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.

.1 Allow ten (10) Working Days for review of submittals by the Contract Administrator.

.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 accepted.

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

.11 After Contract Administrator’s review and return of copies, distribute copies to sub-trades as appropriate.

.12 Keep one (1) 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 one (1) electronic copy of Shop Drawings for each requirement requested in Specification sections and as Contract Administrator may reasonably request.

.3 The Contractor shall arrange for the preparation of clearly identified Shop Drawings as specified or as the Contract Administrator may reasonably request. Shop Drawings are to clearly indicate materials, weights, dimensions, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of the Work. Where articles or equipment attach or connect to other articles or equipment, clearly indicate that all such attachments and connections have been properly coordinated, regardless of the trade under which the adjacent articles or equipment will be supplied and installed. Shop Drawings are to indicate their relationship to design Drawings and Specifications. Notify the Contract Administrator in writing of any deviations in Shop Drawings from the requirements of the Contract Documents.

.4 Submit Shop Drawings as required in the Specifications.

.5 The Contractor shall examine all Shop Drawings prior to submission to the Contract Administrator to ensure that all necessary requirements have been determined and verified and that each Shop Drawing has been checked and coordinated with the requirements of the Work and the Contract Documents. Examination of each Shop Drawing shall be indicated by stamp, date and signature of a responsible person of the sub-contractor for supplied items and of the General Contractor for fabricated items. Shop Drawings not stamped, signed and dated will be returned without being reviewed and stamped "Re-submit".

.6 Ensure that the following are verified:

.1 Field Measurements.

.2 Field construction criteria.

.3 Catalogue numbers and similar data.

.6 Submit one (1) electronic copy 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.

.7 Submit one (1) 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 three (3) years of date of Contract Award for the Work.

.8 Submit one (1) electronic copy 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 the Contract complete with Project name.

.9 Submit one (1) electronic copy 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.

.10 Submit one (1) electronic copy 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.

.11 Submit one (1) electronic copy of operation and maintenance data for requirements requested in Specification sections and as requested by Contract Administrator.

.12 Delete information not applicable to the Work.

.13 Supplement standard information to provide details applicable to the Work.

.14 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, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.15 The Contractor will be charged for the Contract Administrator subsequent reviews of submittal packages exceeding two submissions.

.16 Accompany submissions with transmittal letter, 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 Specification section, title, number, and clause

  .6 Other pertinent data.

  .7 Date and revision dates.

  .8 Project title and Tender number.

  .9 Name of:

    .1 Contractor.

    .2 Subcontractor.

    .3 Supplier.

    .4 Manufacturer.

    .5 Separate detailer when pertinent.

  .10 Identification of product of material.

.11 Relation to adjacent structure or materials.

.12 Field dimensions, clearly identified as such.

.13 Specification section name, number and clause number or drawing number and detail/section number.

.14 Applicable standards, such as CSA or CGSB numbers.

.15 Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with Contract Documents.

1.3 PRODECURES

.1 The Contractor shall, if required by the Contract Administrator, submit for the review of the Contract Administrator method statements which describe in detail, supplement with Shop Drawings where necessary, the methods to be adopted for executing any portion of Work.

.2 These statements shall also include details of constructional plant and labour to be employed. Acceptance by the Contract Administrator shall not relieve the Contractor of any of his responsibilities, nor shall reasonable refusal to approve entitle the Contractor to extra payment or an extension of time.

.3 Other Considerations

.1 Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent Shop Drawings and resubmit.

.2 Material and equipment delivered to the site of the works will not be paid for at least until pertinent Shop Drawings have been submitted and reviewed.

.3 Incomplete Shop Drawing information will be considered as stipulated deductions for the purposes of progress payment certificates.

.4 No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions and review of Shop Drawings.

.5 Contractor to monitor the shoring for movement on a daily basis and provide a written weekly report showing the daily records to the Contract Administrator.

1.4 PROGRESS PHOTOGRAPHS

.1 Submit progress photographs.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA International).

.1 CAN/CSA-S269.2-[M1987(R2003)], Access Scaffolding for Construction Purposes.

1.2 ACTION AND INFORMATIONAL 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 the Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
.2 Indicate use of supplemental or other staging area.
.3 Provide construction facilities in order to execute Work expeditiously.
.4 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, stairs and ladders.
.3 Provide erection diagrams, identifying all components and any temporary attachment to the tank.

1.5 HOISTING

.1 Provide, operate and maintain hoists, cranes required for moving of workers, materials and equipment.
.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 in public parking areas provided it does not disrupt performance of Work.
.2 Provide and maintain adequate access to Site including fire route access.

1.8 OFFICES

.1 Provide office heated to 22 degrees Celsius, 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 Supply temporary office facilities for the Contract Administrator on Site, meeting the following requirements:

.1 Minimum floor area of 20 square metres, with windows and a door entrance complete with suitable lock satisfactory to the Contract Administrator.

.2 Suitable for all-weather use and capable of maintaining a temperature range between 20 and 25 degrees Celsius.

.3 Equipped with fluorescent lights and 120 volt ac electrical wall outlets.

.4 Furnished with one (1) desk, one (1) filing cabinet and two (2) chairs, all satisfactory to the Contract Administrator.

.5 All of the temporary structures provided by the Contractor for the Work shall be stabilized in a sufficient manner to prevent the temporary structure from being overturned by wind forces as defined in the National Building Code (NBC). The stabilization provided shall be designed by a professional engineer registered in the Province of Manitoba. Detailed drawings and design notes for the stabilization works bearing the Engineer's seal shall be provided to the Contract Administrator for review.

.6 The Contractor shall be responsible for installation, maintenance, removal, operating costs, and service installation costs for the field office as described herein.

1.9 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.

1.10 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.

1.11 LAYDOWN AND STORAGE

.1 All construction materials shall be stored at designated storage areas. Stored combustible materials shall be separated by clear space to prevent fire spread and allow access for manual firefighting equipment, including fire hoses, extinguishers, hydrants, etc.

.2 Pressurized dry chemical fire extinguishers of suitable capacity or equally effective extinguishers as per NFPA 10 shall be provided where:

.1 Flammable liquids are stored or handled.

.2 Welding or flame cutting is performed.

1.12 DISPOSAL OF WASTE MATERIALS

.1 Spoiled and waste materials shall not be dumped, under any circumstances, in any locations other than those approved by the local authorities. Any cost for permits and fees for disposing of waste materials shall be at the Contractor’s expense.

.2 Disposal of all excavated and waste materials shall be in accordance with the requirements of the appropriate provincial regulatory agencies.

.3 When working anywhere within the Works the Contractor shall at the end of each working day remove the rubbish and leave the Site in a clean and tidy state, to the satisfaction of the Contract Administrator. If this is not done, the City will clean the Site and charge the Contractor.

1.13 FACILITY ELECTRICAL SUPPLY AND DISTRIBUTION

.1 If service interruptions are necessary, such interruptions shall be made only at times approved by the Contract Administrator.

1.14 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Provide access and temporary relocated roads as necessary to maintain traffic.

.2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by the Contract Administrator.

.3 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.

.4 Protect travelling public from damage to person and property.

.5 The Contractor's traffic on roads selected for hauling material to and from Site to interfere as little as possible with public traffic.

.6 Verify adequacy of existing roads and allowable load limit on these roads.

.1 The Contractor is responsible for repair of damage to roads caused by construction operations.

.7 Construct access and haul roads necessary.
.8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
.9 Dust control: adequate to ensure safe operation at all times.
.10 Provide snow removal during period of Work.

1.16 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from the 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.

1.17 FIRE ACCESS

.1 Maintain safe access for fire and rescue vehicles along south side of building.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
.2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
.3 Copy will be returned after final inspection, with the Contract Administrator's comments.
.4 Revise content of documents as required prior to final submittal.
.5 Furnish evidence, if requested, for type, source and quality of products provided.
.6 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
.7 Pay costs of transportation.

1.2 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. 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 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. Bind in with text; fold larger drawings to size of text pages.

1.3 CONTENTS - EACH VOLUME

.1 Table of Contents: provide title of project; date of submission; names.
  .1 Addresses, and telephone numbers of the Contract Administrator and Contractor with name of responsible parties.
  .2 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. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.4 AS-BUILTS AND SAMPLES

.1 Maintain, in addition to requirements in General Condition, at Site for the Contract Administrator one (1) 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 Material Mill Test Certificates.

.2 Store record documents and samples in field office apart from documents used for construction. 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. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by the Contract Administrator.

1.5 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on a set of Contract Drawings.

.2 Provide felt tip marking pens, maintaining separate colours for each piping loop, for recording information.

.3 Record information concurrently with construction progress. 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 locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.2 Field changes of dimension and detail.

.3 Changes made by change orders.

.4 Details not on original Contract Drawings.

.5 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.

1.6 MATERIALS AND FINISHES

.1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
.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.

1.7 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. Submit inventory listing to the Contract Administrator.
.5 Obtain receipt for delivered products and submit prior to final payment.

1.8 MAINTENANCE 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. Submit inventory listing to the Contract Administrator. Include approved listings in O&M Manual.
.5 Obtain receipt for delivered products and submit prior to final payment.

1.9 STORAGE, HANDLING AND PROTECTION

.1 Store spare parts, maintenance materials, and special tools in a manner to prevent damage or deterioration.
.2 Remove and replace damaged products at own expense and to satisfaction of Contract Administrator.

1.10 WARRANTIES

.1 Assemble approved information in binder and submit upon acceptance of Work. 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, executed in duplicate by Subcontractors, suppliers, and manufacturers, within ten (10) 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 until time specified for submittal.
.2 Except for items put into use with City's permission, leave date of beginning of time of warranty until date of Substantial Performance is determined.
.3 Conduct joint eleven (11) month warranty inspection, measured from date of Substantial Performance, by the Contract Administrator.

.4 Respond in a timely manner to oral or written notification of required construction warranty repair Work.

.5 Written verification will follow oral instructions. Failure to respond will be cause for the Contract Administrator to proceed with action against the Contractor.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

- .1 ASTM A312, Specification for Seamless and Welded Austenitic Stainless Steel Pipes
- .2 ASTM A240, Specification for Chromium and Chromium Nickel Stainless Steel Plate Sheet and Strip
- .3 ASTM A193, Specification for Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service

.2 Canadian Standards Association (CSA International)

- .1 CSA W47.1 Certification of Companies for Fusion Welding of Steel
- .2 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.
- .3 CSA W59-18, Welded Steel Construction (Metal Arc Welding).
- .4 CSA W178-1 Welding Inspection Organizations Company Certification
- .5 CSA W178-2 Welding Inspector Certification

.3 American Welding Society

- .1 AWS D1.6 Structural Welding Code – Stainless Steel
- .2 AWS A5.4 Specification for Stainless Steel Electrodes for Shielded Metal Arc Welding
- .3 AWS A5.22 Specification for Stainless Steel Electrodes for Flux Cored Arc Welding

.4 American Society for Mechanical Engineers

- .1 ASME BPV Code Section IX Welding and Brazing Qualifications

1.2 WORK INCLUDED

- .1 Shop fabrication of new sliding pipe supports and fixed anchors to replace all existing pipe supports.
- .2 Installation of new sliding and fixed pipe supports to support aeration piping with a minimum 1% positive downward slope for drainage towards aeration grid.
- .3 Install new expansion joints at existing flanged connections between each drop leg and vertical portion of piping loop. Trim existing pipe as required.
- .4 Fabrication and installation of reinforcing pads and replacement section of drop leg piping for connections to blower header.
- .5 Alternate fabrication and installation of replacement spool pieces for header connection to loop A drop leg and new crossover piping.
- .6 Fabricate and install new crossover piping.
- .7 Install new 24” Butterfly Valve in crossover piping. Valve supplied by City of Winnipeg.

1.3 SUBMITTALS

.1 Qualification:

.1 Submit qualifications of the fabricator and welders.

.2 Submit mill certificates for stainless steel pipe, fittings, plate, sheet used in the fabrication.

.2 Shop Drawings

.1 Submit shop drawings for metal fabrications.

.2 Indicate erection detail, materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details and accessories.

1.4 QUALITY ASSURANCE

.1 Fabricator and welders must be certified in accordance with CSA W47.1 by the Canadian Welding Bureau.

.2 Welders joining pipe must be qualified under ASME BPV Code Section IX.

.3 Visually inspect all welds and test with Liquid Penetrant Test Method.

.4 Inspection and testing to be performed by inspection company certified by the Canadian Welding Bureau to CSA W178.1.

.5 Welding inspectors to be certified to CSA W178-2.

.6 Retain records of all inspection and testing available to the Contract Administrator.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Storage and Protection:

.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or cover completely for storage on site.

.2 Store materials off ground in a dry, well-ventilated area.

.3 Replace defective or damaged materials with new.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

Part 2 Products

2.1 MATERIALS

.1 Steel sheet and plates: to ASTM A240 Grade 316L

.2 Steel pipe: to ASTM A312 Tp316L

.3 Welding electrodes: to CSA W48, AWS A5.4, A5.22

.4 Bolts: to ASTM A193-B8M.

.5 Concrete Anchor Rods: to ASTM A193-B8M.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
.2 Confirm measurements for all fabrications before fabricating.
.3 Where possible, fit and shop assemble work, ready for erection.
.4 Ensure exposed welds are continuous for length of each joint.
.5 Remove and grind smooth burrs, filings, sharp protrusions and projections.

2.3 FINISHES

.1 Stainless steel shall be mill finish.
.2 Remove all oxide from all welds.

Part 3 Execution

3.1 ERECTION

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

3.2 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Metal Fabrication: Section 05 50 00

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM B209 Aluminum and Aluminum Alloy Sheet and Plate
- .2 ASTM C547 Mineral Fiber Pipe Insulation
- .3 ASTM C553 Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
- .4 ASTM C612 Mineral Fiber Block and Board Thermal Insulation

1.3 SUBMITTALS

.1 Product Data
- .1 Submit manufacturer's product data in accordance with Section 01 33 00 – Submittal Procedures,
  - .1 When requested, submit product data and test reports indicating that insulation and recovery assemblies meet flame/smoke development ratings and performance requirements.

.2 Shop Drawings
- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Deliver and store materials in original packaging with manufacturer's labels.
.2 Protect materials against damage from weather and construction activities.
.3 Separate waste materials for [reuse] [and] [recycling] in accordance with Section 01 52 00 – Construction Facilities.

1.5 QUALITY ASSURANCE

.1 Insulation materials shall be new, undamaged and of the respective types specified for each specific application.
.2 Installer to be specialist in performing work of this section and have at least 3 years successful experience with work of similar complexity and size as required for this project.

Part 2 Products

2.1 ACCESSORIES

.1 For mineral fiber insulation materials:
- .1 FSK Tape: vapor barrier tape consisting of laminated aluminum foil, glass fiber scrim and paper, with pressure sensitive self adhesive.
- .2 Adhesive: quick setting adhesive for joints and lap sealing.

2.2 RECOVERY MATERIALS

.1 Aluminum: to 0.4 mm thick [smooth] [embossed] with longitudinal slip joints and 50 mm end laps, 0.4 mm thick die shaped fitting covers with protective liner on interior surface.

Part 3 Execution

3.1 INSTALLATION, GENERAL

.1 Apply insulation after required piping system tests have been completed, witnessed and certified.

.2 Ensure piping surface is clean and dry before insulating.

.3 Install in accordance with manufacturers recommendations.

.4 Ensure insulation is continuous.

.5 Locate cover seams in least visible locations.

.6 Stagger butt joints where multi layered insulation is used.

.7 Tightly fit insulation sections to pipe to make smooth and even surfaces. Cut insulation for proper fit where weld beads protrude. Bevel away from studs and nuts to allow their removal without damage to insulation. Trim closely and neatly around extending parts of pipe saddles, supports, hangers, clamp guides and seal with insulating/finishing cement.

END OF SECTION