

**1296 7<sup>th</sup> Ave Valemout, BC  
Valemout RCMP Residence Moisture Control**

**Project Number: R.115645.001**

# Specifications Booklet

**Issued for Tender**

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**1.1 CODES**

- .1 Perform work to CURRENT Codes, Construction Standards and Bylaws, including Amendments up to the TENDER closing date.

**1.2 DESCRIPTION OF WORK**

- .1 Work under this Contract covers the RCMP Valemount Moisture Control at 1296 7<sup>th</sup> Ave in Valemount B.C. The work entails the installation of drainage infrastructure surrounding the exterior of the building and providing appropriate sloping to the regraded soil at the exterior of the building. The work will also include the installation of waterproofing material as indicated on the construction drawings.

The work is to be confirmed by the Departmental Representative (herein indicated as 'DR' within these Specifications)

**1.3 CONTRACT DOCUMENTS**

- .1 The Contract documents, drawings and specifications are intended to complement each other, and to provide for and include everything necessary for the completion of the work.
- .2 Drawings are, in general, diagrammatic and are intended to indicate the scope and general arrangement of the work.

**1.4 DIVISION OF SPECIFICATIONS**

- .1 The specifications are subdivided in accordance with the current 6-digit National Master Specifications System.
- .2 A division may consist of the work of more than 1 subcontractor. Responsibility for determining which subcontractor provides the labour, material, equipment, and services required to complete the work rests solely with the Contractor.
- .3 In the event of discrepancies or conflicts when interpreting the drawings and specifications, the specifications govern.

**1.5 TIME OF COMPLETION**

- .1 Complete the project within 3 weeks after Contract Award.

**1.6 HOURS OF WORK**

- .1 Restrictive as follows:
  - .1 Schedule deconstruction, removal, and construction work after normal working hours of the building and during the day on weekends and/or holidays. Normal weekday working hours of the building are from 8am to 8pm.

- .2 Notify Departmental Representative of all after hours work, including weekends and holidays.

### **1.7 COST BREAKDOWN**

- .1 Before submitting the first progress claim, submit a breakdown of the Contract lump sum prices in detail as directed by the Departmental Representative and aggregating Contract price.

### **1.8 CODES, BYLAWS, STANDARDS**

- .1 Perform work in accordance with the BC Building Code (BCBC) 2018 and other indicated Codes, Construction Standards and/or any other Code or Bylaw of local application.
- .2 Comply with applicable local bylaws, rules and regulations enforced at the location concerned.
- .3 Meet or exceed requirements of Contract documents, specified standards, codes and referenced documents.
- .4 In any case of conflict or discrepancy, the most stringent requirements shall apply.

### **1.9 DOCUMENTS REQUIRED**

- .1 Maintain 1 copy each of the following at the job site:
  - .1 Contract drawings.
  - .2 Contract specifications.
  - .3 Addenda to Contract documents.
  - .4 Reviewed/approved shop drawings.
  - .5 Change orders.
  - .6 Other modifications to Contract.
  - .7 Field test reports.
  - .8 Reviewed/approved samples.
  - .9 Manufacturers' installation and application instructions.
  - .10 One set of record drawings and specifications for "as-built" purposes.
  - .11 British Columbia Building Code 2018.
  - .12 Current construction standards of workmanship listed in technical Sections.
  - .13 Building Safety Plan.

### **1.10 REGULATORY REQUIREMENTS**

- .1 Obtain and pay for – Building Permit, Certificates, Licenses and other permit required by regulatory municipal, provincial or federal authorities to complete the work.
- .2 Provide inspection authorities with plans and information required for issue of acceptance certificates.

- .3 Furnish inspection certificates in evidence that the work installed conforms with the requirements of the authority having jurisdiction.

#### **1.11 CONTRACTOR'S USE OF SITE**

- .1 Use of site:
  - .1 Exclusive and complete for execution of work.
  - .2 Assume responsibility for assigned premises for performance of this work.
  - .3 Be responsible for coordination of all work activities on site, including the work of other contractors engaged by the Departmental Representative such as moving contractors and furniture installers.
- .2 Perform work in accordance with Contract documents. Ensure work is carried out in accordance with indicated phasing.
- .3 Do not unreasonably encumber site with material or equipment.
- .4 Use only indicated [elevators] for moving workers and material.
  - .1 Protect walls of passenger elevators, to approval of Departmental Representative prior to use.
  - .2 Accept liability for damage, safety of equipment and overloading of existing equipment.

#### **1.12 EXAMINATION**

- .1 Examine site and be familiar and conversant with existing conditions likely to affect work
- .2 Provide photographs of surrounding properties, objects and structures liable to be damaged or be the subject of subsequent claims.

#### **1.13 EXISTING SERVICES**

- .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by the authorities having jurisdiction.

#### **1.14 SETTING OUT OF WORK**

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Provide devices needed to lay out and construct work.
- .3 Supply such devices as templates required to facilitate Departmental Representative's inspection of work.

#### **1.15 ACCEPTANCE OF SUBSTRATES**

- .1 Each trade shall examine surfaces prepared by others and job conditions which may affect his work, and shall report defects to the Departmental Representative. Commencement of work shall imply acceptance of prepared work or substrate surfaces.

**1.16 QUALITY OF WORK**

- .1 Ensure that quality workmanship is performed through use of skilled tradesmen, under supervision of qualified journeyman.
- .2 The workmanship, erection methods and procedures to meet minimum standards set out in the BC Building Code 2018.
- .3 In cases of dispute, decisions as to standard or quality of work rest solely with the Departmental Representative, whose decision is final.

**1.17 WORKS COORDINATION**

- .1 Coordinate work of subtrades
  - .1 Designate one person to be responsible for review of contract documents and shop drawings and managing coordination of Work.
- .2 Work coordination:
  - .1 Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.
  - .2 Ensure that each trade provides all other trades reasonable opportunity for completion of Work and in such a way as to prevent unnecessary delays, cutting, patching and removal or replacement of completed work.
  - .3 Ensure disputes between subcontractors are resolved.
- .3 Departmental Representative is not responsible for, or accountable for extra costs incurred as a result of Contractor's failure to coordinate Work.

**1.18 RELICS AND ANTIQUITIES**

- .1 Relics and antiquities and items of historical or scientific interest shall remain property of Department. Protect such articles and request directives from Departmental Representative.
- .2 Give immediate notice to Departmental Representative if evidence of archeological finds are encountered during excavation/construction, and await Departmental Representative's written instructions before proceeding with work in this area.

**1.19 SECURITY CLEARANCES**

- .1 Personnel employed on this project will not be subject to security check.

**1.20 TESTING AND INSPECTION**

- .1 Particular requirements for inspection and testing to be carried out by testing service or laboratory approved by the Departmental Representative are specified in section 32 13 13.
- .2 The Contractor will appoint and pay for the services of testing agency or testing laboratory as specified, and where required for the following:
  - .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 Where tests or inspections by designated testing laboratory reveal work is not in accordance with the Contract requirements, Contractor shall pay costs for additional tests or inspections as the Departmental Representative may require to verify acceptability of correct work.
- .4 Contractor shall furnish labour and facilities to:
  - .1 Notify Departmental Representative in advance of planned testing.
- .5 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .6 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Departmental Representative.
- .7 The Departmental Representative may require, and pay for, additional inspection and testing services not included in Paragraph 27.1.
- .8 Provide Departmental Representative with 2 copies of testing laboratory reports as soon as they are available.

#### 1.21 AS-BUILT DOCUMENTS

- .1 The Departmental Representative will provide 2 sets of drawings, 2 sets of specifications, and 2 copies of the original AutoCAD files for "as-built" purposes.
- .2 As work progresses, maintain accurate records to show all deviations from the Contract documents. Note on as-built specifications, drawings and shop drawings as changes occur.

#### 1.22 CLEANING

- .1 Daily conduct cleaning and disposal operations. Comply with local ordinances and anti-pollution laws.
- .2 **Ensure cleanup of the work areas each day after completion of work.**
- .3 In preparation for interim and final inspections:
  - .1 Examine all sight-exposed interior and exterior surfaced and concealed spaces.
  - .2 Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces, including glass and other polished surfaces.
- .4 Use cleaning materials and methods in accordance with instructions of the manufacturer of the surface to be cleaned.

#### 1.23 ENVIRONMENTAL PROTECTION

- .1 Do not dispose of waste or volatile materials into water courses, storm or sanitary sewers.
- .2 Ensure proper disposal procedures in accordance with all applicable territorial regulations.

**1.24 ADDITIONAL DRAWINGS**

- .1 The Departmental Representative may furnish additional drawings for clarification. These additional drawings have the same meaning and intent as if they were included with plans referred to in the Contract documents.
- .2 Upon request, Departmental Representative may furnish up to a maximum of 10 sets of Contract documents for use by the Contractor at no additional cost. Should more than 10 sets of documents be required the Departmental Representative will provide them at additional cost.

**1.25 SYSTEM OF MEASUREMENT**

- .1 The metric system of measurement (SI) will be employed on this Contract.

**1.26 FAMILIARIZATION WITH SITE**

- .1 Before submitting tender, visit site – as indicated in tender documents and become familiar with all **conditions likely to affect the cost of the work.**

**1.27 SUBMISSION OF TENDER**

- .1 Submission of a tender is deemed to be confirmation of the fact that the Tenderer has analyzed the Contract documents and inspected the site and is fully conversant with all conditions.

**END OF SECTION**

## 1 GENERAL

### PWGSC Update on Asbestos Use

Effective April 1, 2016, all Public Works and Government Services of Canada (PWGSC) contracts for new construction and major rehabilitation will prohibit use of asbestos-containing materials.

### **COVID 19**

**All contractors shall follow Canadian Construction Association COVID-19 - Standardized Protocols for All Canadian Construction Sites.**

## 1.1 REFERENCES

- .1 Government of Canada.
  - .1 Canada Labour Code - Part II (as amended)
  - .2 Canada Occupational Health and Safety Regulations. (as amended)
- .2 National Building Code of Canada (NBC): (as amended)
  - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .3 The Canadian Electrical Code (as amended)
- .4 Canadian Standards Association (CSA) as amended:
  - .1 CSA Z797-2018 Code of Practice for Access Scaffold.
  - .2 CSA S269.1-2016 Falsework for Construction Purposes.
  - .3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.
  - .4 CSA Z1006-10 Management of Work in Confined Spaces.
  - .5 CSA Z462-18 Workplace Electrical Safety Standard
- .5 National Fire Code of Canada 2015 (as amended)
  - .1 Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
- .6 American National Standards Institute (ANSI): (as amended)

- .1 ANSI/ASSP A10.3-2013, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- .7 Province of British Columbia:
  - .1 Workers Compensation Act Part 3-Occupational Health and Safety. (as amended)
  - .2 Occupational Health and Safety Regulation (as amended)

## 1.2 RELATED SECTIONS

- .1 Refer to the following current NMS sections as required:
  - .1 Section 01 01 50 - General Instructions  
(Add any other relevant NMS Sections that apply)

## 1.3 WORKERS' COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

## 1.4 COMPLIANCE WITH REGULATIONS

- .1 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

## 1.5 SUBMITTALS

- .1 Submit to Departmental Representative submittals listed for review in accordance with Section 01 01 50.
- .2 Work affected by submittal shall not proceed until review is complete.
- .3 Submit the following:

- .1 Organizations Health and Safety Plan.
- .2 Site Specific Safety Plan or Health and Safety Plan (SSSP or HASP)
- .2 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.
- .3 Copies of incident and accident reports.
- .4 Complete set of Material Safety Data Sheets (SDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
- .5 Emergency Response Procedures.
- .4 The Departmental Representative will review the Contractor's Site Specific Safety Plan or Health and Safety Plan (SSSP/HASP) and emergency response procedures, and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
- .5 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.
- .6 Submission of the Site Specific Safety Plan or Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
  - .1 Be construed to imply approval by the Departmental Representative.
  - .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
  - .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

## 1.6 RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor for work under this contract.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .3 Comply with and enforce compliance by employees with safety requirements of

Contract documents, applicable Federal, Provincial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

### 1.7 HEALTH AND SAFETY COORDINATOR

- .1 Assign a competent and qualified Health and Safety Coordinator who shall:
  - .1 Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to perform work.
  - .2 Be responsible for implementing, daily enforcing, and monitoring the Site Specific Safety Plan (SSSP) or Health and Safety Plan (HASP)
  - .3 Be on site during execution of work.
  - .4 Have minimum two (2) years' site-related working experience
  - .5 Have working knowledge of the applicable occupational safety and health regulations.

### 1.8 GENERAL CONDITIONS

- .1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
  - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
  - .2 Secure site at night time or provide security guard as deemed necessary to protect site against entry.

### 1.9 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
  - .1 Multi-employer work site.
  - .2 Federal employees and general public.
  - .3 Energized electrical services.

- .4 Working from heights.
- .5 Persons incarcerated in the federal institutional system.
- .6 Hazards - PSPC Preliminary Hazard Assessment included as an Appendix to Specifications

#### **1.10 UTILITY CLEARANCES**

- .1 The Contractor is solely responsible for all utility detection and clearances prior to starting the work.
- .2 The Contractor will not rely solely upon the Reference Drawings or other information provided for Utility locations.

#### **1.11 REGULATORY REQUIREMENTS**

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

#### **1.12 WORK PERMITS**

- .1 Obtain specialty permit(s) related to project before start of work.

#### **1.13 FILING OF NOTICE**

- .1 The General Contractor is to file Notice of Project with Provincial authorities prior to commencement of work. (All construction projects require a Notice of Work)
- .2 Provide copies of all notices to the Departmental Representative.

#### **1.14 SITE SPECIFIC HEALTH AND SAFETY PLAN**

- .1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.
- .2 Prepare and comply with the Site Specific Safety Plan (SSSP) or Health and Safety Plan (HASP) based on the required hazard assessment, including, but not limited to, the following:

- .1 Primary requirements:
    - .1 Contractor's safety policy.
    - .2 Identification of applicable compliance obligations.
    - .3 Definition of responsibilities for project safety/organization chart for project.
    - .4 General safety rules for project.
    - .5 Job-specific safe work, procedures.
    - .6 Inspection policy and procedures.
    - .7 Incident reporting and investigation policy and procedures.
    - .8 Occupational Health and Safety Committee/Representative procedures.
    - .9 Occupational Health and Safety meetings.
    - .10 Occupational Health and Safety communications and record keeping procedures.
    - .11 COVID 19 Protocols and Procedures**
  - .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
  - .3 List hazardous materials to be brought on site as required by work. SDS required for all products.
  - .4 Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
  - .5 Identify personal protective equipment (PPE) to be used by workers.
  - .6 Identify personnel and alternates responsible for site safety and health.
  - .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .3 Develop the plan in collaboration with all subcontractors. Ensure that

- work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
- .4 Revise and update Site Specific Safety Plan (SSSP) and/or Health and Safety Plan (HASP) as required, and re-submit to the Departmental Representative.
  - .5 Departmental Representative's review: the review of Site Specific Safety Plan and/or Health and Safety Plan by Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific Safety Plan and/or Health and Safety Plan of responsibility for meeting all requirements of construction and Contract documents and legislated requirements.

### 1.15 EMERGENCY PROCEDURES

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an emergency response and emergency evacuation plan and emergency contacts (i.e.names/telephone numbers) of:
  - .1 Designated personnel from own company.
  - .2 Regulatory agencies applicable to work and as per legislated regulations.
  - .3 Local emergency resources.
  - .4 Departmental Representative.
  - .5 A route map with written directions to the nearest hospital or medical clinic.
- .2 Include the following provisions in the emergency procedures:
  - .1 Notify workers and the first-aid attendant, of the nature and location of the emergency.
  - .2 Evacuate all workers safely.
  - .3 Check and confirm the safe evacuation of all workers.
  - .4 Notify the fire department or other emergency responders.
  - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
  - .6 Notify Departmental Representative.
- .3 Provide written rescue/evacuation procedures as required for, but not limited to:

- .1 Work at high angles.
  - .2 Work in confined spaces or where there is a risk of entrapment.
  - .3 Work with hazardous substances.
  - .4 Underground work.
  - .5 Work on, over, under and adjacent to water.
  - .6 Workplaces where there are persons who require physical assistance to be moved.
- 
- .4 Design and mark emergency exit routes to provide quick and unimpeded exit.
  - .5 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.
  - .6 Contractors must not rely solely upon 911 for emergency rescue in a confined space, working at heights, etc.

#### 1.16 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS 2015) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Safety Data Sheets (SDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- .2 Where use of hazardous and toxic products cannot be avoided:
  - .1 In conjunction with Departmental Representative schedule to carry out work during "off hours" when tenants have left the building.
  - .2 Provide adequate means of ventilation.
  - .3 The contractor shall ensure that the product is applied as per manufacturers recommendations.
  - .4 The contractor shall ensure that only pre-approved products are bought onto the work site in an adequate quantity to complete the work.

### 1.17 ASBESTOS HAZARD

- .1 Carry out any activities involving asbestos in accordance with current applicable Federal and Provincial Regulations.
- .2 Removal and handling of asbestos will be in accordance with current applicable Provincial / Federal Regulations.

### 1.18 PCB REMOVALS

- .1 Mercury-containing fluorescent tubes and ballasts which contain polychlorinated biphenyls (PCBs) are classified as hazardous waste.
- .2 Remove, handle, transport and dispose in accordance with Worksafe BC and departmental guidelines.

### 1.19 REMOVAL OF LEAD-CONTAINING PAINT

- .1 All paint containing TCLP lead concentrations above 5 ppm are classified as hazardous.
- .2 Carry out demolition and/or remediation activities involving lead-containing paints in accordance with current applicable Provincial / Territorial Regulations.
- .3 Work with lead-containing paint shall be completed as per Provincial and Federal regulations.
- .4 Dry Scraping/Sanding of any materials containing lead is strictly prohibited.
- .5 The use of Methylene Chloride based paint removal products is strictly prohibited.

### 1.20 ELECTRICAL SAFETY REQUIREMENTS

(Reference: Worksafe BC OHS Regulation Part 19 – Electrical Safety)

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
  - .1 Before undertaking any work, coordinate arc flash protection, required energizing and de-energizing of new and existing circuits with Departmental Representative.
  - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

#### 1.21 ELECTRICAL LOCKOUT

- .1 Develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the Departmental Representative.
- .3 Keep the documents and lockout tags at the site and list in a log book for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

#### 1.22 OVERLOADING

- .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

#### 1.25 CONFINED SPACES

- .1 Carry out work in compliance with current Provincial / Territorial regulations.

#### 1.26 POWDER-ACTUATED DEVICES

- .1 Use powder-actuated devices in accordance with ANSI A10.3 (as amended) only after receipt of written permission from the Departmental Representative.

#### 1.27 FIRE SAFETY AND HOT WORK

- .1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.
- .2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.
- .3 Hot Work permits are a mandatory requirement for any hot work activities.

#### 1.28 FIRE SAFETY REQUIREMENTS

- .1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada. (as amended)
- .3 Portable gas and diesel fuel tanks are not permitted on most federal work sites. Approval from the Departmental Representative is required prior to any gas or diesel tank being brought onto the work site.

### 1.29 FIRE PROTECTION AND ALARM SYSTEM

- .1 Fire protection and alarm systems shall not be:
  - .1 Obstructed.
  - .2 Shut off.
  - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.
- .3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

### 1.30 UNFORESEEN HAZARDS

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and immediately advise the Departmental Representative verbally and in writing.

### 1.31 POSTED DOCUMENTS

- .1 Post legible versions of the following documents on site:
  - .1 Site Specific Safety Plan (SSSP) or Health and Safety Plan (HASP)
  - .2 Sequence of work.
  - .3 Emergency procedures.
  - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
  - .5 Notice of Project.

- .6 Floor plans or site plans. Must be posted in a non-inmate access area and locked up when not being used.
- .7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
- .8 Workplace Hazardous Materials Information System (WHMIS 2015) documents.
- .9 Material Safety Data Sheets (SDS).
- .10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .11 All Hazardous Material and Substance Reports including Lab Analysis
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.
- .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

### 1.32 MEETINGS

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.

### 1.33 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a "stop work order" if noncompliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

## 2 PRODUCTS

- .1 Not used.

**3 EXECUTION**

.1 Not used.

**END OF SECTION**

## 1.1 RELATED WORK

- .1 Refer to every technical section for waste management and disposal.

## 1.2 DEFINITIONS

- .1 Waste Audit (WA): relates to projected waste generation. Involves controlled separation of waste.
- .2 Waste Reduction Workplan (WRW): a written report which addresses opportunities for reduction, re-use or recycling of materials.
- .3 Materials Source Separation Program (MSSP): consists of a series of ongoing activities to separate re-usable and recyclable waste material into material categories from other types of waste at point of generation.

## 1.3 MATERIALS SOURCE SEPARATION

- .1 Before project start-up, prepare Materials Source Separation Program. Provide separate containers for re-usable and/or recyclable materials of the following:
  - .1 Gypsum board.
  - .2 Metals.
  - .3 Wood.
  - .4 Plastics
  - .5 Other materials as indicated in technical sections.
- .2 Implement Materials Source Separation Program for waste generated on project in compliance with approved methods and as approved by Departmental Representative.
- .3 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .4 Locate separated materials in areas which minimize material damage.

## 1.4 DIVERSION OF MATERIALS

- .1 Create a list of materials to be separated from the general waste stream and stockpiled in separate containers, to the approval of the Departmental Representative and consistent with applicable fire regulations.
  - .1 Mark containers.
  - .2 Provide instruction on disposal practices.

## 1.5 STORAGE, HANDLING AND APPLICATION

- .1 Do work in compliance with Waste Reduction Workplan.
- .2 Handle waste materials not re-used, salvaged, or recycled in accordance with appropriate regulations and codes.
- .3 Materials in separated condition: collect, handle, store on site, and transport off-site to an approved and authorized recycling facility.

- .4 Materials must be immediately separated into required categories for re-use or recycling.
- .5 Unless specified otherwise, materials for removal become the Contractor's property.
- .6 On-site sale of salvaged/recyclable material is not permitted.
- .7 **Provide Departmental Representative with receipts** indicating quantity of material delivered to landfill.
- .8 **Provide Departmental Representative with receipts** indicating quantity and type of materials sent for recycling.

**END OF SECTION**

**1. General**

**1.2 REFERENCE DOCUMENTS**

.1 American Society for Testing and Materials (ASTM):

- |    |                         |  |
|----|-------------------------|--|
| .1 | ASTM D1227-95<br>(2007) | Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing |
| .2 | ASTM D4479-07           | Standard Specification for Asphalt Roof Coatings-Asbestos-Free                         |
| .3 | ASTM D4586-07           | Standard Specification for Asphalt Roof Cement, Asbestos-Free                          |

**2. Products**

**2.1 MATERIALS**

.1 Emulsion Type Dampproofing Coating: Asphaltic, water-based emulsion dampproofing, asbestos free, designed for application to exterior side of below grade foundations and walls, containing no solvents in accordance with ASTM D1227 and as follows:

- .1 Application Temperature: 10°C
- .2 Grade/type to be determined by contractor
- .3 VOC Content: Maximum 30 g/L (less water and exempt solvents).

.2 Cutback Type Dampproofing Coating: Asphaltic, solvent based dampproofing, asbestos free, designed for application to exterior side of below grade foundations and walls in accordance with ASTM D4479 and/or ASTM D4586 and as follows:

- .1 Application Temperature: 2°C
- .2 Grade: [Spray Type I] [Brush Type I] [Trowel Type I, Class 1].
- .3 VOC Content: maximum 250 g/l.

**2.2 ACCESSORIES**

.1 Joint Sealing Compound: as recommended by dampproofing manufacturer.

.2 Primer: as recommended by dampproofing manufacturer.

- .3 Patching Compound: fibred mastic compound as recommended by dampproofing manufacturer.
- .4 Reinforcing fabric: asphalt coated fabric as recommended by dampproofing manufacturer.

### **3. Execution**

#### **3.1 PROTECTION**

- .1 Protect adjoining surfaces from soiling during application.

#### **3.2 EXAMINATION**

- .1 Examine substrates and verify that surface smoothness, moisture emissions and other conditions affecting performance of materials specified in this Section complies with the dampproofing manufacturer's recommended substrate requirements.

#### **3.3 PREPARATION**

- .1 Protect and mask adjoining exposed surfaces from being stained, spotted or coated with dampproofing; prevent dampproofing materials from entering or clogging weep holes, drains and perimeter drainage systems.
- .2 Seal exterior joints between foundation walls and footings, joints between concrete floor slab and foundation and around penetrations through dampproofing with sealing compound and reinforcing fabric before applying dampproofing.
- .3 Clean substrates, remove projections; fill voids and apply bond breakers (if required), and apply primer as recommended by dampproofing manufacturer

#### **3.4 APPLICATION**

- .1 Apply dampproofing to provide a continuous, uniform coating to entire exterior faces of foundation walls from 50 mm below finish grade level to and including tops of foundation wall footings:
  - .1 Do not permit dampproofing to extend onto surfaces exposed to view in final construction.
  - .2 Reinforce changes in direction greater than 45° at intersections, projecting surfaces, internal and external corners, changes in plane,

and across construction joints, cracks and honeycombing; apply additional coat of dampproofing material to embed reinforcing fabric into primary dampproofing membrane; extend reinforcing fabric 200 mm to each side of areas requiring reinforcing.

- .3 Allow for additional coats to achieve required coating.
- .4 Provide sufficient drying time between successive coatings.
- .5 Provide drying time according to manufacturer's recommendations before backfilling. Allow for a range of ambient temperatures and humidity.
- .3 Use cutback asphalt materials at temperatures below 5°C.
- .4 Use either cutback or emulsified asphalt materials, at Contractor's option, when surfaces and ambient air will be minimum 5°C for 72 hours before application, during application and for curing period.
- .5 Seal holes around pipes and other services passing through dampproofed surfaces by using joint sealing compound applied in accordance with manufacturer's directions.

### **3.5 CLEANING**

- .1 Dampproofing materials shall be removed from surfaces not intended to receive dampproofing.

**END OF SECTION**

## **1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Storage and Handling Requirements:
  - .1 Store materials off ground and under cover in a dry, well ventilated enclosure.
  - .2 Stack preformed material in manner to prevent twisting, bending and rubbing.
  - .3 Provide protection for galvanized and prepainted surfaces.
  - .4 Prevent contact of dissimilar metals during storage and protect from acids, flux, and other corrosive materials and elements.

## **2. Products**

### **2.1 MATERIALS**

- .1 Galvanized Steel Sheet: commercial quality sheet to ASTM A653/A653M, with Z275 designation zinc coating.
- .2 Prepainted Galvanized Steel: commercial quality to ASTM A653/A653M with Z275 zinc coating prepainted with baked on enamel with colours of proven durability for exterior exposure, to CSSBI Technical Bulletin No. 7, 5000 series.
- .3 Sealing Compound: to Section 07 57 13.

### **2.2 FABRICATION, GENERALLY**

- .1 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .2 Backpaint sheet metal with bituminous paint on surface in contact with concrete, masonry, cementitious materials or dissimilar metal.

### **2.3 FABRICATION, FLASHING**

- .1 Maximum Joint Spacing: 2400 mm.
- .2 Maintain minimum of 22 mm lap at all joints. Provide 25 mm anchor projection of "S" locks.

- .3 At inside and outside corners, mitre the joint, and use upstanding seams, 25 mm minimum height and 22 mm minimum lap.
- .4 Maintain minimum 1:5 slope on horizontal surfaces of flashings, parapets, and control joints.
- .6 Hem exposed edges on underside of all flashings.
- .7 Fabricate cap flashing to have a drip leg minimum 110 mm high.

### **3. Execution**

#### **3.1 EXAMINATION OF SURFACES**

- .1 Examine surfaces to receive flashings. Notify the DR of surfaces which are considered unacceptable to receive the work of this Section.

#### **3.2 PROTECTION OF EXISTING WORK**

- .1 Protect the work of other Sections from damage by the work of this Section.
- .2 Place protection to the requirements and satisfaction of this Section before performing the work of other Sections.

#### **3.3 FLASHING INSTALLATION, GENERALLY**

- .1 Use exposed fastenings in approved locations.
- .2 Fasten flashings at maximum 600 mm O.C.

#### **3.4 INSTALLATION OF FLASHING JOINTS**

- .1 Fit flashings together so that one end of each section is free to move in the joint. Do not use sealant at joints.
- .2 Wipe and wash clean, soldered joints to remove traces of flux, immediately after soldering.

**END OF SECTION**

**1. General**

**1.1 RELATED REQUIREMENTS**

.1 Read this Section in conjunction with:

- .1 Earthwork General Requirements: Section 31 20 10
- .2 Other Sections which specify the location, use or placement of fill materials.

.2 This Section is intended to be used as a reference Section; it is not a "section of work". All materials specified in Part 2, Products, may not necessarily be required.

.3 Refer to other Sections for location, use, and placement of fill materials specified herein.

**1.2 REFERENCE DOCUMENTS**

.1 American Society for Testing and Materials (ASTM):

- .1 ASTM C136 / Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates  
C136M - 14

.2 Canadian Standards Association (CSA):

- .1 CAN/CGSB-8.2-M88 Sieves, Testing, Woven Wire, Metric

**2. Products**

**2.1 AGGREGATE QUALITY, GENERALLY**

.1 Aggregate fill materials shall be comprised of clean, sound, hard particles, and be free from silt, clay, soft shale, flaky particles, organic matter and foreign substances.

**2.2 GRAVEL FILL MATERIAL**

- .1 Gravel: mixture of natural gravel, crushed gravel or crushed stone, and natural or crushed sand, meeting the gradation limits specified below for each type.

Fill Type	Sieve Size	% Passing By Weight
150 mm Gravel	150	100
	50	50 - 85
	5	30 - 50
	0.8	20 - 30
	0.063	2 - 9
80 mm Gravel	80	100
	50	78 - 95
	20	42 - 82
	10	31 - 70
	5	22 - 60
	2	15 - 47
	0.4	9 - 28
	0.16	5 - 16
Pit Run Gravel	200	100
	10	40 - 100
	0.063	0 - 5

**2.3 CRUSHED GRAVEL FILL MATERIAL**

- .1 Crushed Gravel: mixture of crushed gravel or stone and natural or crushed sand, meeting the gradation limits specified below for each type and meeting following requirements:

- .1 Liquid limit of material passing 0.4 mm sieve shall not exceed 25%.
- .2 Plasticity index of material passing 0.4 mm sieve shall not exceed 6%.

- .3 Minimum of 50%, by weight, of material retained on 5 mm sieve shall have at least one face resulting from fracture.

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Fill Type	Sieve Size	% Passing By Weight
20 mm Crushed Gravel	20	100
	10	64 - 86
	5	42 - 69
	2	24 - 45
	0.8	17 - 37
	0.4	10 - 29
	0.16	5 - 20
	0.063	2 - 8

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**2.6 SAND FILL MATERIAL**

- .1 Sand: natural or crushed sand, meeting the gradation limits specified below for each type.

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Fill Type	Sieve Size	% Passing By Weight
Coarse Sand	5	100
	2	80 - 90
	0.4	40 - 55
	0.063	2 - 10

**2.7 EARTH FILL MATERIAL**

- .1 Native Excavated Material: Clean, native excavated soil, free from organic matter, frozen materials, stones larger than 75 mm, building debris and other foreign substances.

**3. Execution**

**3.1 PLACEMENT**

- .1 Refer to other Sections for location, use, and placement of fill materials specified herein.

**END OF SECTION**

**1. General**

**1.1 INTENT**

- .1 This Section specifies general requirements common to all earthwork. Read this Section in conjunction with related Sections which specify requirements for specific types of earthwork.

**1.2 RELATED REQUIREMENTS**

- .1 Site Excavating, Filling, and Grading Section 31 23 10.
- .2 Fill Materials: Section 31 05 13.

**1.3 DEFINITIONS**

- .1 Earthwork: Earthwork means excavating of all types, backfilling, filling, compacting, grading and related work.

**1.4 UNAUTHORIZED EXCAVATION**

- .1 Unauthorized excavation shall be any excavation beyond elevations and dimensions indicated, without specific direction by the Department Representative.
- .2 Fill unauthorized excavation to elevations and dimensions as Directed by the Department Representative.
- .3 Unauthorized excavation and remedial work shall be at Contractor's expense.

**1.5 EXCAVATION LEVELS**

- .1 For bidding purposes, assume that excavation levels will be as indicated on Drawings.

**2. Products**

**2.1 FILL MATERIALS**

- .1 Refer to Section 31 05 13 for fill material product specifications.

**3. Execution**

**3.1 PREPARATION**

- .1 Notify the Department Representative minimum 2 days prior to beginning excavating operations.
- .2 Prior to commencing excavation:
  - .1 Contact all affected utility companies regarding exact location and current status of all utilities, voltage of underground and overhead power lines and pressure of natural gas lines.
  - .2 Notify the Department Representative if any utility lines have been omitted from or incorrectly indicated on Drawings.
  - .3 Identify known underground utilities. Stake and flag locations. Identify and flag surface and aerial utilities.
- .3 Maintain and protect existing above and below grade utilities which pass through work area. Protect active utility lines exposed by excavation, from damage. Hand excavate to final elevations and dimensions.
- .4 Where existing pipes, ducts or other underground services intersect a trench, support trench in a manner approved by authority having jurisdiction.
- .5 Where existing overhead line poles are adjacent to excavations, temporarily support poles in a manner approved by Utility.

**3.2 DEWATERING**

- .1 Maintain excavations free of water. Provide pumps, piping, temporary drains, trenches, sumps, and related equipment to remove water.
- .2 Do not use sanitary sewers or private property for discharge of water.

**3.3 EXCAVATING**

- .1 Strip topsoil from areas to be re-graded.
- .2 Do not excavate under wet conditions or when such conditions are anticipated.
- .3 When excavating is necessary through roots of plant materials, which are to remain, perform work by hand and cut roots with a sharp axe.

### **3.5 MATERIAL STORAGE**

- .1 Excavated topsoil, acceptable and required for use under this Contract: Stockpile on site until required.
- .2 Native excavated material, other than topsoil, acceptable and required for use as fill material under this Contract: Stockpile on site until required.
- .3 Stockpile locations shall be subject to the Department Representative's approval.

### **3.6 DISPOSAL OF EXCESS AND WASTE MATERIAL**

- .1 Excavated topsoil, acceptable but in excess of that required for use under this Contract: shall be removed from site and contractor to ensure proper disposal.
- .2 Native excavated material, other than topsoil, acceptable but in excess of that required for use as fill material under this Contract: shall be removed from site and contractor to ensure proper disposal.
- .3 Unacceptable excavated topsoil, unacceptable native excavated material, waste material, trash and debris: Remove from site and ensure proper disposal.

### **3.7 BACKFILLING**

- .1 Ensure areas to be backfilled are free of debris, snow, ice, water and that surfaces are not frozen. Do not backfill over porous, wet, or spongy subgrade surfaces.

### **3.8 COMPACTION**

- .1 Compact fill materials using only mechanical methods. Do not use hydraulic methods.
- .2 Compaction to be performed with equipment designed for the purpose of compacting earthworks.
- .3 Maintain optimum moisture content of materials being compacted, as required to attain specified compaction density.

**END OF SECTION**

**1. General**

**1.1 RELATED REQUIREMENTS**

.1 Read this Section in conjunction with:

- .1 Fill Materials: Section 31 05 13.
- .2 Earthwork General Requirements: Section 31 20 10.

**1.2 SECTION INCLUDES**

.1 This Section includes requirements for all excavating, backfilling, filling, compacting and grading outside perimeter of buildings or structures, except:

- .1 trench excavating and backfilling, and
- .2 granular base construction for paving and surfacing.

**2. Products**

**2.1 FILL MATERIALS**

.1 Refer to Section 31 05 13 for fill material product specifications.

**3. Execution**

**3.1 EXCAVATION**

.1 Excavate to elevations as required based on insitu conditions.

**3.2 PLACEMENT AND COMPACTION OF FILL MATERIALS**

- .1 Backfill excavations and fill to required subgrade elevations using fill materials specified in Site Filling Schedule.
- .2 Place fill materials in layers not exceeding loose thickness specified in Site Filling Schedule.
- .3 Compact each layer of fill to minimum percentages of Standard Proctor Density specified in Site Filling Schedule.

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### 3.3 GRADING

- .1 Contractor shall contour the site to match the surrounding lands and to ensure positive drainage.
- .2 Unless otherwise indicated on Drawings, slope to be graded away from building or structures with a minimum 2% slope.
- .3 Grade and shape surfaces within following tolerances from subgrade elevations indicated on Drawings:
  - .1 Landscaped areas: plus or minus 25 mm.
  - .2 Under paved areas: plus or minus 25 mm.

### 3.4 SITE FILLING SCHEDULE

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Location	Fill Material	Max. Lift Thickness	Minimum Compaction
Under landscaped areas	Native material free of organics	150 mm	To suit
Under paved areas	150mm Crushed gravel, 450mm pit run gravel	150 mm	95%

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**END OF SECTION**

**1. General**

**1.1 RELATED REQUIREMENTS**

- .1 Fill Materials: Section 31 05 13.
- .2 Site Excavating, Filling and Grading: Section 31 23 10.

**1.2 REFERENCE DOCUMENTS**

- .1 American Society for Testing and Materials (ASTM):
  - .1 ASTM A1064 / A1064M - 17 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and deformed, for Concrete.
  - .2 ASTM C295 / C295M - 12 Standard Guide for Petrographic Examination of Aggregates for Concrete
  - .3 ASTM C309 - 11 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
  - .4 ASTM D1751 - 04 (2013)e1 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
- .2 Canadian Standards Association (CSA):
  - .1 CAN/CSA-A3001-13 Cementitious Materials for Use in Concrete
  - .2 CSA A23.1-14/A23.2-14 Concrete Materials and Methods of Concrete Construction / Test Methods and standard practices for Concrete
  - .3 CAN3-A266.1-M78 Air-Entraining Admixtures for Concrete
  - .4 CSA G30.18-09 (R2014) Carbon Steel Bars for Concrete Reinforcement

**1.5 TESTING**

- .1 The Department Representative may appoint and pay for services of a testing agency to do the following:
  - .1 Test one cylinder in 7 days and remaining two cylinders in 28 days.

**2. Products**

**2.1 MATERIALS**

- .1 Sand Cushion: sand as specified in Section 31 05 13.
- .2 Granular Cushion: 20 mm crushed gravel as specified in Section 31 05 13.
- .3 Portland cement: to CAN/CSA-A5, grey color.
- .4 Aggregates For Concrete: to CSA A23.1 and as follows:
  - .1 Ironstone content of aggregate shall not exceed the following percentage by mass when tested to ASTM C295:
    - .1 Coarse Aggregate: maximum 1%.
    - .2 Fine Aggregate, Retained on 2.5 mm Sieve: maximum 1.5%.
- .5 Water: to CSA A23.1.
- .6 Air Entraining Admixture: to CAN3-A266.1.

**2.2 REINFORCEMENT**

- .1 Deformed Steel Bars: to CSA G30.18.

**2.3 CONCRETE MIX**

- .1 Conform to CSA A23.1 except as otherwise specified.
- .2 Provide DR copy of mix design from local supplier for approval.

.3 Supply concrete mix as follows:

	Min. Comp. Strength @ 28 Days (MPa)	Max. Water/Cement Ratio	Max Aggreg. Size (mm)	Slump Range (mm)	Air Content Range %	Minimum Cement Content (kg/m <sup>3</sup> )	Cement Type
All Concrete Paving	32	0.45	20	30-70	5-8	335	GU

.4 Temperature of concrete mix at placing shall be no less than 10°C and no greater than 27°C. Provide mix toward lower end of temperature range during hot weather and toward higher end of temperature range during cold weather, in accordance with CSA A23.1.

.5 Use of admixtures, other than air-entraining admixtures, are not permitted without prior written approval of the Province. Use of fly-ash is **not** permitted.

## 2.5 ACCESSORIES

.1 Form oil: non-staining mineral type.

.2 Formwork: premanufactured and profiled steel or wood forms.

.3 Poured Joint Filler: Asphalt elastic compound.

.4 Preformed Joint Filler: asphalt impregnated type to ASTM D1751.

.5 Curing Compound: to ASTM C309, Type 2 white pigmented, Class B resin-based, liquid membrane-forming type.

## 3. Execution

### 3.1 SUBGRADE PREPARATION

.1 Construct subgrade to elevation and grade indicated.

.2 Compact subgrade to 95% Standard Proctor Maximum Dry Density.

- .3 Excavate soft spots and fill with 50 mm crushed gravel compacted to 95% Standard Proctor Maximum Dry Density.

### **3.2 SAND AND GRANULAR CUSHION**

- .1 Place 150 mm thick crushed gravel layer on prepared subgrade, and compact to 95% Standard Proctor Dry Density

### **3.3 REINFORCEMENT**

- .1 Clean reinforcement of loose rust and mill scale.
- .2 Place reinforcement as indicated on drawings.

### **3.4 PLACING CONCRETE**

- .1 Obtain the Province's approval of formwork and reinforcement before placing concrete.
- .2 Moisten sand and granular cushion to prevent absorption of water from freshly placed concrete.
- .3 Place concrete in accordance with requirements of CSA A23.1 unless otherwise specified.
- .4 Do not place concrete on, or against, any surface that is at less than 5°C or will lower the temperature of the concrete in place, below the values specified in CSA A23.1.
- .5 Vibrate by means of vibrating screed or pencil vibrator.
- .6 Ensure reinforcement is not disturbed during concrete placement.
- .7 Screed concrete and float. Do not float while bleed water is still present.

### **3.5 JOINTS**

- .1 Contraction Joints For Concrete Paving to be spaced at max 3 m on centre by means of marking tool or other approved method.

### **3.6 FINISHING**

- 
- .1 Finish concrete surfaces as follows:
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Item	Description of Finish
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Vehicular Paving	Stiff broomed non-skid finish
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- .3 Do not trowel surfaces while bleed water is still present. Work surfaces as little as possible to achieve finish.
- .4 Edge Finishing: finish edges, including joints, with 50 mm wide edging tool having 6 mm radius edge.
- .5 Where broom finish specified, use approved nylon brush to provide uniform texture and pattern.
- .6 Do not add water before or during finishing operation.

### **3.7 CURING AND PROTECTION**

- .1 Cure freshly deposited concrete in accordance with CSA A23.1.
- .2 Apply curing compound immediately after finishing, in accordance with manufacturer's instructions. Promptly re-coat areas subjected to heavy rainfall within 3 hours after initial application.
- .3 When ambient air temperature is at or below 5°C, or when there is a probability of it falling to 5°C within 24 hours of placing, provide cold weather protection until a period of 7 days of concrete temperature at or above 10°C has been attained. Protection shall meet requirements of CSA A23.1.
- .4 Estimate rate of surface moisture evaporation in accordance with CSA A23.1 and provide protection from drying as required.
- .5 Keep vehicular traffic off paved areas until paving has cured sufficiently to support such loads.

**3.8 TOLERANCES**

.1 Meet following criteria for exposed concrete surfaces:

.1 Trueness of surface: 6 mm maximum deviation in 3 m length.

.2 Elevation: to match existing driveway

**END OF SECTION**

**1. General**

**1.1 INSPECTION**

- .1 Obtain DR's approval of drainage pipe installation prior to completing backfill work.

**2. Products**

**2.1 MATERIALS**

- .1 Corrugated Plastic Drainage Tubing: 100 mm
- .2 Fittings and Solvent Cement: to specified standard.
- .3 Filter Gravel: coarse aggregates to CSA A23.1-94, Table 3, Group 1, 20 mm to 5 mm nominal size of aggregate.

**3. Execution**

**3.1 INSTALLATION**

- .1 Shape subgrade to elevation 100 mm to 150 mm below intended elevation of pipe bottom on a minimum slope of 1:200.
- .2 Prepare bed using 100 mm to 150 mm compacted gravel.
- .3 Lay and join corrugated plastic drainage tubing to manufacturer's instructions.
- .4 Connect pipe to storm drain or sump pit with appropriate adapters manufactured for this purpose.
- .5 Provide friction fit end plugs at open ends of pipe runs.
- .6 Enclose drainage pipe with filter gravel as follows:
  - .1 Top: minimum 300 mm
  - .2 Bottom: minimum 100 mm
  - .3 Sides: minimum 150 mm
- .7 Carry out installation as a continuous operation so that pipe is not left exposed for more than 2 days.

**END OF SECTION**