishment of objectives and should be considered continuous interactive process involving planning, review, scheduling, analysis, monitoring and reporting.

- .3 Ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made. This implies progressively more reliability of scheduling data. Detail Project schedule is used for analysis and progress monitoring.
- .4 Ensure project schedule efficiencies through monitoring.
 - .1 When activities begin on time and are performed according to estimated durations without interruptions, original Critical Path will remain accurate. Changes and delays will however, create an essential need for continual monitoring of Project activities.
 - .2 Monitor progress of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.
 - .3 Monitoring should be done sufficiently often so that causes of delays are immediately identified and removed if possible.
- .5 Project monitoring and reporting: as Project progresses, keep team aware of changes to schedule, and possible consequences. In addition to Bar Charts and CPM networks, use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.
 - .1 Narrative reporting begins with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

1.3 CPM REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.
- .2 Master Plan and Detail Schedule deemed impractical by City of Winnipeg are revised and resubmitted for approval.
- .3 Acceptance of Master Plan and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract. Duration of Contract may only be changed through bilateral Agreement.
- .4 Consider Master Plan and Detail Schedule deemed practical by City of Winnipeg, showing Work completed in less than specified Contract duration, to have float.
- .5 First Milestone on Master Plan and Detail Schedule will identify start Milestone with an "ES" constraint date equal to Award of Contract date.
- .6 Calculate dates for completion milestones from Plan and Schedule using specified time periods for Contract.
- .7 Interim Certificate with "LF" constraint equal to calculated date.

- .8 Calculations on updates to be such that if early finish of Interim Certificate falls later than specified Contract duration then float calculation to reflect negative float.
- .9 Delays to non-critical activities, those with float may not be basis for time extension.
- .10 Do not use float suppression techniques such as software constraints, preferential sequencing, special lead/lag logic restraints, extended activity times or imposed dates other than required by Contract.
- .11 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated. Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.
- .12 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration. Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
- .13 Arrange participation on and off site of Subcontractors and suppliers, as required by City of Winnipeg, for purpose of network planning, scheduling, updating and progress monitoring. Approvals by City of Winnipeg of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract.
- .14 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.4 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to City of Winnipeg Project Control System for planning, scheduling, monitoring and reporting of project progress.
- .3 Submit Project Control System to City of Winnipeg for approval; failure to comply with each required submission, may result in progress payment being withheld in accordance with Federal Government's Terms of Payment "B".
- .4 Include costs for execution, preparation and reproduction of schedule submittals in bid documents.
- .5 Submit letter ensuring that schedule has been prepared in co-ordination with major Subcontractors.
- .6 Refer to article "Progress monitoring and reporting" of this specification Section for frequency of Project control system submittals.
- .7 Submit Project planning, monitoring and control system data as part of initial schedule submission and monthly status reporting as required by City of Winnipeg in following form.

- .1 CD files in original scheduling software containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update.
- .2 Master Plan Bar Chart.
- .3 Construction Detail schedule Bar Chart.
- .4 Listing of project activities including milestones and logical connectors, networks (sub-networks) from Project start to end. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.
- .5 Criticality report listing activities and milestones with negative zero and up to 5 days total float used as first sort for ready identification of critical or near critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.
- .6 Progress report in early start sequence, listing for each trade, activities due to start, underway, or finished within two months from monthly update date. List activity identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.

1.5 QUALITY ASSURANCE

- .1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

1.6 PROJECT MEETING

- .1 Meet with City of Winnipeg within 5 working days of Award of Contract date, to establish Work requirements and approach to project construction operations.

1.7 WORK BREAKDOWN STRUCTURE (WBS)

- .1 Prepare construction Work Breakdown Structure (WBS) within 10 working days of Award of Contract date. Develop WBS through at least five levels: Project, stage, element, sub-element and work package.

1.8 PROJECT MILESTONES

- .1 Mandatory project milestones form targets for both Master Plan and Detail Schedule of CPM construction network system.
 - .1 Interior finishing and fitting, mechanical and electrical Work completed within number of working days of Award of Contract date.
 - .2 Interim Certificate (substantial completion) within number of working days of Award of Contract date.
 - .3 Outside work completed within number of working days of Award of Contract date.
 - .4 Final Certificate completion within number of working days of Award of Contract date.

1.9 MASTER PLAN

- .1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.
- .2 Prepare comprehensive construction Master Plan (CPM logic diagram) and dependent Cash Flow Projection within 10 working days of finalizing Agreement to confirm validity or alternates of identified milestones.
 - .1 Master Plan will be used as baseline.
 - .1 Revise baseline as conditions dictate and as required by City of Winnipeg.
 - .2 City of Winnipeg will review and return revised baseline within 10 work days.
 - .3 Reconcile revisions to Master Plan and Cash Flow Projections with previous baseline to provide continuous audit trail.
 - .4 Initial and subsequent Master Plans will include:
 - .1 CD containing schedule and cash flow information, clearly labelled with data date, specific update, and person responsible for update.
 - .2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.
 - .3 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.
 - .4 Actual/projected monthly cash flow: expressed annually and monthly and shown in both graphical and numerical form.

1.10 DETAIL SCHEDULE

- .1 Provide detailed project schedule (CPM logic diagram) within 10 working days of Award of Contract date showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:
 - .1 Shop drawings.
 - .2 Samples.
 - .3 Approvals.
 - .4 Procurement.
 - .5 Construction.
 - .6 Installation.
 - .7 Site works.
 - .8 Testing.
 - .9 Commissioning and acceptance.
- .2 Detail CPM schedule to cover project duration.
 - .1 Show remaining activities for CPM construction network system up to Final Certificate and develop complete detail as project progresses.
 - .2 Detail activities completely and comprehensively throughout duration of project.

- .3 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Plan.
- .4 Clearly show sequence and interdependence of construction activities and indicate:
 - .1 Start and completion of all items of Work, their major components, and interim milestone completion dates.
 - .2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:
 - .1 Time for submittals, resubmittals and review.
 - .2 Time for fabrication and delivery of manufactured products for Work.
 - .3 Interdependence of procurement and construction activities.
 - .3 Include sufficient detail to assure adequate planning and execution of Work. Activities should generally range in duration from 3 to 15 workdays each.
- .5 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.
- .6 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path". Increased number of critical activities is seen as indication of increased risk.
- .7 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to City of Winnipeg for review effects created by insertion of new Change Order.

1.11 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

- .1 Allow 5 work days for review by City of Winnipeg of proposed construction Detail Schedule.
- .2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to City of Winnipeg for review within 5 work days.
- .3 Promptly provide additional information to validate practicability of Detail Schedule as required by City of Winnipeg.
- .4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.12 COMPLIANCE WITH DETAIL SCHEDULE

- .1 Comply with reviewed Detail Schedule.
- .2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, only after written receipt of approval by City of Winnipeg.

- .3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
 - .1 Corrective measures may include:
 - .1 Increase of personnel on site for effected activities or Work package.
 - .2 Increase in materials and equipment.
 - .3 Overtime work additional work shifts.
- .4 Submit to Department Representative, justification, project schedule data and supporting evidence for approval of extension to Contract completion date or interim milestone date when required. Include as part of supporting evidence:
 - .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.
 - .2 Prepared schedule indicating how change will be incorporated into the overall logic diagram. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
 - .3 Other supporting evidence requested by City of Winnipeg.
 - .4 Do not assume approval of Contract extension prior to receipt of written approval from City of Winnipeg.
- .5 In event of Contract extension, display in Detail Schedule that scheduled float time available for work involved has been used in full without jeopardizing earned float.
 - .1 City of Winnipeg will determine and advise Contractor number of allowable days for extension of Contract based on project schedule updates for period in question, and other factual information.
 - .2 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.

1.13 PROGRESS MONITORING AND REPORTING

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of Subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with City of Winnipeg at least once monthly to establish progress on each current activity shown on applicable networks.
- .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.
- .3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
- .5 Submit City of Winnipeg copies of updated Detail Schedule.

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- .6 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
 - .7 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:
 - .1 Description of progress made.
 - .2 Pending items and status of: permits, shop drawings, Change Orders, possible time extensions.
 - .3 Status of Contract completion date and milestones.
 - .4 Current and anticipated problem areas, potential delays and corrective measures.
 - .5 Review of progress and status of Critical Path activities.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or work weeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Contract Administrator to enable monitoring of project Work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit a Master Plan to the City of Winnipeg within 3 working days of Award of Contract.
 - .1 Contract Administrator will review and return revised schedules within 5 working days.
 - .2 Revise impractical schedule and resubmit within 1 working days.
 - .3 Accepted revised schedule will become Master Plan and be used as baseline for updates.
- .3 Submit GANTT Project Schedule to Contract Administrator within 5 working days of receipt of acceptance of Master Plan.
 - .1 Develop detailed Project Schedule derived from Master Plan.

1.4 GANTT FORMAT

- .1 Microsoft Project Format.
- .2 Provide separate lines for each major item.
- .3 Indicate projected and actual performance.
- .4 Provide vertical lines indicating the first day of each week.
- .5 Provide listings in chronological format.

1.5 PROJECT SCHEDULE

- .1 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Shop Drawings, Samples.
 - .3 Permits.
 - .4 Mobilization.
 - .5 Interior Architecture (Walls, Floors and Ceiling).
 - .6 Exterior cladding removal and replacement.
 - .7 Plumbing.
 - .8 Lighting.
 - .9 Electrical.
 - .10 Piping.
 - .11 Controls.
 - .12 Heating, Ventilating, and Air Conditioning.
 - .13 Millwork.
 - .14 Fire Systems.

- .15 Window replacement.
- .16 Siding infill.
- .17 Testing and Commissioning.
- .18 Supplied equipment long delivery items.
- .19 Engineer supplied equipment required dates.

1.6 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.7 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Submit to Contract Administrator submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Contract Administrator, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator review.
- .10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of Manitoba, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 14 days for Contract Administrator's review of each submission.
- .5 Adjustments made on shop drawings by Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the City of Winnipeg prior to proceeding with Work.

- .6 Make changes in shop drawings as Contract Administrator may require, consistent with Contract Documents. When resubmitting, notify the Contract Administrator in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent Work.
- .9 After Contract Administrator's review, distribute copies.
- .10 Submit 6 prints or electronic copy of shop drawings for each requirement requested in specification Sections and as Contract Administrator may reasonably request.
- .11 Submit 3 prints or electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Contract Administrator where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit 3 prints or electronic copies of test reports for requirements requested in specification Sections and as requested by Contract Administrator.

- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Testing must have been within 1 year of date of contract award for project.
- .13 Submit 3 prints or electronic copies of certificates for requirements requested in specification Sections and as requested by Contract Administrator.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit 3 prints or electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Contract Administrator.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit 3 prints or electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Contract Administrator.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit 3 prints or electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Contract Administrator.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Contract Administrator, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that responsibility is assumed for the detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.3 SAMPLES

- .1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Contract Administrator's business address.
- .3 Notify Contract Administrator in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the City of Winnipeg prior to proceeding with Work.
- .6 Make changes in samples which Contract Administrator may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

END OF SECTION

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Definitions:
 - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
 - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
 - .3 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Contract Administrator.
- .3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.
- .4 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .5 Include in Environmental Protection Plan:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Names and qualifications of persons responsible for training site personnel.
 - .4 Descriptions of environmental protection personnel training program.
 - .5 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
 - .6 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.

- .7 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .8 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .9 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .10 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .11 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .12 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.3 FIRES

- .1 Fires and burning of rubbish on site not permitted.

1.4 DRAINAGE

- .1 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.5 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants on site and adjacent properties as indicated for extent required for new work in scope of project.
- .2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.
- .3 Restrict tree removal to areas indicated or designated by Contract Administrator.

1.6 POLLUTION CONTROL

- .1 Seal areas of work to prevent the spread of contaminants into occupied areas.
- .2 Protect all detection devices and air handling grilles to prevent contamination.
- .3 Control emissions from equipment and plant to local authorities' emission requirements.
- .4 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
 - .1 Provide temporary enclosures where directed by Contract Administrator.

- .5 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.7 NOTIFICATION

- .1 Contract Administrator will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Contract Administrator of proposed corrective action and take such action for approval by Contract Administrator.
 - .1 Do not take action until after receipt of written approval by Contract Administrator.
- .3 Contract Administrator will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Federal Legislation
 - .1 Canadian Environmental Protection Act, 1999, c. 33 (CEPA).
 - .2 Canadian Environmental Assessment Act, 1992, c. 37 (CEAA).
 - .3 Transportation of Dangerous Goods Act 1992, c. 34 (TDGA).
 - .4 Motor Vehicle Safety Act 1993, c. 16 (MVSA).

1.2 DEFINITIONS

- .1 Alternate Disposal: reuse and recycling of materials by designated facility, user or receiving organization which has valid Certificate of Approval to operate. Alternative to landfill disposal.
- .2 Deconstruction: systematic dismantling of structure to salvage materials for reuse. What cannot be reused is considered subsequently for recycling. Ultimate objective is to recover potentially valuable resources while diverting from landfill what has traditionally been significant portion of waste stream.
- .3 Demolition: rapid destruction of structure with or without prior removal of hazardous materials.
- .4 Disassembly: physical detachment of materials from structure and may include: prying, pulling, cutting, unscrewing.
- .5 Hauler: company (possessing appropriate and valid Certificate of Approval) contracted to transport waste, reusable or recyclable materials off site to designated facility, user or receiving organization.
- .6 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.
- .7 Processing: tasks which are subsequent to disassembly and may include: moving materials, denailing, cleaning, separating and stacking.
- .8 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.
- .9 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .10 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

- .11 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from remodelling projects before the demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items may include pallets and unused products to vendors.
- .12 Salvage: removal of structural and non-structural structure materials from industrial, commercial and institutional structure deconstruction/disassembly projects for purpose of reuse or recycling.
- .13 Source Separation: acts of keeping different types of waste materials separate beginning from first time they become waste.
- .14 Used Building Material Receipt: receipt issued at end destination for materials designated for alternate disposal.
- .15 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying (by volume or weight) amounts of materials and wastes generated during deconstruction. Indicates quantities of reuse, recycling and landfill.
- .16 Waste Management Co-ordinator (WMC): Contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .17 Weigh Bill: receipt received from recycling facility indicating weight and content of each load/bin of material.

1.3 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to start of Work on site, submit detailed Waste Audit indicating descriptions of and anticipated quantities of materials to be reused, recycled and landfilled in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Workers, haulers and Subcontractors must possess current, applicable Certificates of Approval / permits to remove, handle and dispose of wastes categorized as hazardous.
 - .1 Provide proof of compliance within 24 hours upon receipt of written request of City of Winnipeg.
- .4 Keep copies of submittals on file for minimum of five years after completion of project.

1.4 DECONSTRUCTION DRAWINGS

- .1 Where required by authorities having jurisdiction, submit for approval, drawings, diagrams and details showing sequence of deconstruction Work, materials designated for salvage and support of structures and underpinning.
 - .1 Submit drawings stamped and signed by qualified professional Engineer registered or licensed in the Province of Manitoba, Canada.

1.5 QUALITY ASSURANCE

- .1 Qualifications: provide adequate workforce training through meetings and demonstrations. Have someone on site with deconstruction experience throughout project for consultation and supervision purposes.
- .2 Regulatory Requirements: ensure Work is performed in compliance with CEPA, CEAA, TDGA, MVSA, and applicable Provincial/Territorial regulations.

1.6 SITE CONDITIONS

- .1 Existing Conditions:
 - .1 Review “City of Winnipeg Asbestos Inventory Control – Building Code CC-103 – Weston Memorial Community Centre” report dated February 19th, 2014, inspected by R Matthews & Matt Kanabe, for Asbestos Inventory Requirements.
 - .1 City of Winnipeg will remediate areas containing asbestos as listed in the asbestos inventory above prior to turning over the facility to the Contractor for Work.
 - .2 Should additional materials resembling spray or trowel applied asbestos or other designated substance listed as hazardous be encountered in course of deconstruction, stop Work, take preventative measures, and notify City of Winnipeg immediately. Do not proceed until written instructions have been received.
 - .2 Assemblies to be deconstructed on their condition on date of contract award. Be responsible for provision of services required for deconstruction and new Work.
 - .1 Refer to drawings for extent of deconstruction of units and locations of new openings in existing concrete shear walls and concrete floors.
- .2 Storage:
 - .1 Maximum permitted duration of material storage on site determined in consultation with City of Winnipeg.

1.7 ENVIRONMENTAL PROTECTION

- .1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Ensure deconstruction Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air noise pollution.
- .3 Fires and burning of waste or materials is not permitted on site.
- .4 Do not bury waste or materials on site unless approved in writing by City of Winnipeg.
- .5 Do not dispose of waste or volatile materials into watercourses, storm or sanitary sewers.
 - .1 Ensure proper disposal procedures in accordance with CEPA, TDGA, and applicable Provincial/Territorial regulations.
- .6 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties in accordance with authorities having jurisdiction.

- .7 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with as directed by City of Winnipeg.
- .8 Protect trees, plants and foliage on site and adjacent properties.
- .9 Prevent extraneous materials from contaminating air beyond deconstruction area, by providing temporary enclosures during Work.
- .10 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on temporary roads.
- .11 Employ reasonable means necessary to protect salvaged materials from vandalism, theft, adverse weather, or inadvertent damage by heavy machinery.
- .12 Use natural lighting to do Work where possible.
 - .1 Shut off lighting except those required for security purposes at end of each day.
- .13 Organize site and workers in manner which promotes efficient flow of materials through disassembly, processing, stockpiling, and removal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 SITE VERIFICATION OF CONDITIONS

- .1 Employ necessary means to assess site conditions and structure to determine quantity and locations of hazardous materials.
- .2 Investigate site and structure to determine the extent of Work and the dismantling, processing and storage logistics required prior to beginning of Work.
- .3 Develop strategy for deconstruction to facilitate optimum salvage of reusable and recyclable materials.

3.2 PREPARATION

- .1 Obtain necessary permits and approvals.
 - .1 Provide copies to City of Winnipeg and Contract Administrator prior to start of Work on site.
- .2 Post signs in visible locations and appropriate languages that indicate to workers, Subcontractors, haulers, and public, location of processing and stockpiling of each material, bin location and use e.g. ("CLEAN WOOD ONLY").

3.3 STOCKPILING

- .1 Label stockpiles, indicating material type and quantity.
- .2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.
- .3 Locate stockpiled materials convenient for use in new construction. Eliminate double handling wherever possible.
- .4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.
- .5 Supply separate, clearly marked disposal bins for categories of waste material. Recycling and waste to be processed in accordance with Section 01 74 21 – Waste Management and Disposal.

3.4 REMOVAL FROM SITE

- .1 Remove stockpiles of like materials by alternate disposal option once collection of materials is complete. See Section 01 74 21 – Waste Management and Disposal.
- .2 Transport material designated for alternate disposal using approved haulers, facilities, receiving organizations and in accordance with applicable regulations.
- .3 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.
 - .3 All applicable workplace safety and health requirements.

1.2 HAZARDOUS MATERIAL DISCOVERY

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Contract Administrator. Refer to Occupational Hygiene Report.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Contract Administrator.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Contract Administrator.

1.3 CITY OF WINNIPEG REQUIREMENTS

- .1 Minimum 48hrs notification to City of Winnipeg Public Works Building Services Department is required for placing of any piles or concrete work or any critical construction technique. All construction work will be halted if notice is not adhered to.
- .2 Promptly report all accidents and potential liability claims to the Contract Administrator.

1.4 BUILDING SMOKING ENVIRONMENT

- .1 Smoking is not permitted inside or within 10 metres of the building. Comply with smoking restrictions and municipal by-laws. No smoking is permitted.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 INSPECTION

- .1 Allow Contract Administrator access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Contract Administrator instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Contract Administrator will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, City of Winnipeg shall pay cost of examination and replacement.

1.2 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Contract Administrator for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by City of Winnipeg.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Contract Administrator at no cost to the City of Winnipeg. Pay costs for retesting and reinspection.

1.3 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.4 PROCEDURES

- .1 Notify appropriate agency and Contract Administrator in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.5 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Contract Administrator as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's Work damaged by such removals or replacements promptly.
- .3 If in opinion of Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, City of Winnipeg will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by City of Winnipeg.

1.6 REPORTS

- .1 Submit 4 copies of inspection and test reports to Contract Administrator.
- .2 Provide copies to Subcontractor of Work being inspected or tested, manufacturer or fabricator of material being inspected or tested.

1.7 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Contract Administrator and may be authorized as recoverable.

1.8 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Contract Administrator or as specified in specific Section.
- .3 Prepare mock-ups for Contract Administrator review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Contract Administrator will assist in preparing schedule fixing dates for preparation.
- .6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.9 MILL TESTS

- .1 Submit mill test certificates as requested or as required of specification Sections.

1.10 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute Work expeditiously.
- .2 Remove from site all such Work after use.

1.3 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.4 WATER SUPPLY

- .1 Provide a continuous supply of potable water for construction use. Arrangements to be made with City of Winnipeg as required.
- .2 Pay for utility charges at prevailing rates.

1.5 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .5 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.

- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after cessation of Work process to assure removal of harmful contaminants.
- .6 Permanent heating system of building, not to be used when available, unless explicitly permitted by City of Winnipeg. Be responsible for damage to heating system if use is permitted. Use by Contractor does not constitute commencement of warranty time-frame.
- .7 On completion of Work for which permanent heating system is used, replace filters, clean and inspect.
- .8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Contract Administrator.
- .9 Pay costs for maintaining temporary heat, when using permanent heating system.
- .10 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.
- .11 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.6 TEMPORARY POWER AND LIGHT

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools, to a maximum supply of 230 volts 30 amps.
- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.
- .3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- .4 Existing building power supply is available and will be provided for construction use at current cost rates. Connect to existing power supply in accordance with Canadian Electrical Code and provide meters and switching.
- .5 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Contract Administrator, provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.7 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary telephone, fax, data hook up, lines, equipment necessary for own use.

1.8 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.
- .4 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute Work expeditiously.
- .5 Remove from site all such Work after use.

1.4 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms temporary stairs as required throughout duration of the Work and in strict accordance with Workplace Safety & Health Regulations and the current issue or latest revision of applicable building codes, standards and best practices at the time when the building permit is issued.

- .1 Provide professional engineer's approval/seal as required by applicable building codes, standards and regulations.
- .2 Provide and maintain heavy duty scaffolding as required for access for the duration of the Work. Scaffolding design, erection, and maintenance to Workplace Safety & Health: Guidelines for Access Scaffolding.
- .3 Upon request, make available to the Contract Administrator all pertinent information regarding the shoring and bridging equipment, design, and setup. The Contractor remains solely responsible.
- .4 Provide, operate and maintain hoists, construction elevators and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .5 Hoists cranes to be operated by qualified operator.

1.5 HOISTING

- .1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists cranes to be operated by qualified operator.

1.6 SITE STORAGE/LOADING

- .1 Confine Work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

1.8 SECURITY

- .1 Be responsible for security to site and contents of site after working hours and during holidays.

1.9 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .4 Site office.
 - .1 Space may be used within the building at the approval and availability from City of Winnipeg.
 - .2 Provide office with phone, fax and data line: computer and 11 x 17 paper printer.
 - .3 Maintain in clean condition.

1.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.11 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval of City of Winnipeg.

1.12 CONSTRUCTION SIGNAGE

- .1 Provide and erect project sign, within three weeks of signing Contract, in a location designated by Contract Administrator.
- .2 Construction sign 1.2 x 2.4 m wide, of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.
- .3 Sign to indicate names and logos of:
 - .1 The City of Winnipeg
 - .2 The Province of Manitoba
 - .3 The Federal Government
 - .4 The General Council of Winnipeg Community Centres
 - .5 The Contract Administrator
 - .6 The Contractor
- .4 Install and maintain City of Winnipeg and Contract Administrator's signs.
- .5 No other signs or advertisements, other than warning signs, are permitted on site.
- .6 Direct requests for approval to erect Contract Administrator/Contractor signboard to City of Winnipeg.
- .7 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .8 Maintain approved signs and notices in good condition for duration of project, and return to the City of Winnipeg and Contract Administrator upon completion of project.

1.13 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.

- .2 Protect travelling public from damage to person and property.
- .3 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .4 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .5 Construct access and haul roads necessary.
- .6 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .7 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .8 Dust control: adequate to ensure safe operation at all times.
- .9 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Contract Administrator.
- .10 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .11 Provide snow removal during period of Work.
- .12 Remove, upon completion of work, haul roads designated by Contract Administrator.

1.14 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-O121-M1978(R2003), Douglas Fir Plywood.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such Work after use.

1.3 HOARDING

- .1 Provide construction site fencing around area of Work.
 - .1 Erect temporary site enclosure using pre-manufactured 3000mm width x 2400mm height (10'x8') steel chain link fencing modules, adequately braced and interconnected to resist collapse.
 - .2 Proposed fencing type and location to be approved by City of Winnipeg prior to installation.
 - .3 Provide lockable entrance gates located to conform to applicable traffic restrictions on adjacent streets and without disruption to site circulation routes. Equip gates with locks and keys.
- .2 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.4 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs, and all areas that may pose a risk.
- .2 Provide as required by governing authorities and as indicated.

1.5 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

1.6 DUST TIGHT SCREENS

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such Work is complete.

1.7 DUST AND ASBESTOS CONTAINMENT

- .1 Provide airtight sealed enclosures to localize dust and contaminant generating activities and prevention of contamination of occupied parts of the building, finished areas of Work, and for protection of workers.
- .2 Maintain and relocate protection until such Work is complete.
- .3 Containment of Asbestos Abatement work:
 - .1 Review “City of Winnipeg Asbestos Inventory Control – Building Code CC-103 – Weston Memorial Community Centre” report dated February 19th, 2014, inspected by R Matthews & Matt Kanabe, for Asbestos Inventory Requirements.
 - .2 City of Winnipeg will remediate areas containing asbestos as listed in the asbestos inventory above prior to turning over the facility to the General Contractor for work.
 - .3 Perform inspection and testing to confirm:
 - .1 Full containment and sealing of asbestos abatement areas prior to commencement of abatement Work.
 - .2 Test for no presence of Asbestos after completion of work and prior to removing sealed enclosures.

1.8 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.9 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.10 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.11 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Contract Administrator locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.12 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .2 If there are questions as to whether products or systems are in conformance with applicable standards, Contract Administrator reserves right to have such products or systems tested to prove or disprove conformance.
- .3 Cost for such testing will be born by the City of Winnipeg in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of Work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Contract Administrator based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Contract Administrator of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Contract Administrator at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Contract Administrator reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber and panels on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Contract Administrator.
- .9 Touch-up damaged factory finished surfaces to Contract Administrator's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by the City of Winnipeg will be paid for by the City of Winnipeg. Unload, handle and store such products.

1.6 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Contract Administrator in writing, of conflicts between specifications and manufacturer's instructions, so that Contract Administrator will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Contract Administrator to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Contract Administrator if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Contract Administrator reserves right to require dismissal from site, workers deemed incompetent or careless.

- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Contract Administrator, whose decision is final.

1.8 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.9 CONCEALMENT

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Contract Administrator if there is interference. Install as directed by Contract Administrator.

1.10 REMEDIAL WORK

- .1 Perform remedial Work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial Work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.
- .3 Refer to Section 01 73 00 - Execution Requirements.

1.11 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Contract Administrator of conflicting installation. Install as directed.

1.12 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior Work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.14 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Contract Administrator.

1.15 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of the City of Winnipeg or separate Contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of the City of Winnipeg or separate Contractor.
 - .7 Written permission of affected separate Contractor.
 - .8 Date and time Work will be executed.

1.2 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering Work; maintain excavations free of water.

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.

- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.
- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry Work without prior approval.
- .10 Restore Work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 - Firestopping, full thickness of the construction element.
- .13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

1.2 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the City of Winnipeg or other Subcontractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Contract Administrator. Do not burn waste materials on site, unless approved by Contract Administrator.
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finishing Work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris other than that caused by the City of Winnipeg or other Subcontractors.

- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Contract Administrator. Do not burn waste materials on site, unless approved by Contract Administrator.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .8 Remove stains, spots, marks and dirt from decorative Work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .12 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .13 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .14 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .15 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .16 Remove snow and ice from access to building.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

- .1 Manage waste to best standard possible within the limits of the project waste and waste management within the Region and in particularly those of the City of Winnipeg.
- .2 Accomplish maximum control of solid construction waste.
- .3 Preserve environment and prevent pollution and environment damage.

1.2 DEFINITIONS

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Cost/Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.
- .3 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .4 Inert Fill: inert waste - exclusively asphalt and concrete.
- .5 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste sorted into individual types.

- .12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .13 Waste Management Co-ordinator (WMC) : Contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

1.3 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Reduction Workplan.
 - .2 Material Source Separation Plan.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
 - .1 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.
 - .2 Submit 2 copies of Materials Source Separation Program (MSSP) description.

1.5 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by City of Winnipeg.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
 - .1 Transport to approved and authorized recycling facility to users of material for recycling.
- .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.
 - .1 Ship materials to designated site.
 - .2 Materials must be immediately separated into required categories for reuse or recycling.

1.6 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by City of Winnipeg.
- .2 Unless specified otherwise, materials for removal do not become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify City of Winnipeg.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Provide waybills for separated materials.

1.7 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.
- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .4 Provide, install and maintain an appropriate multi-storey garbage chute system, or other waste removal method approved by the City of Winnipeg.

1.8 USE OF SITE AND FACILITIES

- .1 Execute Work with least possible interference or disturbance to normal use of premises.
- .2 Maintain security measures established by existing facility provide temporary security measures approved by City of Winnipeg.

1.9 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 APPLICATION

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up Work area as Work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

3.3 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

- .1 Schedule E - Government Chief Responsibility for the Environment:

Province	Address	General Inquires	Fax
Manitoba	Manitoba Environment Building 2, 139 Tuxedo Avenue, Winnipeg, MB R3N 0H6	204-945-7100	
	The Clean Environment Commission 284 Reimer Avenue, Box 21420 Steinbach MB R0A 2T3	204-326-2395	204-326-2472

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Contract Administrator in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Contract Administrator inspection.
 - .2 City of Winnipeg Inspection:
 - .1 City of Winnipeg and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Equipment and systems: tested, adjusted and balanced and fully operational.
 - .4 Certificates required by Fire Commissioner: submitted.
 - .5 Operation of systems: demonstrated to City of Winnipeg personnel.
 - .6 Commissioning of mechanical systems: completed in accordance with 01 91 13 - General Commissioning (Cx) Requirements and copies of final Commissioning Report submitted to City of Winnipeg.
 - .7 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Contract Administrator, and Contractor.
 - .2 When Work incomplete according to Contract Administrator, complete outstanding items and request re-inspection.
 - .5 Declaration of Substantial Performance: when Contract Administrator considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
 - .6 Commencement of Lien and Warranty Periods: date of the City of Winnipeg's acceptance of submitted declaration of Substantial Performance to be date for

commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

- .7 Final Payment:
 - .1 When Contract Administrator considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .2 When Work deemed incomplete by Contract Administrator, complete outstanding items and request re-inspection.
- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.3 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with Contractor's representative and City of Winnipeg, in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 City of Winnipeg to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty Work action: provide name, telephone number and address of company authorized for construction warranty Work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty Work action.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Contract Administrator, one (1) copy of operating and maintenance manuals in English for review & markup with three (3) final submissions required once markups completed.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.4 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.

- .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, process flow, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.
- .9 Provide scaled CAD files in dwg format on CD.

1.5 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Contract Administrator and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.6 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for City of Winnipeg, one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.

- .3 Addenda.
- .4 Change Orders and other modifications to Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
 - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Contract Administrator.

1.7 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of blue line opaque drawings, and in copy of Project Manual, provided by City of Winnipeg.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

- .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

1.8 FINAL SURVEY

- .1 Submit final site survey certificate, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.9 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control and 01 91 13 - General Commissioning (Cx) Requirements.
- .15 Additional requirements: as specified in individual specification sections.

1.10 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

1.11 MAINTENANCE MATERIALS

- .1 Spare Parts:
 - .1 Provide spare parts, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to site; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to City of Winnipeg.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit prior to final payment.
- .2 Extra Stock Materials:
 - .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to site; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to City of Winnipeg.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit prior to final payment.
- .3 Special Tools:
 - .1 Provide special tools, in quantities specified in individual specification section.

- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to City of Winnipeg.
 - .2 Include approved listings in Maintenance Manual.

1.12 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by City of Winnipeg.

1.13 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to City of Winnipeg approval.
- .3 Warranty management plan to include required actions and documents to assure that City of Winnipeg receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to City of Winnipeg for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of Work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by Subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of Work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.

- .7 Except for items put into use with City of Winnipeg 's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 4 month and 9 month warranty inspection, measured from time of acceptance, by City of Winnipeg.
- .9 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, Subcontractors, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems such as fire protection, alarm systems, sprinkler systems, lightning protection systems.
 - .3 Provide list for each warranted equipment, item, and feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .4 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.
 - .5 Procedure and status of tagging of equipment covered by extended warranties.
 - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair Work.
- .11 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the City of Winnipeg to proceed with action against Contractor.

1.14 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by City of Winnipeg.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate scheduled operation and maintenance of equipment and systems to City of Winnipeg and Community Centre representatives two weeks prior to date of substantial performance.
- .2 City of Winnipeg: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.
- .3 Preparation:
 - .1 Verify conditions for demonstration and instructions comply with requirements.
 - .2 Verify designated personnel are present.
 - .3 Ensure equipment has been inspected and put into operation in accordance Contract Documents.
 - .4 Ensure testing, adjusting, and balancing has been performed in accordance with Section 01 91 13 - General Commissioning (Cx) Requirements and equipment and systems are fully operational.
- .4 Demonstration and Instructions:
 - .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the equipment location.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.
- .5 Time Allocated for Instructions: ensure amount of time required for instruction of each item of equipment or system as follows:
 - .1 Mechanical Systems – 4 hours of instruction.
 - .2 Electrical Systems – 2 hours of instruction.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for City of Winnipeg approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.
- .5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.3 QUALITY ASSURANCE

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
 - .1 Instruct the City of Winnipeg personnel.
 - .2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Acronyms:
 - .1 AFD - Alternate Forms of Delivery, service provider.
 - .2 BMM - Building Management Manual.
 - .3 Cx - Commissioning.
 - .4 EMCS - Energy Monitoring and Control Systems.
 - .5 O&M - Operation and Maintenance.
 - .6 PI - Product Information.
 - .7 PV - Performance Verification.
 - .8 TAB - Testing, Adjusting and Balancing.

1.2 GENERAL

- .1 Cx is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Cx is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:
 - .1 Verify installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and intent.
 - .2 Ensure appropriate documentation is compiled into the BMM.
 - .3 Effectively train O&M staff.
- .2 Contractor assists in Cx process, operating equipment and systems, troubleshooting and making adjustments as required.
 - .1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be tested interactively with each other as intended in accordance with Contract Documents and design criteria.
 - .2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.
- .3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.

1.3 COMMISSIONING OVERVIEW

- .1 Cx to be a line item of Contractor's cost breakdown.
- .2 Cx activities supplement field quality and testing procedures described in relevant technical sections.
- .3 City of Winnipeg will issue Interim Acceptance Certificate when

- .1 Completed Cx documentation has been received, reviewed for suitability and approved by City of Winnipeg.
- .2 Equipment, components and systems have been commissioned.
- .3 O&M training has been completed.

1.4 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS

- .1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the unfunctional system, including related systems as deemed required by City of Winnipeg to ensure effective performance.
- .2 Costs for corrective Work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor. Above costs to be in form of progress payment reductions or hold-back assessments.

1.5 PRE-CX REVIEW

- .1 Before Construction:
 - .1 Review contract documents, confirm by writing to City of Winnipeg.
 - .1 Adequacy of provisions for Cx.
 - .2 Aspects of design and installation pertinent to success of Cx.
- .2 During Construction: Co-ordinate provision, location and installation of provisions for Cx.
- .3 Before start of Cx:
 - .1 Have completed Cx Plan up-to-date.
 - .2 Ensure installation of related components, equipment, sub-systems, systems is complete.
 - .3 Fully understand Cx requirements and procedures.
 - .4 Have Cx documentation shelf-ready.
 - .5 Understand completely design criteria and intent and special features.
 - .6 Submit complete start-up documentation to City of Winnipeg.
 - .7 Have Cx schedules up-to-date.
 - .8 Ensure systems have been cleaned thoroughly.
 - .9 Complete TAB procedures on systems, submit TAB reports to City of Winnipeg for review and approval.
 - .10 Ensure "As-Built" system schematics are available.
- .4 Inform City of Winnipeg in writing of discrepancies and deficiencies on finished Work.

1.6 CONFLICTS

- .1 Report conflicts between requirements of this section and other sections to City of Winnipeg before start-up and obtain clarification.

- .2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

1.7 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit no later than 4 weeks after award of Contract: Preliminary Cx schedule.
 - .2 Provide additional documentation relating to Cx process required by City of Winnipeg.

1.8 COMMISSIONING SCHEDULE

- .1 Provide detailed Cx schedule as part of construction schedule.
- .2 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:
 - .1 Approval of Cx reports.
 - .2 Verification of reported results.
 - .3 Repairs, retesting, re-commissioning, re-verification.
 - .4 Training.

1.9 STARTING AND TESTING

- .1 Contractor assumes liabilities and costs for inspections. Including disassembly and re-assembly after approval, starting, testing and adjusting, including supply of testing equipment.

1.10 WITNESSING OF STARTING AND TESTING

- .1 Provide 14 days notice prior to commencement.
- .2 Contractor's Cx Agent to be present at tests performed and documented by sub-trades, suppliers and equipment manufacturers.

1.11 MANUFACTURER'S INVOLVEMENT

- .1 Factory testing: manufacturer to:
 - .1 Coordinate time and location of testing.
 - .2 Provide testing documentation for approval by City of Winnipeg.
 - .3 Arrange for City of Winnipeg to witness tests.
 - .4 Obtain written approval of test results and documentation from City of Winnipeg before delivery to site.
- .2 Obtain manufacturers installation, start-up and operations instructions prior to start-up of components, equipment and systems and review with City of Winnipeg.
 - .1 Compare completed installation with manufacturer's published data, record discrepancies, and review with manufacturer.

- .2 Modify procedures detrimental to equipment performance and review same with manufacturer before start-up.
- .3 Integrity of warranties:
 - .1 Use manufacturer's trained start-up personnel where specified elsewhere in other divisions or required to maintain integrity of warranty.
 - .2 Verify with manufacturer that testing as specified will not void warranties.
- .4 Qualifications of manufacturer's personnel:
 - .1 Experienced in design, installation and operation of equipment and systems.
 - .2 Ability to interpret test results accurately.
 - .3 To report results in clear, concise, logical manner.

1.12 PROCEDURES

- .1 Verify that equipment and systems are complete, clean, and operating in normal and safe manner prior to conducting start-up, testing and Cx.
- .2 Conduct start-up and testing in following distinct phases:
 - .1 Included in delivery and installation:
 - .1 Verification of conformity to specification, approved shop drawings and completion of PI report forms.
 - .2 Visual inspection of quality of installation.
 - .2 Start-up: follow accepted start-up procedures.
 - .3 Operational testing: document equipment performance.
 - .4 System PV: include repetition of tests after correcting deficiencies.
 - .5 Post-substantial performance verification: to include fine-tuning.
- .3 Correct deficiencies and obtain approval from City of Winnipeg after distinct phases have been completed and before commencing next phase.
- .4 Document required tests on approved PV forms.
- .5 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by City of Winnipeg. If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement following:
 - .1 Minor equipment/systems: implement corrective measures approved by City of Winnipeg.
 - .2 Major equipment/systems: if evaluation report concludes that damage is minor, implement corrective measures approved by City of Winnipeg.
 - .3 If evaluation report concludes that major damage has occurred, City of Winnipeg shall reject equipment.
 - .1 Rejected equipment to be remove from site and replace with new.
 - .2 Subject new equipment/systems to specified start-up procedures.

1.13 START-UP DOCUMENTATION

- .1 Assemble start-up documentation and submit to City of Winnipeg for approval before commencement of commissioning.
- .2 Start-up documentation to include:
 - .1 Factory and on-site test certificates for specified equipment.
 - .2 Pre-start-up inspection reports.
 - .3 Signed installation/start-up check lists.
 - .4 Start-up reports,
 - .5 Step-by-step description of complete start-up procedures, to permit City of Winnipeg to repeat start-up at any time.

1.14 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

- .1 After start-up, operate and maintain equipment and systems as directed by equipment/system manufacturer.
- .2 With assistance of manufacturer develop written maintenance program and submit City of Winnipeg for approval before implementation.
- .3 Operate and maintain systems for length of time required for commissioning to be completed.
- .4 After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

1.15 TEST RESULTS

- .1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.
- .2 Provide manpower and materials, assume costs for re-commissioning.

1.16 COMMISSIONING PERFORMANCE VERIFICATION

- .1 Carry out Cx:
 - .1 Under actual or accepted simulated operating conditions, over entire operating range, in all modes.
 - .2 On independent systems and interacting systems.
- .2 Cx procedures to be repeatable and reported results are to be verifiable.
- .3 Follow equipment manufacturer's operating instructions.
- .4 EMCS trending to be available as supporting documentation for performance verification.

1.17 AUTHORITIES HAVING JURISDICTION

- .1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.
- .2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.
- .3 Provide copies to City of Winnipeg days of test and with Cx report.

1.18 EXTENT OF VERIFICATION

- .1 Elsewhere: Provide manpower and instrumentation to verify up to 30 % of reported results, unless specified otherwise in other sections.
- .2 Number and location to be at discretion of City of Winnipeg.
- .3 Conduct tests repeated during verification under same conditions as original tests, using same test equipment, instrumentation.
- .4 Review and repeat commissioning of systems if inconsistencies found in more than 20% of reported results.
- .5 Perform additional commissioning until results are acceptable to City of Winnipeg.

1.19 REPEAT VERIFICATIONS

- .1 Assume costs incurred by City of Winnipeg for third and subsequent verifications where:
 - .1 Verification of reported results fail to receive City of Winnipeg's approval.
 - .2 Repetition of second verification again fails to receive approval.
 - .3 City of Winnipeg deems Contractor's request for second verification was premature.

1.20 SUNDRY CHECKS AND ADJUSTMENTS

- .1 Make adjustments and changes which become apparent as Cx proceeds.
- .2 Perform static and operational checks as applicable and as required.

1.21 DEFICIENCIES, FAULTS, DEFECTS

- .1 Correct deficiencies found during start-up and Cx to satisfaction of City of Winnipeg.
- .2 Report problems, faults or defects affecting Cx to City of Winnipeg in writing. Stop Cx until problems are rectified. Proceed with written approval from City of Winnipeg.

1.22 COMPLETION OF COMMISSIONING

- .1 Upon completion of Cx leave systems in normal operating mode.

- .2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.
- .3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by City of Winnipeg.

1.23 ACTIVITIES UPON COMPLETION OF COMMISSIONING

- .1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.

1.24 TRAINING

- .1 In accordance with Section 01 79 00 – Demonstration and Training.

1.25 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

- .1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

1.26 OCCUPANCY

- .1 Cooperate fully with City of Winnipeg during stages of acceptance and occupancy.

1.27 PERFORMANCE VERIFICATION TOLERANCES

- .1 Application tolerances:
 - .1 Specified range of acceptable deviations of measured values from specified values or specified design criteria. Except for special areas, to be within +/- 10% of specified values.
- .2 Instrument accuracy tolerances:
 - .1 To be of higher order of magnitude than equipment or system being tested.
- .3 Measurement tolerances during verification:
 - .1 Unless otherwise specified actual values to be within +/- 2 % of recorded values.

1.28 CITY OF WINNIPEG'S PERFORMANCE TESTING

- .1 Performance testing of equipment or system by City of Winnipeg will not relieve Contractor from compliance with specified start-up and testing procedures.

Part 2 Part 2: Not Used

Part 3 Part 3

3.1 SCHEDULE

- .1 Cx Architectural Systems:

