UNEDITED

.3 Alternate Products

.1 Refer to Division 1 for consideration of alternate products.

.2 Alternate products and materials to those specified will only be considered by the Engineer if they are shown in the Tender as a material variation, and if they are submitted with an appropriate price adjustment. The Engineer will reserve the right to accept or reject any alternative without explanation.

.3 The alternate submission shall provide sufficient information to enable the Engineer to determine whether the alternate is acceptable or unacceptable.

.4 Provide complete information on required revisions to other work and products to accommodate each alternate product.

.5 The Contractor assumes full responsibility when providing alternative products or materials that all space, weight, connections, power and wiring requirements etc. are considered and compensated for. Any costs incurred for additional components, changes to other services, structural or space requirements, layouts and plans, etc. that may arise from the use of the alternate to be borne by the Contractor.

.6 Materials or equipment rejected by the Engineer to be immediately removed from the project.

.4 Review of Products

.1 Immediately after notification of award of contract, review with the Engineer the list of products to be provided by this Division

.2 After agreement on product list has been reached, no subsequent changes will be permitted except as specified hereafter.

.5 Substitution of Products After Contract Award

.1 After acceptance of the list of products, no substitution of any item will be permitted unless the approved item cannot be delivered in time to comply with the work schedule.

.2 To receive acceptance, proposed substitute products are to equal or exceed the quality, finish and performance of those specified and/or shown, and not to exceed the physical space requirements allotted, as shown on the drawings.

.3 Provide to the Engineer documentary proof of equality, difference in price (if any) and delivery dates, in the form of certified quotations from suppliers of both specified items and proposed substitutions.

.4 Include costs for any required revisions to other structures and products to accommodate such substitutions.

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.5 Refer to Division 1 for additional information on substitutions.

.6 Quality of Products

.1 All products provided to be CSA Approved, and Canadian Underwriters' Laboratory approved where applicable.

.2 If products specified are not CSA approved, obtain approval of the relevant provincial regulatory authority. Pay all applicable charges levied and make all modifications required for approval.

.3 Refer to Division 1 of this specification for further information.

.7 Uniformity of Manufacture

.1 Unless otherwise specifically called for in the specification, uniformity of manufacture to be maintained for similar products throughout the work.

.8 Product Finishes

.1 Products to be manufacturers' standard finish. Where special finishes are specified refer to Division 9 for details on quality and workmanship of the finishes.

.9 Use of Products During Construction

.1 Any equipment used for temporary or construction purposes to be approved by the Engineer and in accordance with Division 1 of this specification. Clean and restore to "as new" condition all equipment prior to the time of substantial completion.

.2 The warranty period does not begin until the date of substantial completion of the work.

2.2 Instrumentation

.1 General

.1 Instruments to be suitable for the environmental conditions in which they are to be installed.

.2 Determine where injurious conditions may be expected to occur and make proper provision to protect the instruments to ensure their proper and reliable operation.

.3 Provide power surge protectors, heating cables and devices to protect instruments, equipment and lines from being functionally impaired or damaged by power surges or environmental conditions such as moisture or freezing.

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2.3 Identification

.1 Refer to Division 16 for general identification requirements. Provide lamicoid nameplates with 5mm white lettering on black background. Identify the loop tag number (where applicable) and the device name, function, and instrument range or setpoint value on the nameplate.

.2 Where it is not possible to attach a lamicoid nameplate to a field instrument component, provide the component with a stainless steel metal tag firmly wired to the device and identified with the loop tag number.

.3 Identify all wires where they terminate at the marshalling panels, junction boxes and field devices with a heat shrink sleeve with machine printed labeling.

.4 Clearly mark all panels, pull boxes, junction boxes, etc. to indicate the nature of service.

.5 Provide neatly typed circuit directories for panel power distribution systems to indicate loops or devices powered by the circuit and the fuse size.

.6 Identify all exposed control conduits at all pull box locations, where the conduits enter or leave a room, and 13 meters on center throughout the room. This shall apply to conduits above removable ceilings. Use Thomas & Betts TY-RAP 5532-M labels conduit identification.

.7 For direct current wiring use black for positive and white for negative.

.8 For thermistor wiring to motors, use red and blue coloured, insulated wire.

3. EXECUTION

3.1 Site Examination

.1 Refer to the requirements of Division 1.

.2 No additional compensation will be given for extra work due to existing conditions which a site examination prior to tender should have disclosed.

3.2 Coordination With Other Divisions

.1 Examine the drawings and specifications of all divisions and become fully familiar the work. Before commencing work, obtain a ruling from the Engineer on any conflicting issues between divisions. No compensation will be made for any costs arising from conflict not identified before work has commenced.

.2 Coordinate the work to be performed under this section of the specification with all divisions installing equipment to ensure that there are no conflicts.

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.3 Install anchors, bolts, pipe sleeves, hanger inserts, etc. required in ample time to prevent delays to other divisions installation work.

.4 Lay out the work and equipment with due regard to architectural, structural and mechanical features. Architectural and structural drawings take precedence over electrical drawings regarding locations of walls, doors and equipment.

.5 Structural members shall not be cut without prior approval of the Engineer.

.6 Examine previously constructed work and notify the Engineer of any conditions which prejudice the proper completion of this work.

3.3 Product Handling

.1 Use all means necessary to protect the products included in this division before, during and after installation, and to protect products and installed work of all other trades.

.2 Any damage to the products and/or installed work shall be repaired or replaced by the Contractor at no additional cost to the Owner, and to the approval of the Engineer.

.3 Remove advertising labels from all products installed that have such labels attached. Identification or CSA labels are not to be removed.

.4 Remove dirt, rubbish, grease, etc. resulting from work performed under this section of the contract from all surfaces.

3.4 Separation of Services

.1 Maintain separation between the electrical wiring system, building piping, ductwork, and the instrumentation cables so that each system is isolated (except at approved connections to such systems) to prevent galvanic corrosion. In particular, contact between dissimilar metals, such as copper and aluminum, in damp or wet locations is unacceptable.

.2 Do not support wiring from pipes, ductwork, etc. Hangers for suspended ceilings may be used for the support of wiring only when approval is obtained from the Engineer and the ceiling installer, and only if approved clips or hangers are used.

3.5 Wire And Cable

.1 Refer to Section 17124.

3.6 Equipment Connections

.1 Prior to the connection of signal wiring to process control and instrumentation devices, check the device voltage rating and polarity for compatibility with the corresponding loop and/or schematic diagram. Where device and circuit characteristics are found to be

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.2 incompatible, the connections are not to be made. Report the condition immediately to the Engineer.

.3 All control wiring diagrams illustrate typical control circuits applicable to the type of equipment specified. Control circuits may vary with different manufacturers equipment. Verify all control circuits with the suppliers of the equipment and make any corrections to the control wiring diagrams that may be required.

.4 Provide power disconnect terminals in the marshalling panels for all devices or CDACS input/outputs sourced from the panel. Provide local power disconnect switches for all 120VAC power instruments. Mount adjacent the instrument.

.5 Provide a disconnecting means in the cable connecting each ultrasonic transponder to the transmitter. This disconnect shall consist of a terminal strip in a local WP junction box with approximately 3 meters of cable from the transponder.

3.7 Wiring To Equipment Supplied By Others

.1 Equipment supplied by the Owner or by other Divisions, that have external or field mount control devices, are to be installed, wired and commissioned by this Division.

3.8 Access Panels

.1 Provide access panels where instrumentation and control system junction boxes are concealed. Panels to be of adequate size for servicing of the concealed junction box and complete with necessary frames and hinged doors held closed with captive fasteners. The type and size of panels are to be coordinated with the Engineer.

.2 In removable ceiling areas provide markers on ceiling tile to locate equipment requiring access. Use a 25mm dia. blue circle painted on the access panel to indicate that it is for instrumentation and control system access.

3.9 Instrument Mounting Stands

.1 Supply and install instrumentation mounting stands as required. Stands are to be either floor or wall mounted. The mounting stands are to be fabricated from aluminum or galvinized steel.

.2 Supply and install protective drip shield for any exterior stand-mounted instrumentation equipment. The drip shield is to extend 50 mm at the top and sides from the front face of the equipment. The drip shield is to be fabricated from aluminum.

3.10 Sealing Of Wall And Floor Openings

.1 Seal all conduit and cable entries passing through outside walls of buildings, through partition walls separating electrical rooms from other areas, through fire separations, and through floors above grade.

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.2 Seal openings after all wiring entries have been completed.

.3 Sealing material shall be fire resistant and not contain any compounds, which will chemically affect the wiring jacket or insulating material. Cable penetrations through fire separations, if required, are to be sealed. Acceptable methods are Canstrut "Fire Stop", Electrovert "Multi-Cable Transit" or Dow Corning RTV Silicone Foam.

3.11 Sleeves

.1 Provide sleeves of galvanized steel pipe with machine cut ends of ample size to accommodate conduits passing through walls, partitions, ceilings, floors, etc.

.2 For wall, partitions and ceilings the ends to be flush with the finish on both sides. For floors the ends shall extend 100 mm above finished floor level.

.3 Fill the space between the sleeve and the conduit with fire stop material and caulked around the top and bottom with approved permanently resilient, non-flammable and weatherproof silicone base compound. Ensure that the seal is compatible with the floor and ceiling finishes.

.4 Locate the sleeves and position exactly prior to construction of the walls and floors.

.5 Failure to comply with the above requirements shall be remedied at the Contractor's expense.

3.12 Connections to Mechanical, Electrical and Existing Systems

.1 Refer to Division 16 for the required tie-in procedures.

3.13 Testing of Instrumentation Loops

.1 After all devices within a loop have been connected, check the loop for correct functioning and interaction with other loops, where applicable. Provide written notice to the Engineer when the loops are going to be tested so that the tests may be witnessed at the Engineer's discretion.

.2 Check the operation of final control elements such as solenoid valves, actuators, etc. by manual control before checking with automatic control.

.3 Test all tubing for leaks in compliance with ISA RP7.1. Isolate all instruments when tubing is being tested to protect against over pressure.

.4 Perform tests and record results on test data forms, which are included in this section. Develop additional and/or more detailed test forms as necessary to suit more complex instrumentation.

.5 Sign and date all test reports. Submit the test reports to the Engineer within 5 working days of testing.

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3.14 Calibration

.1 Instruments to be factory pre-calibrated and the calibration verified in-place after installation. Provide a printed record of the factory calibration parameters for "smart" devices.

.2 Prior to calibration completely program all "smart" transmitters including entries of the appropriate range and tag number. Provide a printed record of smart device serial numbers against their assigned tag number.

.3 Instruments to be set up and calibrated by an accredited instrument technician working under the approval of the instrument manufacturer.

.4 Calibrate all instruments to an accuracy of 1/2 of one percent of full range, or to the manufacturer's stated accuracy of the instrument whenever an accuracy of 1/2 of one percent is not achievable.

.5 Prior to instrument installation perform the following applicable calibration for each instrument and its associated signal conditioning equipment:

.1 Calibrate all inline flowmeters by a draw-down test

.2 Calibrate all density meters by lab samples

.3 Calibrate all vacuum and pressure instruments by manometer or accurate test instrument and hand test pump

.4 Calibrate gas detectors using standard gas sample

.5 Calibrate temperature instruments against a standard lab thermometer.

3.15 Commissioning

.1 Refer to the requirements of Division 1 for additional commissioning requirements.

.2 Inspections

.1 Provide two (2) weeks' written notice to the Engineer prior to energizing any system to allow for inspection by the Engineer of the following:

.1 Proper mounting.

.2 Proper connections.

.2 During commissioning demonstrate to the Engineer proper calibration and correct operation of instruments and gauges.

UNEDITED

.3 Commissioning of the instrumentation and control system to include but not be limited to the following:

.1 Supervise installation of components, wiring connections and piping connections.

.2 Supervise wiring continuity and pipe leak tests.

.3 Verify instrument calibration and provide written report.

.4 Function check and adjust under operational conditions the instruments and control equipment.

.5 Coordinate instruments and control equipment supplier's service personnel as required for complete system testing.

.6 Instruct plant personnel in correct method of operation of instruments and control equipment.

.7 Direct plant personnel at hand-over as to final adjustment of the system for correct operation of plant.

.8 Ensure that the instrumentation and control equipment suppliers cooperate to complete the work of this section.

.9 Verify signal levels and wiring connections to all instrumentation and control equipment.

3.16 Training

.1 Provide training, described in detail in Division 1, as required by the plant's personnel to become fully competent in the proper operation and maintenance of all control devices, control valves, and ancillary instrumentation described under this section of the specification.

3.17 Test Forms

Form Number	Title
ITR	Instrument Test Report
LCR	Loop Check Report

END OF SECTION

INSTRUMENTATION AND CONTROLS
GENERAL REQUIREMENTS

LOOP CHECK REPORT

☐ CHECKED OUT OK
☐ NOT APPLICABLE
☐ FURTHER ACTION REQUIRED

UNEDITED

	INSTRUMENT TAG NO.								
LOOP NO. _____ SHEET NO. _____ P & I DWG. NO. _____									
INSTALLATION COMPLETE									
Primary Element									
Impulse Lines									
Block and Drain Valves									
Air Supply/Filter/Reg.									
Wiring									
Tracing/Insulation/Housing									
Mounting and Location									
CDACS I/O & Status									
CALIBRATED									
Impulse LInes Press. Tested									
LOOP CHECKED									
Element To Receiver									
X Mtr. to Receiver									
X Mtr./Trans. to Receiver									
X Mtr./Trans. to Switches									
Switches to Annunciator									
Interlocking Circuit									
Controller to Valve									
Controller Action D or R									

INSTRUMENTATION AND CONTROLS
GENERAL REQUIREMENTS

UNEDITED

REMARKS:

READY FOR START-UP

DATE: _____

Installed by: _____

Checked by _____

SYSTEM: _____

SERVICE: _____

TAG NO. _____

LOCATION: _____

MAKE: _____

MODEL: _____

SERIAL NO.: _____

CSA: _____

ELEMENT: _____

RANGE: _____

DESIGN SETTING/RANGE: _____

CONTACT TO: _____ ON: _____

SIGNAL IN: _____ OUT: _____

ASSOCIATED INSTRUMENT: _____

INSTRUMENT CONDITION: _____

CONFORM TO SPEC: _____

PROJECT NO.: _____

DATA SHEET: _____

	TEST 1				TEST 2			
TEST METHOD								
	INPUT		OUTPUT		INPUT		OUTPUT	
PROCESS	INC.	DEC.	INC.	DEC.	INC.	DEC.	INC.	DEC.
TEST POINT 1								
TEST POINT 2								
TEST POINT 3								
TEST POINT 4								
TEST POINT 5								
COMMENTS								

INSTRUMENTATION AND CONTROLS
GENERAL REQUIREMENTS

GRAPHS		

UNEDITED

TESTED BY: _____ CHECKED BY: _____

DATE: _____ DATE: _____

SCOPE OF WORK

UNEDITED

1. GENERAL

1.1 General

.1 This section is intended to generally describe and outline the scope of work required to be carried out in conjunction with this contract. Execution of this work shall be read in combination with the specifications and drawings.

1.2

.1

1.3

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1.4

.1

1.5

.1

2. WORK INCLUDED

2.1 Related Work

.1 The Administrative Sections under Division 00 (Bidding and Contract Requirements) and 01 (General Requirements) shall be considered to be part of these Specifications.

2.2 General Requirements

.1 General Clean-up.

.2 All inspection and other permits, licenses required by various Inspection Agencies and local regulations.

.3 Special testing or inspection, additional to the above as specified or covered by a Cash Allowance.

.4 Scaffolding.

.5 Shop Drawings.

.6 Label all instruments with their specific tag numbers as listed on P&ID drawings and the instrument index.

.7 Identify all cabling from the field devices and instruments to respective marshalling panels.

.8 Project Record Documents (As-Built Drawings) where specified.

.9 Operating and Maintenance Data, where specified.

.10 Testing and commissioning of the complete installation.

UNEDITED

2.3 Materials

.1 Provide one HMI computer complete with color printer. Provide corresponding network connection to Ethernet switch.

.2 Provide one PLC, alarm dialer and Ethernet switch. The contractor shall review and agree the I/O from the PLC I/O Index list and procure peripheral equipment (i.e. racks, battery backup, I/O cards) as indicated in section 17110, 17500, PLC Instrument Specification Sheet and as shown on the tender drawings.

.3 Contractor to provide the marshalling panels as indicated in the tender drawings. The contractor shall generally adhere to the marshalling panel layout drawing, making minor deviations only to ensure reasonable fit for the installed equipment. Consideration shall be given for the need for future maintenance work (i.e. adequate working area around components and for the future additions).

.4 Software tools and related programming for the PLC, operator interface terminals and the HMI computer.

.5 Control panels associated with any electrical equipment covered under this section of Work.

.6 Duct systems, including underground, floor, riser, etc. which are intended to contain cables, buses or any device associated with or connected to the power system.

.7 Grounding systems, as required by the Electrical Code, or as otherwise specified in the bid documents.

.8 Control and instrumentation systems - electrical or electronic including infrared, solar, high frequency, ultra high frequency and microwave control and instrumentation systems, with auxiliary equipment and components, unless specified otherwise.

3. WORK EXCLUDED

3.1 General Requirements

.1 Temporary power.

.2 Temporary light.

.3 Hoisting.

.4 Barriers.

.5 Special testing or inspection not specified or covered by Cash Allowance.

3.2 Other Work Excluded

.1 Painting (on site), except touch-up of electrical equipment (Division 9).

.2 Control transformers supplied with Mechanical Equipment (Division 15).

.3

3.3 Specified Work by Utilities

.1

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.4

3.4 Specified Work by Owner

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UNEDITED

4. UNITS OF MEASUREMENT

4.1 General

.1 The Contract Documents have been prepared using the modified International System (SI) units of metric measurement. Whenever appropriate, available metric products shall be used unless otherwise specified herein.

.2 Only metres (m) and millimetres (mm) are used. Generally, metres are used for measurements of 10 metres or more, and millimetres for measurements below 10 m.

.3 All measurements on drawings are in millimetres unless otherwise indicated.

UNEDITED

4.2 Conversions

.1 The following three conversion methods were used in product and location dimensions:

.1 Hard Conversion: Industry available products, which are manufactured in metric measurements.

.2 Soft Conversion: Products, which are still manufactured in Imperial units and are converted in specifications using arithmetic conversion factors.

.3 Rationalized Conversion: Dimensions, which are soft, converted and rounded off for ease of measurements.

.2 In cases where measurements may be open for interpretation, dual dimensions have been incorporated until hard conversions can be used exclusively.

5. DEFINITIONS

5.1 General

.1 All terminologies, abbreviations and acronyms used in this document are as listed in the various Standards, Codes, Rules and Bulletins used herein.

6. FORMAT

6.1 Practice

.1 This Scope of Work has been written to conform to the British Columbia Construction Association (BCCA) Bid Depository Rules and Procedures and Scope of Work.

6.2 Sections

.1 The Sections are written in a three-part format: General, Products and Execution.

6.3 Reference

.1 Imperative tense has been used throughout this Document for work intended for the successful Contractor. There shall be no work exclusions unless they have been clearly identified as such herein.

.2 Any reference to "Design Authority" shall mean Earth Tech Canada Inc.

.3 The word "provide" shall mean "supply and install" unless otherwise indicated.

7. CODES

7.1 General

.1 All Codes, Standards, Rules, Regulations, Bulletins, By-laws etc., shall be those that are currently enforced in the locality of job site, unless otherwise specified herein.

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END OF SECTION

ENCLOSURES

UNEDITED

1. GENERAL

1.1 References - General

.1 Equipment, Products and Execution must meet all requirements detailed in Section 17010.

2. PRODUCTS

2.1 General

.1 Unless otherwise specified, provide outside finishes on all enclosures in ANSI 61 Grey as specified in Division 9.

.2 The enclosures must be suitable for carrying the weight of the equipment mounted inside the panel and on the doors without any warpage.

2.2 Enclosures

.1 Provide EEMAC type 1A gasketted enclosures in MCC rooms and control rooms.

.2 All enclosures for mounting outside of MCC rooms and control rooms to be EEMAC Type 4, watertight except where otherwise specified.

.3 Provide EEMAC 7/3R enclosures for equipment in and around classified areas such as sumps.

.4 Enclosures for certain equipment in corrosive atmospheres to be EEMAC 4X approved for the classification (e.g. chemical cleaning).

.5 Enclosures for mounting field control indicator lamps and switches in unclassified areas to be Allen Bradley model 800T-xTZ die cast enclosures.

.6 Enclosures for mounting field control indicator lamps and switches in Class 1 areas to be Allen Bradley model 800H-xHHX7 cast aluminum enclosures.

2.3 Panel Enclosures

.1 Fabricate panels enclosures from 11 gauge steel panels complete with necessary stiffening to form a rigid free-standing lineup. The structures must be suitable for carrying the weight of the equipment mounted inside the panel and on the doors. Provide removable top and bottom cable entry plates.

.2 Provide panels with front access only. Doors shall be key lockable and fitted with 3-point heavy duty latching assemblies. Provide a continuous piano hinge and a pneumatic hold open device on each door.

.3 Finish the interior of the enclosure with white paint. Provide a switched fluorescent light fixture and) 120VAC duplex convenience receptacle inside the enclosure.

UNEDITED

2.4 Marshaling and Control Panels

.1 Supply, fabricate, checkout, layout, document and deliver to site fully equipped and functional panels.

.2 Supply all components contained on or within the panels fully wired under this section of the specification.

.3 The selection of all accessories, materials and methods for fabrication not covered by this specification, but which are necessary to complete the fabrication of the control panels, is the responsibility of the panel fabricator.

.4 Refer to the instrument installation detail drawings for panel dimensions.

2.5 Wiring and Accessories

.1 Provide wiring inside the panels according to the following specifications:

.1 Control wiring to be a minimum of #16 AWG tinned stranded copper; insulation rated at 600 V.

.2 Wiring for power distribution shall be a minimum of #14 AWG tinned stranded copper; insulation rated at 600 V.

.3 Refer to Division 16 for cable routing requirements.

.2 Tag each wire at both ends with a heat shrink sleeve that is machine printed.

.3 Wiring systems with different voltage levels or types shall be suitably segregated within the panel, according to relevant electrical codes.

.4 Run all wiring in enclosed plastic wireways such as Panduit. Size all wireways so that the total cross sectional area of the insulated wire and cable does not exceed 40% of the cross sectional area of the wireway.

.5 Provide a minimum clearance of 40 mm between wireways and any point of wire termination.

.6 Terminate all wiring, incoming and outgoing, at terminal strips mounted inside the panels. Identify each terminal strip with a terminal strip number, defined as follows:

.1 Wire identification to use the connected field device tag name with the wire's corresponding terminal number appended to it.

.2 Identify every joint and/or terminal of the above wire run with the same identifier until the wire meets another tagged device, at which point the wire identifier will change to use the new device name and terminal number.

UNEDITED

.3 For example, pressure transmitter K4-PT-100A located in the field has a 2CTPSH cable connected to it. The cable runs through a junction box to a marshaling panel. The wire identifiers for the pair of wires would be K4-PT-100A all the way to the marshaling panel.

.4 Identify spare wires by using the destination identifier, ie the location and terminal identifier of the opposite end of the wire are combined to form the wire tag.

.7 Provide a 120 VAC panel power distribution system and a 24vdc power distribution system in each panel. Provide a thermal magnetic circuit breaker on each main power circuit and a fused terminal block for each branched circuit off the main.

.8 Provide disconnect type terminal blocks Wieland WK4TSK/U type to isolate field wiring that is powered sourced from the panel.

.9 Provide sufficient terminals so that not more that 2 wires are connected under the same terminal. Provide 20% spare terminal capacity at each terminal block assembly.

.10 Terminals shall be Wieland Type WK4/U color coded as follows:

Red	Positive 24VDC
Black	0VDC common and analog signal plus
White	Analog signal common and VAC neutral
Grey	120VAC
Green	Ground
Yellow	Shield

.11 Provide nameplates for each device on or within the panels and enclosures. Nameplates shall be black lamicoid with white lettering, a minimum of 25mm x 75mm in size with up to three lines of 3mm lettering. Securely fasten nameplates in and situate them in a visible location.

2.6 Panel Grounding

.1 Provide a ground system for the instrumentation circuits, isolated from the main power system ground to each marshaling panel.

.2 Provide grounding lugs for each panel, suitable for termination of up to #2 AWG copper grounding conductor.

.3 Provide in each marshaling panel an isolated grounding buss bar 6 x 25 x 600 mm, equipped with necessary lugs for accepting two #2 AWG grounding conductors.

.4 Firmly bond all panel mounted devices on or within the panels to ground. Provide supplementary bonding conductors for backpanels and doors. Attach a separate bonding conductor to all devices that are not firmly fastened to the panels with screws for such devices as case mounted instruments, meters, etc.

ENCLOSURES

3. EXECUTION

3.1 References - General

.1 Refer To Section 17010 Part 3.

3.2 Mounting Heights

.1 Unless otherwise specified or a conflict exists, mount all panels, starters and disconnects 2000 mm to top of cover.

END OF SECTION

UNEDITED