Medicine Hat

CUSTOMER CONNECTION GUIDE

6.0

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CITY OF MEDICINE HAT, CITY OPERATIONS, MANUAL FOR ELECTRIC UTILITY WORKING PROCEDURES AND GUIDELINES FOR CONSTRUCTION, REPAIR AND CONNECTION OF CONSUMER SERVICES

Customer Connection Guide

(City of Medicine Hat, City Operations, Manual for Electric Utility Working Procedures and Guidelines for Construction, Repair and Connection of Consumer Services)

These "working procedures and guidelines" are issued as a supplement to and under the authority of the City of Medicine Hat Electrical By-Law 2244 as amended.

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PART 1

General Information

1. General Information

1.1. Applications

1.1.1. This guide and the information contained within have been compiled to inform all customers, electrical contractors, consultants, and employees who shall interact or connect to the City of Medicine Hat (CMH) Electric Transmission and Utility Distribution System.

1.1.2. For any new electrical service or change to an existing electrical service, one of the following applications shall be completed and sent to the City of Medicine Hat Electric Utility:

1.1.2.1. Residential Service Application

1.1.2.2. Commercial Service Application

1.1.2.3. Microgeneration Form

1.1.2.4. Engineering Department-Infrastructure Relocation Form

1.1.3. While every precaution has been taken in the preparation of this Guide, it may contain inaccuracies or inconsistencies.

1.1.4. The authors of this Guide assume no liability for errors, omissions, or damages resulting from the use or reliance upon the information contained herein.

1.1.5. This Guide has been developed without regard to whether its adoption may involve patents on articles, materials, or processes. Such adoption does not assume any liability to any patent owner, nor does it assume any obligation whatsoever to parties adopting this Guide.

1.2. Regulations

1.2.1. In addition to the requirements outlined within; all electrical installations shall meet the requirements:

1.2.1.1. The Canadian Electrical Code Part 1,

1.2.1.2. The Safety Codes Act and Regulations,

1.2.1.3. The Weights and Measures Act,

1.2.1.4. Alberta Electric Utility Code.

1.2.1.5. All electrical equipment used shall be manufactured in accordance with the latest Canadian Standards Association (C.S.A.) standards.

1.3. Utility Billing Registration

1.3.1. Customers requesting a new electrical service shall open a utility billing account with the CMH Customer Service, located at City Hall (580 1st Street SE) before any service can be connected by The Electric Utility.

1.4. Service Costs

1.4.1. Charges for electric servicing may be based on a predetermined standard charge or they may be calculated based on the labor, materials and equipment required for that specific project requirements.
CMH Electric Distribution Standard Charges

1.5. Before Construction Begins

1.5.1. Consumers planning new construction, additions, or alterations to their premises and/or electrical system shall contact The CMH Electric Utility Engineering Department to discuss the requirements before ordering materials or commencing work. It is recommended that the **complete** service requirements are discussed with the Electric Utility as early as possible to enable time to facilitate any potential remediation plans.

1.6. Points of Demarcation

1.6.1. For the purposes of determining demarcation between the Canadian Electrical Code, Part One and the Alberta Electrical Utility Code, the typical point of demarcation in CMH Electric Utility Service Territory is:

1.6.1.1. Overhead service: the connection point at the service head;

1.6.1.2. Residential underground: the line side terminal of the customer's meter socket;

1.6.1.3. Commercial Underground: the secondary terminals of the transformer;
Note: in the event that the commercial service cabling system is extended from the transformer to pedestals or underground enclosures, then the demarcation point is the terminals in the pedestals or the underground enclosures.

1.6.1.4. Commercial Service where the consumer service is underground for a portion and attaches to the pole up to the transformer, the demarcation point will be the terminals on the load side of the overhead transformer.

1.7. Large Motor Starting Limitations

1.7.1. The maximum size (in horsepower) of electric motors which will normally be permitted to "start across the line voltage" on any electric service from CMH

Electric Utility will be limited by the size and voltage of the customer's main service. See the table below:

Size of main	120/240v 1-phase	120/208v 3-phase	277/480v 3-phase	347/600v 3-phase
100 amps	3	10	25	30
200 amps	5	20	50	50
300 amps	10	30	75	100
400 amps	20	40	100	
500 amps		60		
600 amps		75		
700 amps		100		
800 amps				

1.7.2. Use of motors larger in size than normally permitted will be permitted if motors have starting equipment that will reduce the motor starting current/voltage to an acceptable level which will be determined by the CMH Electric Engineering Department.

1.7.3. The CMH Electric Utility reserves the right to insist on the addition of starting equipment that will reduce the starting current/voltage if motor starting reduces line voltage by 5% or objectionable voltage flicker is produced. All costs for such equipment will be borne by the customer.

1.8. Use of High Surge Equipment

1.8.1. Where high-surge equipment such as welders, x-ray machines, furnaces, and similar load types are connected to the Electric Utility System, the CMH Electric Utility reserves the right to insist on the installation of equipment required to reduce or correct voltage surge/dip issues.

1.8.2. Where such equipment is required to be installed on the Electric Utility System, The CMH Electric Utility will charge to cover the additional equipment costs.

1.9. Solar Systems

1.9.1. All solar systems shall comply with the following guidelines:

1.9.1.1. Alberta Utilities Act Micro-Generations Regulation

1.9.1.2. Alberta Utilities Commission Micro-Generations guideline

1.9.1.3. Canadian Electrical Code Part 1 & 2

1.9.1.4. Canadian Safety Association

1.9.1.5. CMH Electric Bylaw 2244

1.9.1.6. CMH Micro-Generation / Distributed Energy Resource Interconnection Guide

1.10. Drawings and Specifications

1.10.1. Copies of customer equipment shall include drawings, specifications, elevations, and section views of the physical arrangement of the service entrance equipment, and shall be provided to the CMH Electric Utility. Dimensions shall be shown in sufficient detail to clearly illustrate provisions for revenue metering equipment.

1.10.2. Revenue metering equipment shall mean all meters, instruments, transformers, and secondary wiring to be utilized exclusively for billing purposes.

1.10.3. Drawings of the area which will contain the revenue metering equipment, switchgear, and service entrance equipment shall be provided, complete with details of the finished grade, entrance, wall and roof clearances, number and size of consumers services and the position of switchgear and/or service entrance equipment.

PART 2

Safety Requirements

2. Safety Requirements

2.1. Safe Working Space

2.1.1. A clear minimum working space of 1 M shall be provided and maintained in front of all metering equipment.

2.1.2. When access to equipment in switchgear is required through a side or rear panel or door a clear unobstructed minimum working space of 3 M shall be maintained on all sides of the switchgear.

2.1.3. A clear passageway of at least 1 M wide and not less than 2 M high shall be maintained as an exit route from the area defined above. Any exit door from the passageway shall be a minimum of 750 mm by 2 M.

2.1.4. Headroom must remain clear for the area defined above. No piping or other instructions may encroach with the 2 M vertical clearance.

2.1.5. Where a hinged door or panel in an open position would block an exit route, a clear minimum space of 600 mm shall be maintained to pass by the edge of the door or panel in such an open position.

2.2. Hazardous Locations

2.2.1. Where the meter location may pose increased risk or expose the CMH Electric Utility Staff, or there is increased risk of damage to the metering equipment from moving machinery, dust, fumes, moisture, etc. protective arrangements shall be provided by the consumer, satisfactory to both the Electric Utility and the Inspection Authority having jurisdiction.

2.2.1.1. Where the hazardous environment occurs within the building, the metering may be installed outside in an approved weatherproof enclosure with special permission from the CMH Electric Utility.

2.2.1.2. CMH Electric Utility does not typically require a meter enclosure for self-contained meters except in locations where the meter may be subject to damage. Installation of a protective enclosure would be at the consumer's expense.

2.3. Right to Refuse Energization

2.3.1. CMH Electric Utility reserves the right to refuse energization of any service or meter installation within its service area at its discretion. Some potential causes for refusal may include:

2.3.1.1. Unsafe installation conditions

2.3.1.2. Identification of any hazardous conditions at a work site

2.3.1.3. The service entrance equipment, more specifically its location and application

2.3.1.4. Installation has deviated from these guidelines, the engineered drawings or documented instructions

2.4. Site Housekeeping

2.4.1. Customer areas that Electric Utility crews access and work in shall be clear of construction materials, equipment, debris, trash, and other materials that may impede work, pose a safety risk to personnel, or damage equipment.

2.4.2. No materials, fill, or spill piles may be stored or located underneath overhead power lines that may reduce the distance to conductors.

2.4.3. Customer work sites for electric utility installation shall be level and consist of hard-packed material or asphalt.

2.4.4. If a site has substandard housekeeping or is deemed unsafe by CMH Electric Utility personnel, Electric Utility personnel will leave the site until the issues are rectified.

2.5. Proximity to Other Equipment

2.5.1. It is not permissible to mount communications, water, gas, sewer, or any other equipment foreign to the electrical installation, directly above or below the revenue metering equipment, nor may they encroach on the area designated as a “safe working space.”

2.5.2. The electric meter is to be a minimum of 1000 mm away from the gas meter, as per 2-328 of the Canadian Electrical Code (Appendix B)

2.6. Illumination and Electrical Outlets

2.6.1. All electrical rooms and areas defined as “safe working space” shall have adequate illumination.

2.6.2. Lighting shall be controlled by wall switches located at the point of entrance to electrical rooms and to areas defined as “safe working space.” Switches shall be positioned on the inside wall of electrical rooms, on the latched side of the door, within reaching distance of the entranceway.

2.6.3. One 15 amp 120-volt receptacle is required within the electrical room or near the area defined as a “safe working space.”

2.7. Service Entrance Equipment Requirements

2.7.1. Hinged doors or cover plates shall be installed over all live electrical equipment where Electric Operations staff may be required to work. This shall include live splitters, un-metered sections of switchgear, breakers, and switches. All such

hinged doors and cover plates shall have provisions for sealing or padlocking. Where bolts are used, they shall be of the captive knurled type.

2.7.2. All outer hinged doors shall open either left or right no less than 110 degrees. All inner hinged doors shall open either left or right to 90 degrees. All cover plates shall be removable from the front. One exception to the direction of opening is the horizontally mounted splitter box which shall open downwards.

2.7.3. Barriers shall be provided in each section of switchgear or service entrance equipment, between metered and unmetered conductors, and between those sections reserved for Electric Operations use and sections reserved for the consumer's use.

2.8. Clearances – Public Safety

2.8.1. Maintaining adequate clearances of people, buildings, trees, vehicles, other utilities, and other objects, is critical for safety. It is the Customer's responsibility to ensure adequate clearance for their project is always maintained, including before, during, and after construction in accordance with both the Alberta Electric Utility Code and the Occupation Health and Safety Code:

2.8.1.1. Anyone working near power lines must maintain safe limits of approach; and

2.8.1.2. Person(s) responsible for the design or construction of any infrastructure near powerlines must follow clearance requirements.

2.8.2. Any change(s) required to the CMH Electric Utilities facilities in order to maintain the greater of the minimum clearances, as stated within the AEUC and the current CMH Electric Utility minimum standard clearances, shall be at the expense of the person(s) responsible for non-compliance.

2.8.3. Failure to maintain clearance distances will result in stop work orders, delays, and potential demolition or structure alterations. In some cases, whole buildings have needed to be moved or removed due to clearance issues that the Customer or their contractor/consultant failed to account for. It is recommended that Customers engage professionals (architects, engineers, electricians) knowledgeable in the clearance requirements for their project.

2.9. Limits of Approach

2.9.1. It is important to be aware of any power lines in the area when planning your construction. The required clearance for overhead power lines may be as much as 7M.

2.9.2. You shall consider not only the proximity of planned buildings or structures, but the distance workers and equipment will need to be from power lines during the construction or future building maintenance.

2.9.2.1. Employers and contractors have responsibilities under the Alberta Occupational Health and Safety Act (Alberta OH&S), Code, and Regulations to maintain safe distances for people or equipment from energized power lines or equipment.

2.9.2.2. Anyone working within 7 M of an overhead power line shall contact the Utility prior to commencing any work. CMH Electric Utility 403-529-8262 or email. The CMH Electric Utility offers a free consultation and orientation where there are concerns about, or work must be completed in proximity to overhead electrical facilities.

2.9.2.3. For work in proximity to underground facilities the CMH will locate all City owned facilities. The electric locate will also give required safe work clearances and minimum distances and drive the orientation process if required. (Book a locate).

2.9.3. Any costs associated with meeting the minimum required code clearances for worker safety are the responsibility of the company working in proximity.

2.9.4. A stop work order will be issued for any limit of approach violation.

2.9.5. For more information on working safely in proximity to power lines please see the Guidelines for Working in Proximity to CMH Power Lines.

2.10. Poles and Anchors

2.10.1. No trenching or earth removal work shall be completed within a minimum 1M from any Electric Utility poles and guy anchors.

2.10.2. This distance may be reduced with consultation and written authorization from CMH Utility Safety Codes Officers.

2.11. Clearance Requirements for Structures and Landscaping

2.11.1. It is the Customer's responsibility to ensure that any trees, shrubs, buildings/structures, driveways, sidewalks, fences, or other landscaping on their property do not pose a risk to or interfere with Electric utility lines and/or equipment.

2.11.2. Where Customers installation of any of the above items results in conflict with Electric Utility infrastructure, the CMH Electric Utility may remove them at the owner's expense.

2.11.3. Where approved in advance, customer installation of hard surface materials such as concrete or asphalt against Electric Utility assets e.g. customer driveway against a concrete transformer pad may be permitted.

2.11.3.1. The CMH Electric Utility strongly recommends that an isolation joint be installed along the clearance boundary to allow for the easy removal of any material installed in the clearance area.

2.11.3.2. CMH Electric Utility cannot be held responsible for any damages to the customer's property when Electric Asset removals are required.

2.11.3.3. An isolation joint will ease the material removal within the clearance area, reducing potential costs borne by the customer, and reducing the risk of the adjacent material being damaged.

2.11.4. The clearance requirements in this section are the CMH Electric Utility's general minimum clearance requirements. Other codes, regulations, bylaws, or laws may have more stringent requirements. It is the Customer's responsibility to determine what requirements apply, and to adhere to the most stringent of those requirements.

2.11.5. Before planting new trees, look overhead and all around the intended site. Note how far the tree planting site is from overhead utility lines and the easement/utility right-of-way; select trees that won't interfere with utility lines. Consider the expected final growth size (height and breadth) of the species being planted.

2.11.6. Ensure any landscaping and buildings/structures near power equipment meets proper clearances. The CMH Electric Utility requires the following clearances (the most stringent shall apply):

2.11.6.1. Power Poles and Anchors: 1 M on all sides

2.11.6.2. Aerial Lines: 7 M, (may be reduced after consultation with Utility)

2.11.6.3. Transformers: 3 M in front of doors, 1M on all other sides

2.11.6.4. Switching Cubicles: 3 M on all sides

2.11.6.5. Enclosures: 3 M in front of the doors, 1M on other sides

2.11.6.6. Pedestals: 1 M on all sides

2.11.6.7. Buried Ground Grids: 1 M

2.11.6.8. Guardrails and Bollards (including concrete): 1 M

2.11.7. Customer shall provide an appropriate stable landscaping surface within the clearance area of CMH Electric Utility equipment such as Switching Cubicles or 3 phase transformers. Examples of appropriate landscaping are:

2.11.7.1. Sod

2.11.7.2. Wood chips (4 in. or smaller)

2.11.7.3. Decorative crushed rock. 20 mm (¾ in.) or smaller, with a minimum of three fractured faces. Smooth, rounded rocks are not permitted.

2.11.7.4. Concrete is not permitted within the guardrail area to allow for access to grounding for maintenance and repair.

2.11.7.5. Asphalt may be permitted with prior written permission from the CMH Electric Utility SCO.

2.11.7.6. Where the transformer is to be installed in an alcove, the size of the alcove required depends on the size of the transformer and the setback distance of the transformer. The transformer shall comply with all the clearance requirements above. Please contact Engineering Department for the exact requirements for your project.

PART 3

Consumer Metering and Service Requirements

3. Consumer Metering and Service Requirements

3.1. Scope

3.1.1. This part, and the information contained within, have been compiled to inform electrical contractors, consultants, and employees of the CMH Electric Utility requirements for revenue metering.

3.2. Location of Meters

3.2.1. The electric meter location shall be approved by the Supply Authority Having Jurisdiction.

3.2.2. Meters shall be located as close as possible to the service base in a clean, readily accessible area free from severe or continual vibration and in accordance with the Canadian Electrical Code, latest edition.

3.2.3. All meters shall be mounted level on horizontal and vertical planes. Meters are required to be installed 1500 mm – 1800 mm above the finished grade unless part of an approved meter stacking configuration.

3.3. Access to Metering Equipment

3.3.1. The CMH Electric Utility employees, or agents, shall have reasonable and unhindered access to all equipment for the purpose of reading, testing, and replacement.

3.3.2. Where readily accessibility to the metering equipment is not given due to locked doors, The CMH Electric Utility shall require a key for its use. The CMH Electric Utility shall provide a lockbox for the purpose of keeping the key on site. Lockboxes supplied by The CMH Electric Utility shall be installed by the customer and shall be mounted on the exterior of the building or structure for the access key.

3.3.3. It is the customer's responsibility to inform (and provide replacement keys to) the CMH Electric Utility of any changes that may impede access to the equipment.

3.4. Supply and Metering Voltage

3.4.1. The CMH Electric Utility reserves the right to determine the voltage at which the service shall be metered. Factors taken into consideration include the voltage of the existing distribution system, system capacity, and location of the current infrastructure.

3.4.2. All three-phase services will be supplied as three-phase, four-wire wye systems.

3.5. Meter Sockets

3.5.1. It is the responsibility of the consumer and the electrical contractor to supply and install the electric meter socket.

3.5.2. All meter sockets shall be of a type acceptable to the CMH Electric Utility. All residential meter sockets for single-family and duplex dwellings shall be a combination meter socket and breaker type mounted outside in an approved manner.

3.5.3. Meter sockets used on residential services shall be securely fastened with four screws and placed against a flat vertical surface. All building exteriors shall be tapered around the meter base ensuring access to the meter cover.

3.5.3.1. All residential meter sockets are required to be either:

3.5.3.2. Meter socket combination 4-jaw 100A 120/240V Breaker

3.5.3.3. Meter socket combination 4-jaw 200A 120/240V Breaker

3.5.3.4. Meter socket combination 5-jaw 100A 120/208V Breaker

3.5.3.5. Meter socket combination 5-jaw 200A 120/208V Breaker

3.6. Electrical Meter Removal and Tamper

3.6.1. Under no circumstance shall anyone other than an authorized and qualified CMH Electric Utility Employee remove, pull, or tamper with an electrical meter within the service area.

3.6.2. Any and all unlawful removals will be forwarded to the Safety Codes Council Complaint Department.

3.7. Existing Service Responsibilities

3.7.1. The CMH Electric Utility shall be notified of any proposed service changes, upgrades, and additions.

3.7.2. No alteration shall be made to revenue metering and/or service entrance equipment without the permission of the CMH Electric Utility.

3.7.3. All locations that are deemed commercial and were previously a hot-metered installation are required to be changed to a cold-metered installation at the time of upgrade or change.
Where a main switch is utilized before multiple meters feeding separate bays, each meter associated with each bay shall be cold-metered.

3.8. Combining Metered Services

3.8.1. Where building renovations have the effect of combining previously distinct and segregated areas which were supplied through separate meters prior to the renovations, the Consumer shall be responsible:

3.8.1.1. At customer's expense to carry out all necessary rewiring to enable consolidation under a single meter, and

3.8.1.2. To inform The CMH Electric Utility as soon as practicable in advance of the fact that building renovations are to occur.

3.9. Single-Metered Services

3.9.1. Where electrical service upgrades, maintenance, equipment damage, safety concerns, and/or building renovations have the effect of partitioning a distinct and segregated area previously supplied by a single electrical service into multiple metering services, the Consumer shall be responsible:

3.9.1.1. At customer's expense to carry out all necessary rewiring.

3.9.1.2. To inform The CMH Electric Utility as soon as practicable in advance of the fact that building renovations are to occur.

3.9.2. Multi-unit dwellings that were previously developed under one property title and were serviced with only one service conductor. All changes to the new two property titles are required to have separate electrical meter sockets on each associated property.

3.9.3. After the split, the property that does not have a service conductor will be required to install a service feed to the new meter socket location.

3.9.4. A UROW may be required where electric service supply cables either aerial or underground trespass an adjacent property.

3.9.5. All costs associated with the change are the responsibility of the property owner.

3.10. Services Requiring Self-Contained Type Meters

3.10.1. Self-contained type meters may be used on services up to and including 200 amps per phase.

3.10.2. Where a self-contained meter is to be used, the consumer or electrical contractor shall supply and install a meter socket in an acceptable location to the Electric Utility as identified in this document or with approval of an Electric Utility Safety Codes Officer.

3.11. Single Meter Installation

3.11.1. Other than residential homes and those commercial services where the main disconnect does not exceed 100 amps, all other single self-contained meters shall be located indoors and be connected on the load side of the service disconnect.

3.11.2. All meters shall be mounted level on horizontal and vertical planes. Meters are required to be installed 1500 mm – 1800 mm above the finished grade.

3.12. Multi Meter Installations

3.12.1. Multi-Family Dwelling

3.12.1.1. Multi-family dwellings containing six (6) and eight (8) units, the multiple-meter installation shall be located indoors, grouped together in an approved location, and connected on the load side of the disconnect.

3.12.1.2. All electrical meter sockets shall be cold-metered.

3.12.1.3. Multi-family dwellings containing four (4) units, a multi-gang meter socket may be utilized. The meter shall be installed outside and connected on the line side of the disconnect.

3.12.2. Apartments and/or Condos

3.12.2.1. Large apartments and/or condos shall have all meters located in one central meter room.

3.12.2.2. Single (bulk) metering or multi-meters in one central location will be acceptable for any new multi-residence or apartment building service.

3.12.2.3. All apartments or condos shall be cold-metered.

3.12.3. Multi-Unit Sites

3.12.3.1. Multi-unit sites shall be individually or bulk-metered in accordance with applicable legislation and the CMH Conditions of Service.

3.12.3.2. For row housing, meter sockets for each block shall be ganged. The owner is responsible for the extension of the unit services from the meters to the individual units.

3.12.3.3. The customer or a representative shall be present at the time of the meter installation and assist in the verification of each unit. The CMH Electric Utility shall be notified to arrange a day and time (during normal working hours) to meet on-site.

3.12.3.4. The developer and/or electrician shall provide the CMH Electric Utility with the following, prior to the service being energized:

3.12.3.4.1. All keys required to gain access to the metering room.

3.12.3.4.2. A copy of the building layout, indicating the municipal address and permanent unit numbers, for each floor if applicable, duly signed by the electrician or developer as correct.

3.12.3.4.3. A copy of the meter panel layout, indicating the correct corresponding permanent unit numbers, for each floor if applicable, duly signed by the electrician or developer as correct.

3.12.3.4.4. The units, doors, meter bases, and main disconnect switches shall have permanent unit numbers installed prior to the installation of any metering apparatus according to drawings.

3.12.3.4.5. The mounting height of meters in a multiple-meter installation (other than for an apartment service) shall be in accordance with those for a single-meter indoor installation; 1500 mm-1800 mm above the finished grade.

3.13. Consumer Distribution Panel (CDP)

3.13.1 Where factory-assembled switching and metering centers are used, all requirements about spacing, location, connection, etc. as outlined in this section shall apply.

PART 4

Residential Services – Single Family & Duplex Units

4. RESIDENTIAL SERVICES – SINGLE FAMILY & DUPLEX UNITS

4.1. Voltage

4.1.1. Standard residential areas are served by a standard 120/240-volt, three-wire, single-phase system.

4.1.2. Residential services on the fringe of the commercial area may be serviced by a 120/208-volt, three-wire, single-phase system.

4.1.3. It is the responsibility of the customer to confirm the service voltage level with the CMH Electric Utility.

4.2. Service Capacity

4.2.1. 100-amp or 200-amp services are available within the CMH Electric Utility service area.

4.2.2. The minimum size of the electrical service shall meet the requirements of the Canadian Electrical Code.

4.3. Meter Location

4.3.1. The meter location shall be approved prior to construction by the CMH Electric Utility and the Electrical Inspection Agency having jurisdiction.

4.3.2. For front serviced residential

4.3.2.1. The meter shall be located on the side wall nearest the designated electric utility service point.

4.3.2.2. The meter shall be installed within 1 M of the front most corner of the residence.

4.3.2.3. In the case where the layout of a garage would place the revenue meter in conflict with the residence's primary walkway, the meter may be located within 1 M of the front most corner of the living or occupied space.

4.3.2.4. Note: in the event an existing service is upgraded or changed, only if the service conductor is required to be upgraded or replaced, any location not conforming with this standard must be relocated.

4.3.2.5. Any variance from the approved location must be obtained in advance from an Electric Utility Safety Codes Officer.

4.3.2.6. If work is completed prior to approval, CMH Electric Utility is not responsible for any costs associated with meter location.

4.3.3. For rear servicing residential:

4.3.3.1. the meter shall be located on the side wall nearest the service point designated by the CMH Electric Utility and within 1 M of the back of the building, or

4.3.3.2. On the back wall nearest the service point and not more than ½ way across the width of the back wall.

4.3.3.3. Note: in the event an existing service is upgraded or changed, only if the service conductor is required to be upgraded or replaced, any location not conforming with this standard must be relocated.

4.3.3.4. Any variance from the approved location must be obtained in advance from an Electric Utility Safety Codes Officer.

4.3.3.5. If work is completed prior to approval, CMH Electric Utility is not responsible for any costs associated with meter location.

4.3.4. For rear servicing residential with detached or proposed detached garage (when the service point is closer to the garage than the residence).

4.3.4.1. The meter shall be located on the garage side wall nearest the service point designated by the CMH Electric Utility and within 1 M of the back of the building, or

4.3.4.2. On the garage back wall nearest the service point and not more than ½ way across the width of the back wall.

4.3.4.3. The customer is responsible for the installation of the power supply from the garage to the residence.

4.3.4.4. Note: in the event an existing service is upgrades or changed, only if the service conductor is required to be upgraded or replaced, the meter socket location must be relocated to the detached garage.

4.3.4.5. Any variance from the approved location must be obtained in advance from an Electric Utility Safety Codes Officer.

4.3.4.6. If work is completed prior to approval, CMH Electric Utility is not responsible for any costs associated with meter location.

4.3.4.7. Meters will not be installed on outside walls which have an attached deck.

4.3.4.8. Where proposed renovations will result in the existing meter being located above or below a deck floor, the meter shall be relocated prior to construction.

4.3.4.9. The meter shall be mounted level on the horizontal and vertical planes on the outside wall at 1500 mm-1800 mm above the finished grade.

4.4. Electrical Service in Proximity to Gas Meter

4.4.1. The electric meter is to be a minimum of 1000 mm away from the gas meter, as per 2-328 of the Canadian Electrical Code (Appendix B)

4.5. Service Upgrades

4.5.1. Homeowner or the Electrical Contractor acting as the agent of the homeowner shall obtain approval from the CMH Electric Utility prior to making any service alterations.

4.5.2. In homes where the service is installed without a main breaker and the only method of interrupting the service is by removing the meter, the homeowner or his Electrical Contractor shall contact the CMH Electric Utility for a site visit prior to arranging any renovation.

4.5.3. Upon completion of an electrical service upgrade or panel replacement the customer or electrical contractor shall provide proof that the electrical service has been inspected and passed by the CE Part 1 Inspection Authority Having Jurisdiction.

4.5.4. The meter location may be required to move location should the service conductor need to be replaced as per 4.3 of this guide.

4.5.5. Where an existing electric revenue meter is installed inside a residential home and any electrical upgrades or changes will be occurring, the electrical meter shall be relocated on the exterior of the residence in accordance with 4.3 of this guide. The relocation of the electrical meter will be at no cost to the CMH Electric Utility.

4.5.6. The CMH Electric Utility will invoice the customer based on the standard charge rates after the final connection has been completed.

4.6. Residential Services – Overhead

4.6.1. Service Location

4.6.1.1. New services, or on consumer change-of-service projects, the location of the overhead attachment point must be approved prior to construction by the CMH Electric Utility.

4.6.1.2. The point of attachment for the Electric Utilities overhead service conductors to the consumer's service shall be on the side of the building or structure to the nearest Utilities supply pole whenever practical. Mid-spanning a service may be required, however whenever possible the pole shall be the connection point.

4.6.1.3. If work is completed prior to approval, CMH Electric Utility is not responsible for any costs associated with meter location.

4.6.2. Service Mast Responsibility

4.6.2.1. The consumer is responsible for supplying and maintaining the support bracket for attaching the CMH Electric Utility service wires. The service mast shall be of a type approved by the CMH Electric Utility and the Electrical Inspection having jurisdiction.

4.6.2.2. Pre-existing wooden masts structural integrity pose a risk of failure when additional strain is increased or decreased. All wood masts must be replaced with an approved metal type mast whenever a service upgrade or change is required.

4.6.2.3. The CMH Electric Utility will only disconnect an overhead service attached to a wooden mast for work required on the customers service such an upgrade. There shall be no reconnection of a wooden mast.

4.6.2.4. In the case where the customers service work may pose a risk of damage to the neighbor's wood mast, the work may be delayed to coordinate with the neighbor. These will be reviewed on a case-by-case basis.

4.6.2.5. Should the CMH Electric Utility be asked to disconnect a service from a wooden mast for the purpose of removing the electrical hazard for the purpose of vegetation management, installing siding or other customer work that is not related to the electrical service the customer must be made aware of the risk and agree to release the CMH Electric Utility of liability should the mast be damaged during the disconnect or reconnect process.

4.6.2.6. The CMH Electric Utility is not liable for damage to masts as result of weather, vegetation interference, human interference, collisions, or other acts not willfully caused by the utility.

4.6.3. Service Conductors

4.6.3.1. The service conductors shall be aluminum triplex wire as per the CMH Electric Utility Standard.

4.6.3.2. Maximum length of unsupported drop for 100-amp service is 30 M.

4.6.3.3. Maximum length of unsupported drop for 200-amp service is 15 M. Note: 200-amp service shall not be mid-spanned without prior approval of CMH Electric Utility SCO.

4.6.4. Conductor Height

4.6.4.1. The service support bracket shall be installed such that the minimum clearance of supply conductors above the finished grade shall not be less than the following:

4.6.4.1.1. Across/along highways, streets, and lanes alleys: 5.7 M

4.6.4.1.2. Across/along driveways to residences or residential garages: 4.5 M

4.6.4.1.3. Across/along ground normally accessible to pedestrians only: 4.0 M * This clearance may be reduced to 3.5 M in the last span connecting the overhead supply to the consumer's service point of the attachment.

4.6.4.2. The CMH Electric Utility will not connect a new overhead service that does not meet the required above-ground clearances.

4.6.4.3. Any work being completed to an existing service will require that the necessary above-ground clearances be provided prior to reconnection by the CMH Electrical Utility.

4.6.5. Installation of Service Conductors

4.6.5.1. The CMH Electric Utility will supply and install the overhead service from the utility supply point to the customer service mast/connection point.

4.6.5.2. The connection of customer to utility wire at the mast shall be completed by authorized and qualified the CMH Electric Utility employees.

4.6.5.3. The CMH Electric Utility will invoice based on the current standard charge rates after the final connection has been completed.

4.7. Residential Services – Underground

4.7.1. Supply and Installation of Service Cables

4.7.1.1. Single Family and Duplexes (100 & 200 amp)

4.7.1.1.1. The CMH Electric Utility will supply, install, and maintain the underground service cable for single-family residences and duplexes that are situated on their own lot and have their own street address from the utility supply to the customer point of demarcation.

4.7.1.1.2. CMH Electric Utility will connect the service wires to the supply line side of the property owner's meter socket.

4.7.1.1.3. The service conductor will NOT be energized until the required 300 mm of backfill has been installed and inspected.

4.7.1.1.4. The CMH Electric Utility will invoice based on the current standard charge rates after the final connection has been completed.

4.7.1.2. Bareland Condominium

4.7.1.2.1. Includes all unit dwellings on Bareland Condominium lots.

4.7.1.2.2. Will be treated as commercial construction with an electrical contractor supplying cable and conduit.

4.7.1.2.3. The Condominium Association or its agent is responsible for the maintenance of the service cable.

4.7.1.3. Manufactured Home Parks

4.7.1.3.1. Will be treated as commercial construction with an electrical contractor supplying cable and conduit.

4.7.1.3.2. The property owner is responsible for the maintenance of the service cable.

4.7.1.4. Triplexes and all Other Residential Services

4.7.1.4.1. Will be treated as commercial construction with an electrical contractor supplying cable and conduit.

4.7.1.4.2. The property owner is responsible for the maintenance of the service cable.

4.7.2. Trenching and Backfill

4.7.2.1. All trenching and backfill requirements are the responsibility of the owner or the agent of the owner:

4.7.2.1.1. Inspection of the trench will be required by the CMH Electric Utility prior to installation of cable.

4.7.2.1.2. The required trench depth is 1285 mm with no items that could cut, kink or damage the cable on the trench floor.

4.7.2.1.3. A finished grade mark is required for inspection.

4.7.2.1.4. 300 mm of clean backfill (preferably sand) free of ice, frozen material, organic material and stones larger than 5 mm is required before the service cable will be energized.

4.7.2.1.5. 6" – Red "CAUTION BURIED ELECTRIC" tape - installed in trench above cable, 600 mm from finished grade.

4.7.2.1.6. The electrical service cable shall have a minimum of 300 mm separation from all other underground facilities (gas, communications, etc.).

4.7.3. Proximity to the Gas Meter

4.7.3.1. The electric meter is to be a minimum of 1000 mm away from the gas meter, as per 2-328 of the Canadian Electrical Code (Appendix B)

4.8. Residential Services – U/G in O/H Distribution Areas

4.8.1. Consumers may request an underground secondary service from an overhead distribution system (existing area serviced overhead). The CMH Electric Utility shall supply and install the copper cable from the source of supply to the line side of the meter base.

4.8.2. All requirements of *"Residential Services - Underground*" 4.3.8 of this document are applicable.

4.8.3. Owner is responsible to contact cable and telephone providers to arrange for any required installation of communication lines.

4.8.4. The consumer shall be responsible for excavation of the necessary trench and is responsible for backfilling after the installation of cables. The service will not be energized until the CMH Electric Utility has completed all the required inspections.

PART 5

Rural Services – General

5. Rural Services – General

5.1. Rural Services May Be Installed:

5.1.1. Inside the CMH corporate boundaries on land designated Urban Reserve.

5.1.2. Outside the corporate boundaries of Redcliff.

5.1.3. Outside the corporate boundaries of Dunmore.

5.1.4. Outside the corporate boundaries of Veinerville.

5.2. Land Use Designation

5.2.1. Rural services may be installed on land designated:

5.2.2. Agricultural

5.2.3. Urban Reserve

5.2.4. Country Residential

5.3. Type of Service

5.3.1. Single phase three wire service is available to customers within proximity of the Electric Utility's distribution lines and within the CMH Electric Service Area.

5.3.2. The secondary voltage will be 120/240 volts.

5.4. Billing Rate

5.4.1. The service will be billed under the Farm rate if:

5.4.1.1. The service is supplied from its own designated transformer.

5.4.1.2. Maximum service size does not exceed 200 amps.

5.4.2. The service will be billed under the Residential rate if:

5.4.2.1. The service is supplied from a shared transformer.

5.4.2.2. Maximum size of service does not exceed 200 amps.

5.4.2.3. Any service which exceeds 200 amps will be billed at the applicable commercial rate.

5.5. Meter Location

5.5.1. The meter location shall be approved prior to construction by the CMH Electric Utility and the Electrical Inspection Agency having jurisdiction.

5.5.2. If work is completed prior to approval, CMH Electric Utility is not responsible for any costs associated with meter relocation.

5.6. Customer Service Pole

5.6.1. The CMH Electric Utility will supply and install the customer owned service pole, the customer will be billed for both the pole and the cost of installation.

5.6.2. The CMH Electric Utility will supply and install the overhead service cable from the service point to the customer service pole or connection service point of the residence.

5.6.3. The owner or the Electrical Contractor will supply (at their expense) at the customer pole location:

5.6.3.1. Meter socket with a main breaker section.

5.6.3.2. Service mast, conduit c/w cable and weather head.

5.6.3.3. Eyebolt for attaching the overhead service cable.

5.6.3.4. Grounding as required as per Canadian Electrical Code

5.6.4. All additional materials required to complete the installation from the customer service pole to the residence or any other outbuildings will be supplied and installed by the owner or his contractor (at their expense).

5.7. Existing Services

5.7.1. The consumer or the Electrical Contractor will notify the CMH Electric Utility of any changes required to the service.

5.7.2. Only qualified and authorized Electric Utility employees can climb, connect or disconnect wires on the poles which form the customer's incoming service; this shall also include the transformer/metering pole.

5.7.3. Customer meter bases and farm services cannot be mounted on transformer poles. For all service upgrades or maintenance, the meter base and/or farm service SHALL be relocated at owners' expense from the transformer pole to a new customer service pole.

5.7.4. A new customer service pole will NOT be required;

5.7.4.1. If a secondary service pole exists and is deemed suitable by the Electric Utility SCO as a customer pole.

5.7.4.2. A new main disconnect and meter base shall be installed in accordance to CE Part 1 requirements on the customer pole (at the owner's expense).

5.8. Requirement for an Underground Service

5.8.1. A rural service will need to be installed underground from the CMH Electric Utility service point if:

5.8.1.1. Length of overhead service drop for a 100 amp service exceeds 30M.

5.8.1.2. Service point is on the opposite side of a registered road right-of-way from the residence that it will be supplying.

5.8.1.3. Point of attachment will not provide the required minimum above-ground clearance.

5.9. Payment of Charges

5.9.1. The CMH Electric Utility will invoice the full payment once the final connection has been completed.

5.10. Rural Services – Overhead

5.10.1. Maximum distance of customer service pole or exterior wall of residence from Electric Utility service point shall not exceed:

5.10.1.1. 30M for a 100 amp service

5.10.1.2. 15M for a 200 amp service

5.10.1.3. Note: 200 amp service shall not be mid-spanned without the documented approval of a CMH Electric Utility SCO.

5.10.2. Clearance Height of Conductors

5.10.2.1. Requirements:

5.10.2.1.1. Across/along highways, streets, and lanes alleys: 5.7 M

5.10.2.1.2. Across/along driveways to residences or residential garages: 4.5 M

5.10.2.1.3. Across/along ground normally accessible to pedestrians only: 4.0 M * This clearance may be reduced to 3.5 M in the last span connecting the overhead supply to the consumer's service point of the attachment.

5.10.2.2. Any work being done on an existing service will require that the necessary above-ground clearances be provided prior to reconnection by the CMH Electrical Utility.

5.11. Rural Services – Underground

5.11.1. Supply and Installation of cable

5.11.1.1. The CMH Electric Utility will supply and install the underground service conductors. The service conductor will NOT be energized until the required 300 mm of backfill has been installed and inspected.

5.11.2. Trenching and Backfill

5.11.2.1. All trenching and backfill requirements are the responsibility of the owner or the agent of the owner:

5.11.2.2. Inspection of the trench will be required by the CMH Electric Utility prior to installation of cable.

5.11.2.3. The required trench depth is 1285 mm with no items that could cut, kink or damage the cable on the trench floor.

5.11.2.4. A finished grade mark is required for inspection.

5.11.2.5. 300 mm of clean backfill (preferably sand) free of ice, frozen material, organic material, and stones larger than 5 mm is required before the service cable will be energized.

5.11.2.6. 6" – Red "CAUTION BURIED ELECTRIC" tape - installed in trench above cable, 600 mm from finished grade.

5.11.2.7. The electrical service cable shall have a minimum of 300 mm separation from all other underground facilities (gas, communications, etc.).

PART 6

Commercial Services – Not Exceeding 1MVA

6. Commercial Services – Not Exceeding 1MVA

6.1. Scope

6.1.1. Commercial places of business, stores, shops, hotels, institutions, irrigation systems, temporary services (unless otherwise stated) and other general consumers shall be considered Commercial Services.

6.1.2. Apartments, townhouses, Bareland condominiums, and manufactured home parks shall be considered as Commercial Services for installation of secondary service cables only.

6.1.3. Residential services greater than 200 amps shall be considered Commercial Services.

6.2. Contracting Communication Companies

6.2.1. It is the responsibility of the owner or his agent to contact and coordinate the installation of any telecommunication or cable television service lines at the time of electrical servicing.

6.3. Requirements for Underground Services

6.3.1. All commercial service applications, changes or upgrades shall be reviewed by CMH Electric Utility Engineering.

6.3.2. New commercial services, or in the instance of a change to an existing service, the service may be required to be installed or relocated to underground under the following conditions:

6.3.2.1. The service is in an underground distribution area.

6.3.2.2. The span length of the service (from the source of power to the attachment on the building) is more than 30M for 100 amp service.

6.3.2.3. The span length of the service (from the source of power to the attachment on the building) is more than 15M for 200 amp.

6.3.2.4. If the service requirement is more than:

6.3.2.4.1. 200 amps 120/208 volts

6.3.2.4.2. 150 amps 277/480 volts

6.3.2.4.3. 150 amps 347/600 volts

6.4. Service Costs

6.4.1. The customer will be invoiced for the costs when the final connections have been completed.

6.5. Service Voltages

6.5.1. Depending upon the electrical service requirements and location in the Utility Service Areas, the following service voltages may be available:

6.5.1.1. 120/240 volts, single phase, 3 wire.

6.5.1.2. 120/208 volts, 3 phase 4 wire wye

6.5.1.3. 277/480 volts, 3 phase, 4 wire wye

6.5.1.4. 347/600 volts, 3 phase, 4 wire wye

6.6. Single Phasing Prevention

6.6.1. The owner or their agent shall design the customer service equipment to ensure that all three phases are interrupted when a single phasing condition occurs. (i.e., if one or two phases of the supply service are interrupted at the source of power).

6.6.2. The CMH Electric Utility accepts no liability for consumer claims or losses due to single phasing.

6.7. Fault Capacity

6.7.1. Fault current capacity of service may be obtained from the CMH Electric Utility Office at the design stage. It is the owner's responsibility to have their equipment sized to the correct fault capacity.

6.8. Commercial Underground Services

6.8.1. Service Capacity

6.8.1.1. Up to 1,600 amps (500kVa) at 120/208 volts.

6.8.1.2. Up to 1,200 amps (1,000kVa) at 277/480 volts.

6.8.1.3. Up to 2,000 amps (1,500kVa) at 347/600 volts.

6.8.2. Trenching and Backfilling

6.8.2.1. The owner or his agent is responsible for all trenching and backfilling required for the installation of all service conduits and cables.

6.8.2.2. All trenching and backfill requirements:

6.8.2.2.1. Inspection of the trench will be required by the CMH Electric Utility prior to installation of cable.

6.8.2.2.2. The required trench depth is 1285 mm with no items that could cut, kink or damage the cable on the trench floor.

6.8.2.2.3. A finished grade mark is required for inspection.

6.8.2.2.4. 300 mm sand backfill (free of ice, frozen material, loam, organic material, and stones larger than 5 mm) is required before the service cable will be energized.

6.8.2.2.5. 6" – Red "CAUTION BURIED ELECTRIC" tape – installed in trench above cable, 600 mm from finished grade.

6.8.2.2.6. The electrical service cable shall have a minimum of 300 mm separation from all other underground facilities (gas, communications, etc.).

6.8.2.3. For conduits installed along/across the road/lane right-of-way, the method of back-filling, compaction, and re-surfacing shall be as per the Road Authority Having Jurisdiction.

6.8.2.4. The service conductor will NOT be energized until the required 300 mm of backfill has been installed and inspected.

6.8.2.5. The CMH Electric Utility will invoice after the final connection has been completed.

6.8.3. Easements

6.8.3.1. Where the CMH Electric Utility determines that a pad-mounted transformer/switching enclosure located on private property will be shared by two or more parties, the owner of the property upon which the pad-mounted equipment is installed shall grant to the CMH Electric Utility the necessary easement for the installation at no cost to the CMH Electric Utility.

6.8.3.2. Costs related to registering easement will be borne by the CMH Electric Utility.

6.8.4. Primary Conductor Conduits

6.8.4.1. All primary conduits will be supplied and installed by the Electrical Contractor as per the drawing provided by the CMH Electric Utility.

6.8.4.2. All primary conduits SHALL be 100 mm in diameter and Fibre Reinforced Epoxy (FRE) type.

6.8.5. Conduit Depth

6.8.5.1. Typically, all primary conduits are installed 1500 mm below the finished grade. However, all primary conduits shall be installed to the depth requirements of the authenticated design drawing issued by the CMH Electric Engineering Department.

6.8.6. Inspection

6.8.6.1. All primary conduit infrastructure will be inspected prior to any backfill. The inspections will be completed by the CMH Electric Utility SCO. Please contact 403-529-8262 to book an inspection.

6.8.6.2. Inspections require 24 hours notice.

6.8.6.3. Contact The CMH Safety Code Officers at electricutilitysco@medicinehat.ca for additional information.

6.8.7. Pull String (Mule Tape)

6.8.7.1. To be supplied and installed by Electrical Contractor. Pull string to have a minimum breaking strength of 1800 lbs.

6.8.7.2. Knots are not permitted on a pull string.

6.8.8. Secondary Service Conduit

6.8.8.1. The type of conduit installed shall be as permitted by the current edition of Canadian Electrical Code Part 1.

6.8.8.2. Secondary conduit(s) will be supplied and installed by the Electrical Contractor as per the drawing provided by the CMH Electric Utility.

6.8.9. Secondary Service Conductors

6.8.9.1. The secondary service cables at the transformer shall be terminated by the CMH Electric Utility.

6.8.9.2. The Electrical Contractor shall supply and install the secondary service cables from the designated point of supply to service equipment at the building.

6.8.9.3. The maximum size SHALL not exceed 500 KCMil for copper conductors and 750 KCMil for aluminum conductors. 600 KCMil easy bend copper may be used upon approval.

6.8.9.4. Secondary service cables at the transformer shall be terminated by the CMH Electric Utility.

6.8.9.5. Secondary service cables at the service equipment shall be terminated by the electrical contractor except for the connections to current transformers and the CMH Electric Utility revenue meters.

6.8.10. Cable Lugs

6.8.10.1. The Electrical Contractor will provide the required NEMA 2-hole long barrel secondary compression lugs for all copper and aluminum conductors.

6.8.10.2. The Electrical Contractor will also supply compression lugs (copper) for the conductors terminating into the CT Cabinet. Terminations will be completed by the CMH Electric Utility staff.

6.8.10.3. Aluminum conductors are not to be installed on the load side of the main disconnect for services over 200 amps which require current transformers.

6.8.11. Pad-mount Transformer Installation

6.8.11.1. The transformer pad, grounding grid, and protection posts (if required on Electrical Engineering Authenticated Drawing or requested by the CMH Electric Utility), will be supplied, and installed by the Electrical Contractor at no cost to the CMH Electric Utility and shall comply with the requirements of the CMH Electric Utility and Engineering Department.

6.8.11.2. Maintain 1000 mm minimum clearance from the near edge of the concrete pad to the building wall or any other permanent structure.

6.8.11.3. Maintain 3000 mm minimum clear working space free of tripping hazards in front of the concrete pad to allow for the opening of access doors to and dielectric stick operation of the pad-mount transformer.

6.8.11.4. If safe clearances cannot be obtained, a blast wall (including a roof) may be required in some circumstances. The CMH Electric Engineering Department will inform the customer if they are required after the application has been submitted. The blast walls shall consist of one of the following:

6.8.11.4.1. 150 mm thick reinforced concrete.

6.8.11.4.2. 200 mm solid concrete blocks.

6.8.11.4.3. An alternative non-combustible rated design. Authenticated drawings prepared by a Professional Engineer registered in the Province of Alberta with APEGA shall be submitted to the CMH Electric Engineering Department.

6.9. Commercial Overhead Services

6.9.1. Service Capacity

6.9.1.1. 200 amps 120/208volts 3 phase 4 wire.

6.9.1.2. 150 amps 277/480 volts 3 phase 4 wire.

6.9.1.3. 150 amps 347/600 volts 3 phase 4 wire.

6.9.1.4. 200 amps 120/240 volts single phase 3 wire.

6.9.2. Service Attachment Clearances

6.9.2.1. The service support bracket shall be installed such that the minimum clearance of supply conductors above the finished grade shall not be less than the following:

6.9.2.1.1. Across/along highways, streets, and lanes alleys: 5.7 M

6.9.2.1.2. Across/along driveways to residences or residential garages: 4.5 M

6.9.2.1.3. Across/along ground normally accessible to pedestrians only: 4.0 M * This clearance may be reduced to 3.5M in the last span connecting the overhead supply to the consumer's service point of the attachment.

6.9.2.2. The CMH Electric Utility will not connect a new overhead service that does not meet the required above-ground clearances.

6.9.2.3. Any work being completed to an existing service will require that the necessary above-ground clearances be provided prior to reconnection by the CMH Electrical Utility.

6.9.3. Building Attachment Point

6.9.3.1. The point of attachment to the buildings shall be on the exterior side of the building most directly facing the pole line and as close as practical to the CMH Electrical Utility service pole.

6.9.3.2. If renovations are done to an existing building such that the point of attachment will no longer be on the exterior wall of the building, the Electrical Contractor shall relocate the point of attachment to the exterior of the new building wall nearest to the CMH Electrical Utility's point of supply.

6.9.3.3. The customer is responsible for supplying and maintaining the support bracket for attaching the CMH Electrical Utility's service wires.

6.9.3.4. If the support bracket is damaged, the customer is required to repair/replace the support bracket prior to reconnection of the service conductors by the CMH Electrical Utility

6.9.3.5. Any costs associated with the repair of the support bracket will be borne by the customer.

6.9.3.6. The support bracket shall be of a type approved by the CMH Electrical Utility and the CE Code Part 1 Electrical Inspection Agency.

6.9.4. Service Conductors

6.9.4.1. Service conductors shall be aluminum multiplex cable as per the CMH Electrical Utility.

6.9.4.1.1. 100-amp, span length 30M, #2 AWG AL

6.9.4.1.2. 200-amp, span length 15M, 2/0 AWG AL

6.9.5. Installation of Overhead Service Conductors

6.9.5.1. The CMH Electrical Utility will supply and install the multiplex cable from the source of power to the consumer's service mast.

6.9.5.2. The connection at the service mast shall be done by the CMH Electrical Utility.

6.9.5.3. Commercial services shall be billed as per the letter and terms outlined by the Electric Utility Engineering Department.

PART 7

Services Requiring Instrument Transformer Type Meters

7. Services Requiring Instrument Transformer Type Meters

7.1. General

7.1.1. Instrument transformer-type metering SHALL be used for all services greater than 200 amps per phase

7.2. Supply of Metering Equipment

7.2.1. The CMH Electric Utility shall supply and install (at consumers' cost):

7.2.1.1. All required instrument transformers (max of 3 CTs per service),

7.2.1.2. Neutral blocks,

7.2.1.3. Secondary wiring and associated equipment

7.2.2. The CMH Electric Utility shall supply and install all revenue meters.

7.2.3. The consumer shall supply and install the following equipment:

7.2.3.1. A meter socket in accordance with the CMH Electric Utility Standard

7.2.3.2. An instrument enclosure in accordance with the CMH Electric Utility Standard

7.2.3.3. The required empty conduit system.

7.2.3.4. All hardware, buss work, terminations, and copper cables required for the installation.

7.2.4. When ordering a custom-made service panel for a commercial service:

7.2.4.1. The metering transformers may be included by the manufacturer.

7.2.4.2. The specification for the metering transformers shall be obtained from the CMH Electric Utility at the design stage.

7.2.4.3. It is the responsibility of the consumer to provide all documentation, drawings, and test reports (for all equipment to be used within the service installations) to the CMH Electric Utility for approval.

7.2.4.4. All required documentation shall be provided to the CMH Electric Utility six (6) weeks prior to service installations for formal approval.

7.3. Metering Conductors and Cable Lugs

7.3.1. Aluminum cable is not acceptable for instrument transformer wiring.

7.3.2. Maximum size of copper conductor used cannot exceed 500 KCMil.

7.3.3. The number of conductors per phase cannot exceed two (2).

7.3.4. Maximum size of service to be metered using copper conductors is 600 amps. If the service size exceeds 600 amps buss bar connections shall be used.

7.3.5. The CMH Electric Utility will supply compression-type lugs (not to exceed 500 KCMil in size) for use with the copper instrument metering conductors.

7.4. Reduced Neutral Conductor

7.4.1. For 3-phase 4-wire services, the neutral conductor shall be the same size as the phase conductors as indicated by the Canadian Electrical Code Part 1.

7.4.2. For all main services which have no sub-services exceeding 200 amps and are using a reduced neutral, the neutral conductor shall be terminated in the main disconnect.

7.4.3. For services over 200 amps with a single revenue metering point, the reduced neutral conductor shall be terminated in the main disconnect. A metering neutral conductor no smaller than #6 AWG copper shall be terminated to the neutral connection in the main disconnect and installed into the revenue meter's current transformer enclosure.

7.4.4. For services under 200 amps that use a reduced neutral conductor, the neutral conductor shall be terminated in the main disconnect. A metering neutral conductor no smaller than #6 AWG copper shall be terminated in the main disconnect and installed to the Isolated Neutral Block of a 7-jaw Jumbo meter socket.

7.5. Instrument Transformer Enclosures

7.5.1. A separate instrument transformer enclosure shall be provided for each service requiring instrument transformers. One enclosure is to be provided for each single circuit set of instrument transformers.

7.5.2. The instrument transformer enclosure shall be:

7.5.2.1. Made of sheet steel and constructed in accordance with the appropriate CSA specifications.

7.5.2.2. Equipped with sheet steel, removable, an interior mounting panel of a minimum of 12 gauge. The panel shall be 150 mm narrower than the width and 75 mm shorter than the height of the enclosure and mounted to permit a clearance of 6 mm behind it.

7.5.2.3. Equipped with vertically hinged doors which are non-removable when in the closed position. These doors shall have provision for the attachment of the CMH Electric Utility padlock or seal, effectively preventing the enclosure door from being opened.

7.6. Location of Metering Equipment

7.6.1. All instrument metering equipment shall normally be installed indoors in a location acceptable to the CMH Electric Utility and the Inspection Authority having jurisdiction.

7.6.2. Instrument metering equipment may be installed outdoors only with special written permission from the CMH Electric Utility.

7.6.3. All instrument metering shall be located according to the following requirements:

7.6.3.1. The meter shall be level on the horizontal and vertical plane.

7.6.3.2. The center line of the meter enclosure shall be at a height between 1500 mm and 1800 mm above the floor.

7.6.3.3. The secondary metering conductors running between the meter and instrument transformer enclosures shall be 9000 mm or less in length unless special permission is provided by Electric Utility.

7.6.3.4. The instrument transformers shall be as close as possible to and connected to the load side of the service box (main disconnect).

7.6.3.5. The meter enclosure and the instrument transformer enclosure shall not be separated by a wall of any type or be in different rooms unless special permission to do so is granted by Electric Utility.

7.6.3.6. All equipment shall be in a clean readily accessible area free from severe or continual vibration.

7.6.3.7. “Safe workspace” as defined in this part shall also be maintained.

7.7. Conduit Requirements

7.7.1. A metal or metallic flex conduit of not less than 1-1/4 inches diameter for the exclusive use of the CMH Electric Utility shall be installed between the instrument transformer enclosure and the meter enclosure. The conduit shall be terminated with lock nuts and bushings, except where threaded hubs are supplied.

7.7.2. No L.B.s or similar conduit fittings which allow access to the metering circuits shall be allowed except when a C.S.A.-approved sealable “L” fitting is used. If such fittings are used, they shall be clearly visible.

7.7.3. A separate conduit is required between the instrument transformer enclosure and its associated meter enclosure for each separately metered service. Only one conduit is required when a set of potential transformers are in the same enclosure as the current transformer.

7.7.4. If the route for the instrument transformer wiring shall pass through associated electrical equipment, the 1 ¼” conduit shall be continuous from the instrument transformer enclosure to the meter socket.

7.8. Consumer Instrumentation and Fire Alarms

7.8.1. Consumer relays, instruments, or other devices shall not be connected in the CMH Electric Utility revenue metering circuits or mounted on any meter enclosures, instrument transformer enclosures, or any other equipment supplied by the CMH Electric Utility.

7.8.2. All consumer instrumentation shall be connected on the load side of the CMH Electric Utility revenue metering circuits.

7.8.3. Isolated signals may be provided from the CMH Electric Utility revenue metering equipment or any associated electric circuits for the purpose of consumer load control. This shall be provided at the sole cost to the customer.

PART 8

Downtown Network Services

8. Downtown Network Services

8.1. Location

8.1.1. The City of Medicine Hat downtown business district has a networked underground electric distribution system.

8.1.2. Boundaries of the Network Service Area are from 4th Ave/MacLeod Trail SE to South Railway Street SE from First Street to 5th Street SE.

8.2. New Services

8.2.1. Any new service or change of service in this area shall be underground.

8.2.2. All services shall be individually approved by the CMH Electric Utility before the installation is started.

8.3. Size of Single-Phase Services Allowed

8.3.1. Single-phase services are limited to 100 amps or less.

8.3.2. It is preferable that all new services are three-phase.

8.4. Service Voltage and Maximum Service Capacity

8.4.1. 120/208 volt, 3 phase, 4 wire is standard

8.4.2. Up to 300 kVA at 208 volts.

8.4.3. Contact the CMH Electric Utility if the service size exceeds 800 amps at 208 volts or a voltage other than 208 volts is required.

8.5. Fault Capacity

8.5.1. The fault current capacity of the network system is 50 MVA or 140,000 amps at 208 volts.

8.5.2. Consumers' equipment shall be designed to withstand this fault current.

8.6. Secondary Service Conduit

8.6.1. Types of conduits

8.6.1.1. Fiber Reinforced Epoxy (FRE)

8.6.1.2. Polyvinyl Chloride (PVC)

8.6.1.3. All conduits installed in the Downtown Network service area SHALL be concrete encased.

8.7. Conduit Size and Number Required

8.7.1. All service conduits are required to be 100 mm in diameter

8.7.2. up to 400 amps – 1 conduit

8.7.3. 401 – 800 amps – 2 conduits

8.8. Work at Electric Utility Vault

8.8.1. Work in proximity and involving the service conduit bank connected to the CMH Electric Utility vault is to be done under the direct supervision of a CMH Electric Utility authorized and qualified employee.

8.9. Avoiding Water from an Electrical Utility Vault

8.9.1. The CMH Electric Utility vault has the potential to be flooded in between maintenance schedules, particularly during spring run-off. It is the responsibility of the owner or their agent to design the customer owned service duct/conduit to prevent water from entering the building via the vault or conduit.

8.9.2. The duct bank should be sloped towards the Electric Utility vault at a minimum height of 1500 mm from the floor of the vault. This will help to prevent water from flowing from the vault via the customers duct/conduit to the consumer's building.

8.10. Supply and Installation of Service Conductors

8.10.1. The Electrical Contractor will supply the service conductors.

8.10.2. The Electrical Contractor with the assistance of the CMH Electric Utility will install the conductors.

8.11. Type of Cable

8.11.1. Service conductors shall be a copper cable with a minimum 1000-volt insulation level as per the CMH Electric Utility Standard indicated below:

Consumer's Main Disconnect Rated Ampacity	Cable Size
100 Amp	1 - #2 AWG per phase
200 Amp	1 – 4/0 AWG per phase
201 to 400 Amp	1 – 500 KCMil per
401 to 800 Amp	2 – 500 KCMil per

8.12. Main Disconnect

8.12.1. There shall be a fused main switch or main breaker installed on all network services capable of withstanding the available fault current.

8.12.2. The main switch or breaker shall be installed on the supply side of all equipment including meters or metering equipment.

8.13. Disconnect Switches and Fuses

8.13.1. High rupturing capacity fuses shall be used with disconnecting switches used in lieu of breakers.

8.13.2. Either Form I or Form II may be used but where Form II fuses are used, adequate overload protection shall also be provided.

8.14. Transformer Vault, Enclosure, or Room

8.14.1. Any service over 400 amps may require a transformer vault, enclosure, or room.

8.14.2. If such a requirement arises, the transformer vault, enclosure, or room will be supplied and installed by the owner at his own cost and shall comply with the requirements of the CMH Electric Utility.

PART 9

Primary Metered Consumer Services

9. Primary Metered Consumer Services

9.1. Scope

9.1.1. Available to industrial, commercial, or large institutional businesses that have a constant operating demand of not less than 1000 KVA.

9.2. Service Voltage

9.2.1. Service voltage will be 13,800/8,000 volt, 3-phase, 4-wire.

9.3. Electric Service Request Form

9.3.1. For any new electric service or change to an existing electric service, an Electric Service Request Form shall be completed and sent to the CMH Electric Utility.

9.3.1.1. Commercial Service Application

9.3.1.2. Engineering Department-Infrastructure Relocation Form

9.4. Design Drawings

9.4.1. Shall be approved in detail by the CMH Electric Utility Engineering and Operations Departments. Up to 6 weeks should be allowed for the review of each drawing submission.

9.4.2. One (1) set of all equipment shop drawings to be provided for review and approval including:

9.4.2.1. Group Operated Pad-mounted Isolating Switch

9.4.2.2. Customer Switchgear

9.5. Pad Mounted Group Operated Isolating Switch

9.5.1. All primary metered services will require a remote pad mounted group operated switch to be installed at the location where the CMH Electric Utility 13,800-volt underground service cables enter the customer's property.

9.6. Fault Capacity

9.6.1. It is the responsibility of the customer to contact the CMH Electric Utility Engineering to confirm the fault capacity at the proposed service site.

9.7. Primary Protection Coordination

9.7.1. Overcurrent protection shall be provided in accordance with the Canadian Electrical Code.

9.7.2. It is the responsibility of the customer to contact the CMH Electric Utility to request the existing feeder protection relay settings.

9.7.3. The CMH Electric Utility requires up to 6 weeks to review and approve the proposed protection relay settings at the customer's main breaker prior to energizing the electrical equipment.

9.7.4. The CMH Electric Utility may require the witnessing of the initial relay calibration and trip checks to confirm the operational readiness of the customer's main breaker relay protection scheme. Copies of all supporting commissioning documentation including protective relay test sheets shall be supplied to the CMH Electric Utility at least two (2) working days prior to energizing the equipment.

9.7.5. It will be the responsibility of the customer to carry out relay maintenance.

9.8. Customer Power Transformer Connections and Loading

9.8.1. Customer transformers shall be connected to either delta/delta or delta/star. Star/star connections will not be permitted.

9.8.2. Customer loading shall be balanced across all 3-phases to provide an effectively balanced total load. Special single-phase loads resulting in an unbalanced total load will only be permitted by special written permission from the CMH Electric Utility.

9.9. Supply And Installation of Equipment and Cable

9.9.1. The underground cable from the CMH Electric Utility system to the line side of the pad mounted group operated isolation switch will be supplied and installed by the Electric Utility and costs for the same will be charged to the customer.

9.9.2. The customer or his agent shall supply and install all other equipment and material.

9.9.3. The customer will be required to install four (4) Fiber Reinforced Epoxy (FRE) conduits complete with pulling strings (mule tape) at 1500 mm below the finished grade from the CMH Electric Utility point of supply to the line side of the pad mounted group operated isolation switch.

9.10. Maintenance

9.10.1. The customer owns and is responsible for the maintenance of all equipment on their property including the pad mounted group operated isolating switch.

9.10.2. Customer owned switches shall not be operated by the CMH Electric Utility under any circumstances. It is incumbent on the customer or their agent to ensure they have the ability operate their own switch.

9.10.3. The primary underground cable from the CMH Electric Utility system to the line side of the pad-mounted group-operated switch will be maintained by the CMH Electric Utility at no cost to the customer.

9.11. Primary Overhead Service Lines

9.11.1. Customer-owned overhead 13,800-volt service lines will not be allowed to run from the CMH Electric Utility System to the line side of the customer's metering equipment.

9.11.2. All customer connections shall be completed from an underground riser connecting the underground to overhead systems.

9.12. Customer Equipment Insulation Rating

9.12.1. On all 13,800-volt installations, the dielectric insulation shall have a level of 15 kV on cables and all insulators used within the customer switchgear including the primary neutral conductors and the insulators used with the primary neutral conductors.

9.13. Metering

9.13.1. The cubicle incorporating the CMH Electric Utility metering equipment shall be constructed such that all metering is readily accessible without removing additional equipment.

9.13.2. Adequate working space shall be provided for testing or replacing all metering equipment.

9.13.3. Access to the front and back of the metering cubicle shall be designed to be pad-locked with a lock supplied by the CMH Electric Utility.

9.13.4. Front access to the metering cell shall have a hinged door with a latch that can be locked by a CMH Electric Utility padlock.

9.13.5. The hinged door shall have a bonding ground strap of copper braid solidly connected to the door and the grounded meter enclosure, bonding strap equivalent to minimum #6.

9.13.6. All potential and current transformers shall be installed such that they may be isolated electrically from both supply and load.

9.13.7. A grounding bus shall be provided adjacent to the metering transformers. Transformer cases are to be bonded to the ground.

9.14. Current Transformers

9.14.1. Current transformers should be mounted with consideration given to standard clearances and best engineering practices.

9.14.2. Three (3) current transformers are required:

9.14.2.1. Accuracy class 0.3 B 2.0

9.14.2.2. Ratio: dependent on power requirements

9.14.2.3. Thermal rating factor: minimum of 1.5 @ 30°C (ambient)

9.14.2.4. Indoor type

9.14.2.5. 15KV voltage class

9.14.2.6. Shall have Measurement Canada approval number.

9.14.2.7. All secondary connections are to be brought out to the CMH Electric Utility metering terminal connection block that is in the CMH Electric Utility metering cell.

9.14.2.8. Labeling and connections should be as per Drawing.

9.14.2.9. Should be mounted in an accessible enclosure that is accessible by removing the rear access cover of the CMH Electric Utility metering cell.

9.14.2.10. Connections will be grounded by the CMH Electric Utility in the metering cell. The customer is not to ground these connections at the current transformers.

9.15. Potential Transformers

9.15.1. Potential transformers shall be mounted with consideration given to standard clearances and best engineering practices.

9.15.2. Three (3) potential transformers are required:

9.15.2.1. Accuracy class 0.3 WXYZ

9.15.2.2. Ratio: 8400/120, 70:1

9.15.2.3. Thermal rating: 1500 VA minimum @ 30°C (ambient)

9.15.2.4. Indoor type

9.15.2.5. 15KV voltage class

9.15.2.6. Shall have Measurement Canada approval number.

9.15.2.7. Primary connection conductors shall be equipped with one 1.0E fuse and mounting clip.

9.15.2.8. Shall be mounted in a partial draw-out drawer.
Retraction of the drawer shall:

9.15.2.8.1. Disconnect all three high-voltage phases

9.15.2.8.1.1. Disconnect all the low-voltage connections

9.15.2.8.1.2. Ground the high-voltage connections

9.15.2.8.2. Neutral connection is not required to be disconnected when the drawer is drawn out. The neutral conductor shall be of sufficient length so as not to restrict or interfere with the draw out of the potential transformer drawer.

9.15.2.8.3. Draw out-drawer shall be grounded in all positions.

9.15.2.8.4. All secondary connections are to be brought out to a metering terminal connection block that is in the CMH Electric Utility metering cell.

9.15.2.8.5. Labeling and connections should be as per CMH Electric Utility Standards.

9.15.2.8.6. Connection of the primary side shall be on the line side of the current transformers.

9.15.2.8.7. Secondary connections will be grounded by the CMH Electric Utility in the metering enclosure. The customer is not to ground the connections at the potential transformer.

9.15.2.8.8. Secondary conductor shall be fused at 5 amp (Cooper Busman BAF or approved equal). The fuse holder type terminals shall accept a 13/32" x 1½" fuse.

9.16. Terminal Block

9.16.1. Type approved by the CMH Electric Utility.

9.16.2. To be in the CMH Electric Utility metering cell.

9.16.3. Shall be thirteen (13) poles (six (6) current transformer connections, six (6) potential transformer connections, and one (1) ground connection).

9.16.4. The current transformer connection shall be of such design that the current transformer secondary wires can be shorted on the current transformer side of the terminal without the removal of any wires.

9.16.5. To accommodate A.W.G. #10 wire except for the ground terminal.

9.16.6. The ground wire to the ground terminal shall be no smaller than #6AWG.

9.17. Metering Cabinet

9.17.1. Shall have minimum dimensions – 914 mm wide x 914 mm high x 381 mm deep (36" x 36" x 15").

9.17.2. Shall have a 13-jaw meter socket mounted securely with appropriate spacing from other equipment to give reasonable room for the CMH Electric Utility wiring requirements.

9.17.3. Shall be readily accessible.

9.17.4. Shall have a minimum of 1M clearance in front of the cabinet.

9.17.5. Shall be mounted so that the meter is installed 1500-1800 mm above the floor or finished grade.

9.18. 13-Jaw Meter Socket

9.18.1. Shall have internally mounted and wired ten (10) position test switches.

9.19. Main Incoming Three-Phase Protective Device

9.19.1. It is recommended that the equipment be designed such that all three phases are interrupted when a single phasing condition occurs.

9.19.2. Phase time over-current, instantaneous over-current, ground fault, and single phasing protection shall be incorporated into a single device.

9.19.3. Shall be solid state microprocessor-based multi-function type that operates from the secondary output of the current transformers. Fuses are not acceptable to perform this function.

9.19.4. The protection curves shall be field programmable for close coordination with upstream and downstream devices.

9.19.5. Shall be suitable for operating temperatures from minus forty (-40) degrees to plus fifty-five (+55) degrees Celsius and for operating with zero (0) to ninety five percent (95%) relative humidity (non-condensing).

9.19.6. Alarm and/or trip contacts shall not change state if power is lost, or an under-voltage occurs. These contacts shall only cause a trip upon detection of an over-current or fault condition based on programmed settings.

9.20. Additional Requirements

9.20.1. All secondary metering conductors are to be a minimum of #10 A.W.G. copper-stranded wire.

9.20.2. Phase-to-ground grounding ball studs are to be provided in each phase buss conductor and the ground buss conductor for grounding the phases during servicing of equipment.

9.20.2.1. Ball stud to be 25 mm (1”) in diameter complete with stud cover.

9.20.2.2. Stud to be Salisbury #21191 or approved equivalent.

9.20.2.3. Stud Cover to be Salisbury #21236 or approved equivalent.

9.20.3. All required wiring is to be marked at both ends of termination with specified labels.

9.20.4. Ground wire from the meter connection terminal strip(s) shall terminate at the switchgear ground bus.

9.20.5. All wire runs shall be as short as possible and no longer than 15.24 M or 50 feet one-way.

9.20.6. All wire runs shall be properly secured and protected by high-voltage voltage conductors and mechanical damage.

9.20.7. Primary neutral conductor is to be connected to a designated neutral buss that is insulated from the switchgear ground.

9.20.8. Neutral buss is to be bonded to the switchgear ground.

PART 10

Definitions

10. Definitions

AEUC – Alberta Electric Utility Code, version in force.

AHJ – Authority Having Jurisdiction

AWG – American Wire Gauge

Blast Wall – A heavy wall used to isolate buildings or areas that contain highly combustible or explosive materials, or to protect a building or area from blast damage when exposed to explosions.

CEC – Canadian Electrical Code

Civil Work – The completion, installation, repair, or replacement of ductwork, concrete bases, trenching, ground disturbance, guardrails, manholes, vaults, pull boxes, or landscaping on property owned by the Customer.

CMH – Abbreviation for the City of Medicine Hat

Cold-Metered – The electrical meter is installed after the disconnect. (Multi-unit commercial bays or segregated spaces shall have a disconnect before each electrical meter).

Demand – The maximum rate at which energy is delivered (expressed in kilowatts or kilovolt-amps) at a given instant or averaged over any designated period.

Final (Finished) Grade – The final level of the soil (grade) or hard surface (concrete, asphalt, etc.) as prepared for the finished site landscaping and/or surfacing. Does not include sod, decorative rocks, mulch, or other non-soil or non-traffic supporting materials.

Flicker – Fluctuating electrical loads that lead to a noticeable change in the output of various devices.

Horizontal Clearance – The distance measured horizontally.

Hot-Metered – The electrical meter is installed before a main disconnect or directly from the Utility Source.

Instrument Transformer – High-accuracy current or voltage transformers used for revenue metering.

Interrupting Capacity – The highest current at rated voltage that the device can interrupt.

Isolation Joint – is a separation of an existing concrete slab from a new concrete slab or other structure. A piece of expansion joint (usually ½" wide and made of cork or recycled fiber material) is placed against the existing concrete slab and when the new concrete slab is poured, this expansion joint separates the two slabs.

KCMil – A method of measuring conductor size that stands for thousand circular mils. K represents kilo for 1,000. C represents circular, and mil, M, is 1/1000 of an inch. A wire that is one mil in diameter has an area of one circular mil or 1 KCMil. KCMil replaced MCM for sizing conductors.

kV – Kilovolt

kVA – Kilovolt-amp

kW – Kilowatt

kWh – Kilowatt-hour

Line Side – The side that is located toward the supply or CMH Electric Utility System.

Load – The demand and/or energy required to operate the equipment.

Load Customer – A Customer interconnected to the CMH Electric Utility System for the purpose of purchasing electricity for their own use.

Load Side – The side that is located toward the Customer's equipment.

Meter Socket – A meter-mounting device for installing a self-contained meter.

Pad mount Transformer – A ground-level transformer that sits on a concrete base.

Pedestal – A grade-mounted utility box that houses connections and switches for electrical connections.

Pole-Mounted Transformer – A transformer mounted on a utility pole.

Power Factor – The efficiency of an electrical circuit to deliver usable power.

Primary Conductor – A high-voltage utility conductor more than 750 volts.

Primary Duct – A conduit in which high-voltage conductors are installed.

Primary Fault – A short circuit in the high-voltage distribution system.

Pull Box – An intermediate enclosure in a conduit system to aid in the installation of conductors.

Rough Grade – the establishment of surface grades and elevations preceding the final grade.

Secondary Conductor – A low-voltage wire or combination of wires that carries an electrical current at 750V or less.

Secondary Duct – A conduit in which low-voltage conductors are installed.

Secondary Fault – A short circuit in the secondary system.

Self-Contained Meter – A meter rated for carrying the total current and voltage of the circuit.

Service Connection – The facilities required to physically connect the Customer's facilities to EDTI's electric distribution system to permit the Customer to obtain Distribution Access Service.

Setback Distance – The minimum allowable distance to the point where new equipment or other devices can be installed.

SCC – Safety Codes Council

SCO – Safety Codes Officer

Switchgear – The combination of electrical disconnect switches, fuses, or circuit breakers used to control, protect, and isolate electrical equipment.

Switching Cubicle – A utility box that typically sits on the ground and holds several electrical switches and devices.

Transformer – A utility device used to change the voltage in an alternating current electrical circuit.

Trenching – A narrow, long ditch embanked with its own soil.

URD – Underground Residential Distribution.

Vault – An underground room or contained area that houses electrical equipment.

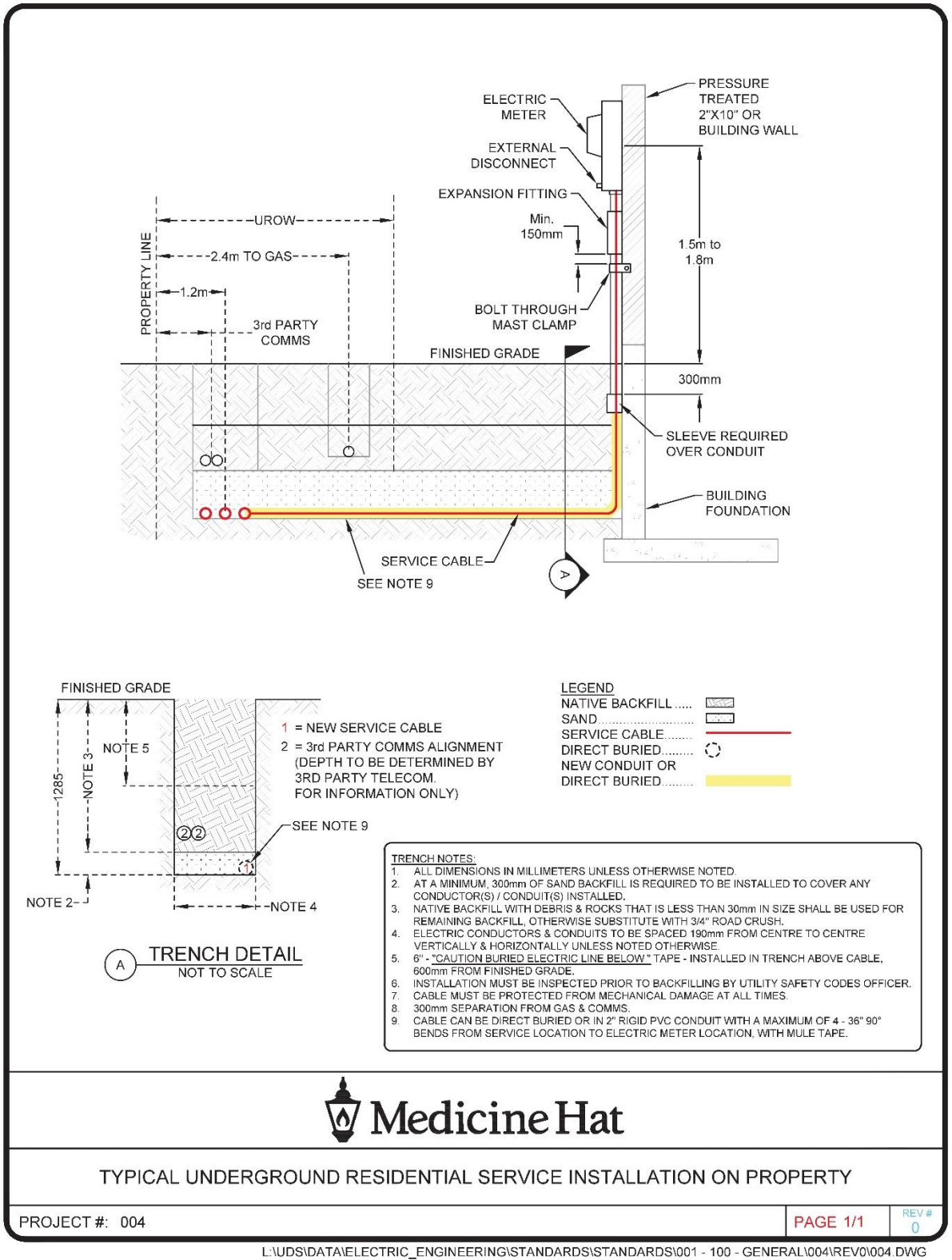
Vertical Clearance – The distance measured vertically.

Weatherhead – The aerial entry point where open conductors enter a conduit system.

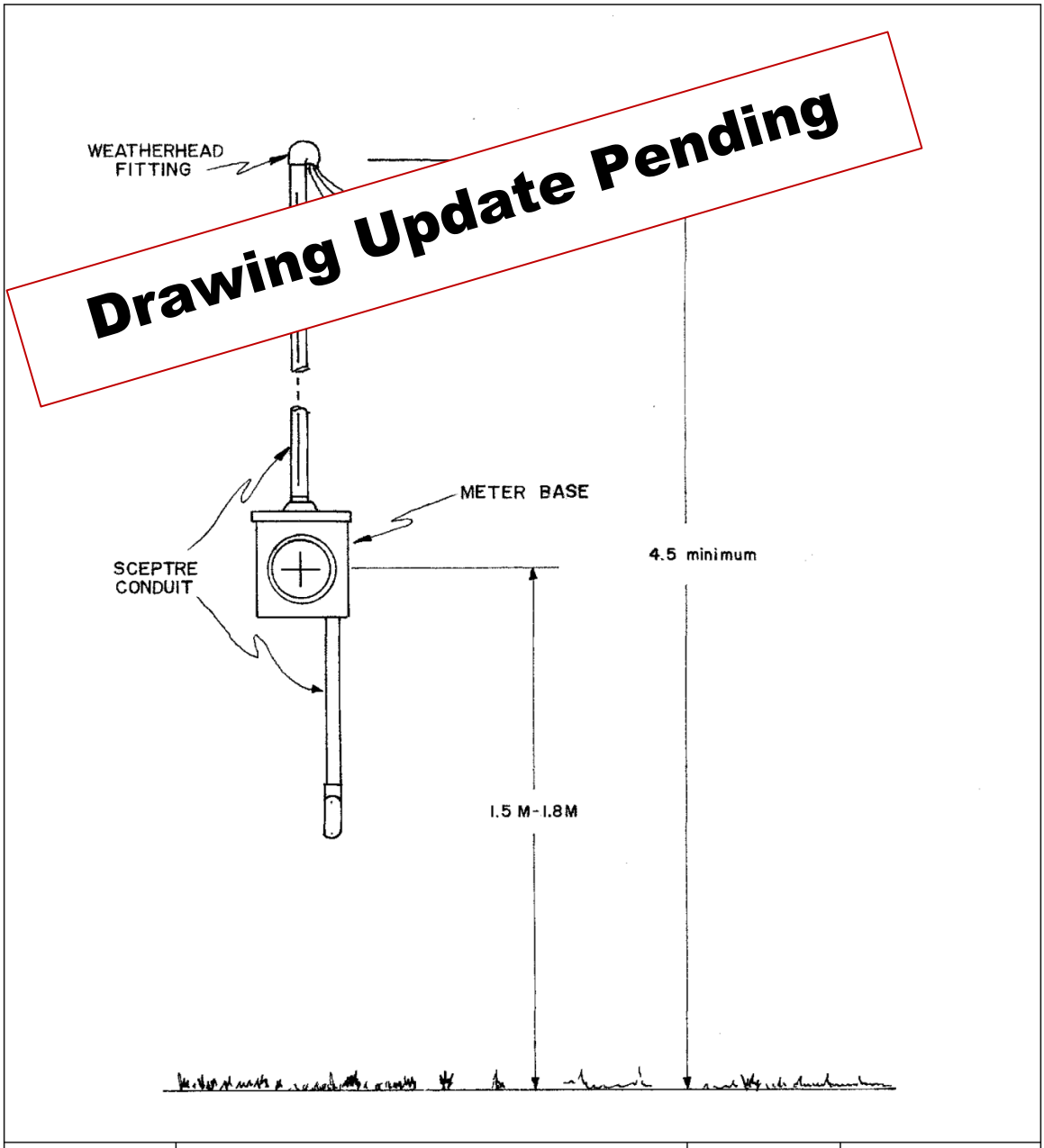
PART 11

11. Diagrams

11.1. Typical Underground Residential Service Installation on Property



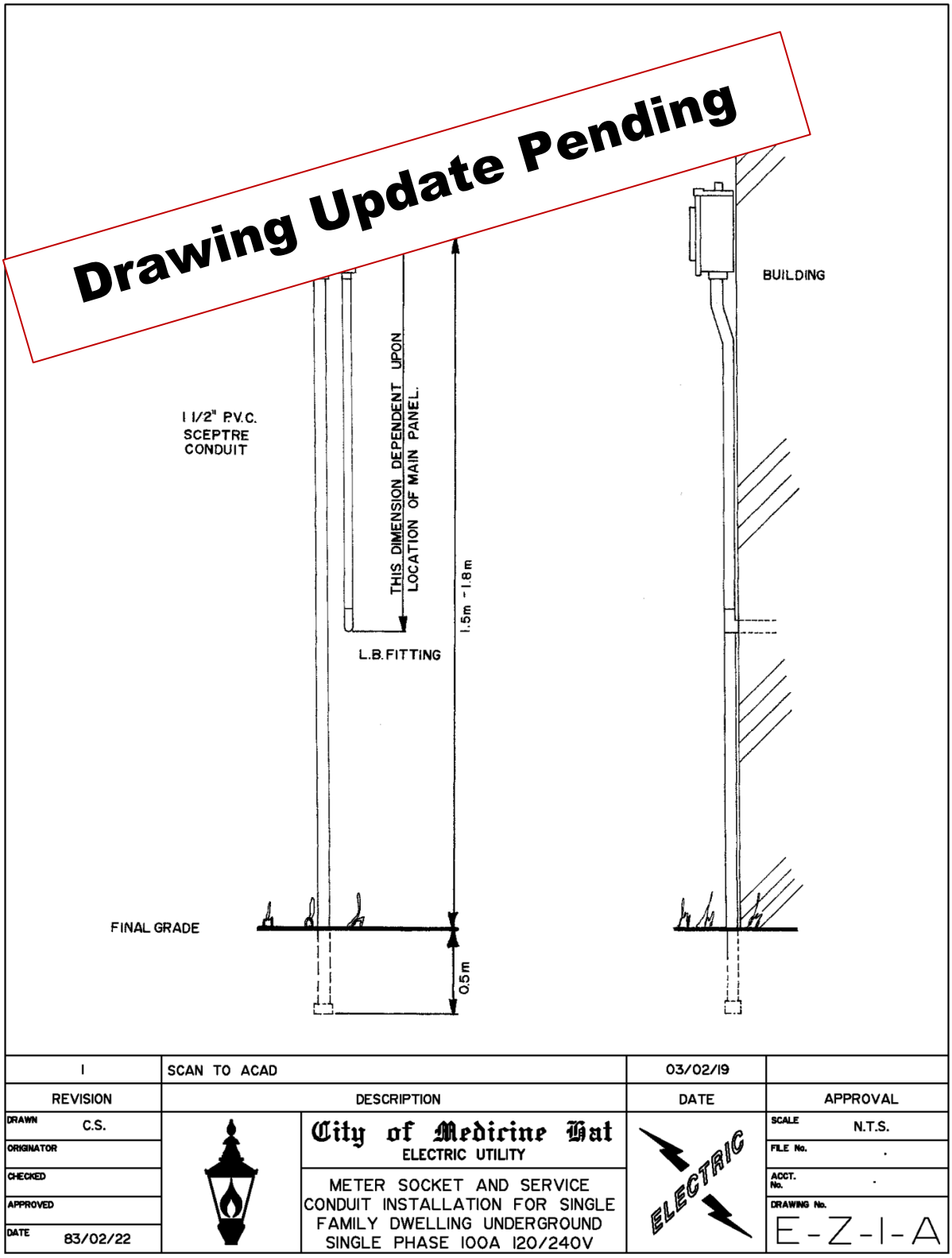
11.2. Overhead Residential Meter Socket Drawing



1	SCAN TO ACAD	03/02/19	
REVISION	DESCRIPTION	DATE	APPROVAL

DRAWN S.F.	City of Medicine Hat ELECTRIC UTILITY	ELECTRIC	SCALE N.T.S.
ORIGINATOR	METER SOCKET AND SERVICE CONDUIT INSTALLATION FOR SINGLE FAMILY DWELLING OVERHEAD SINGLE PHASE 100A-120/240V		FILE No. .
CHECKED			ACCT. No. .
APPROVED			DRAWING No. E-Z-5-A
DATE 83/02/23			

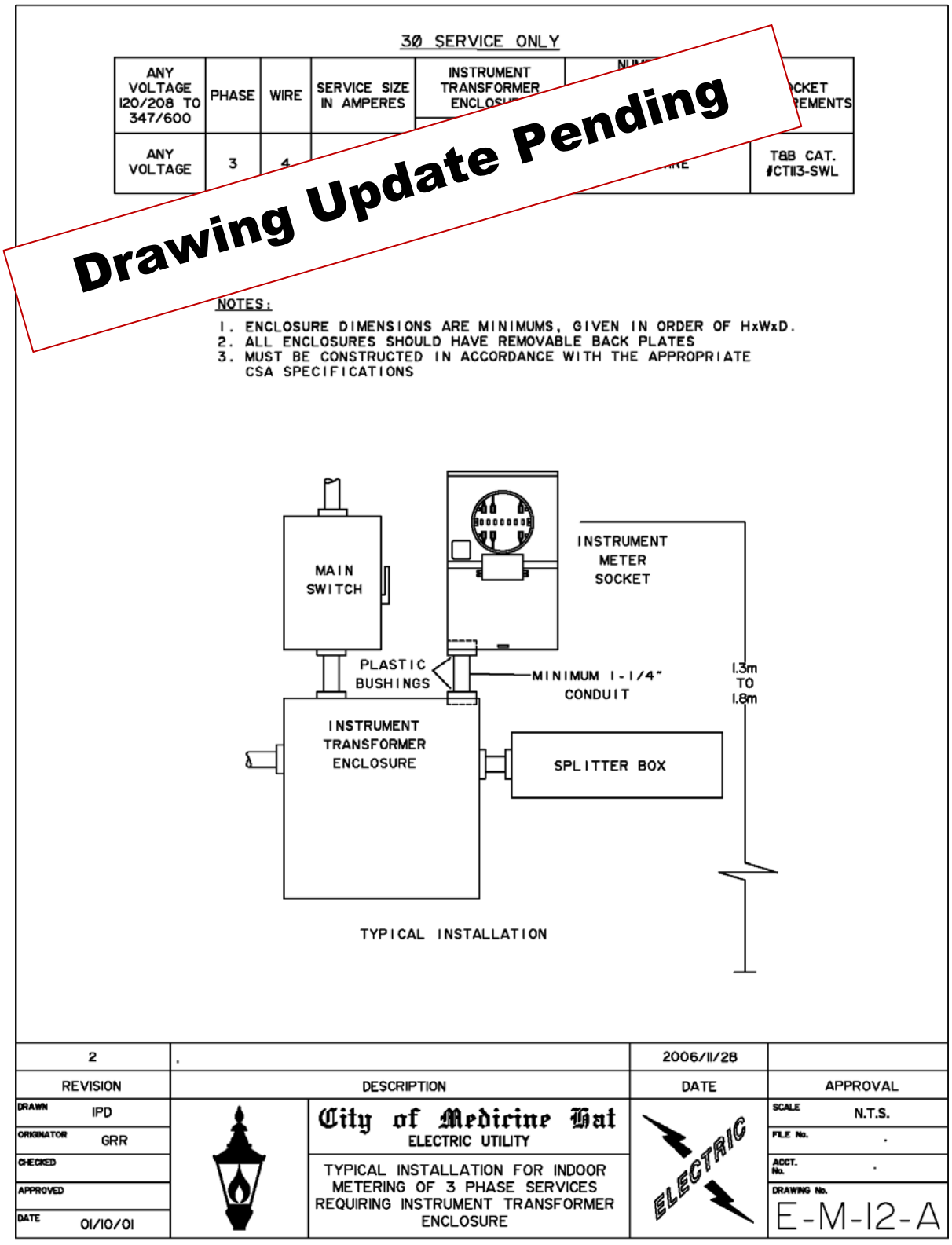
11.3. Underground Residential Meter Socket Drawing



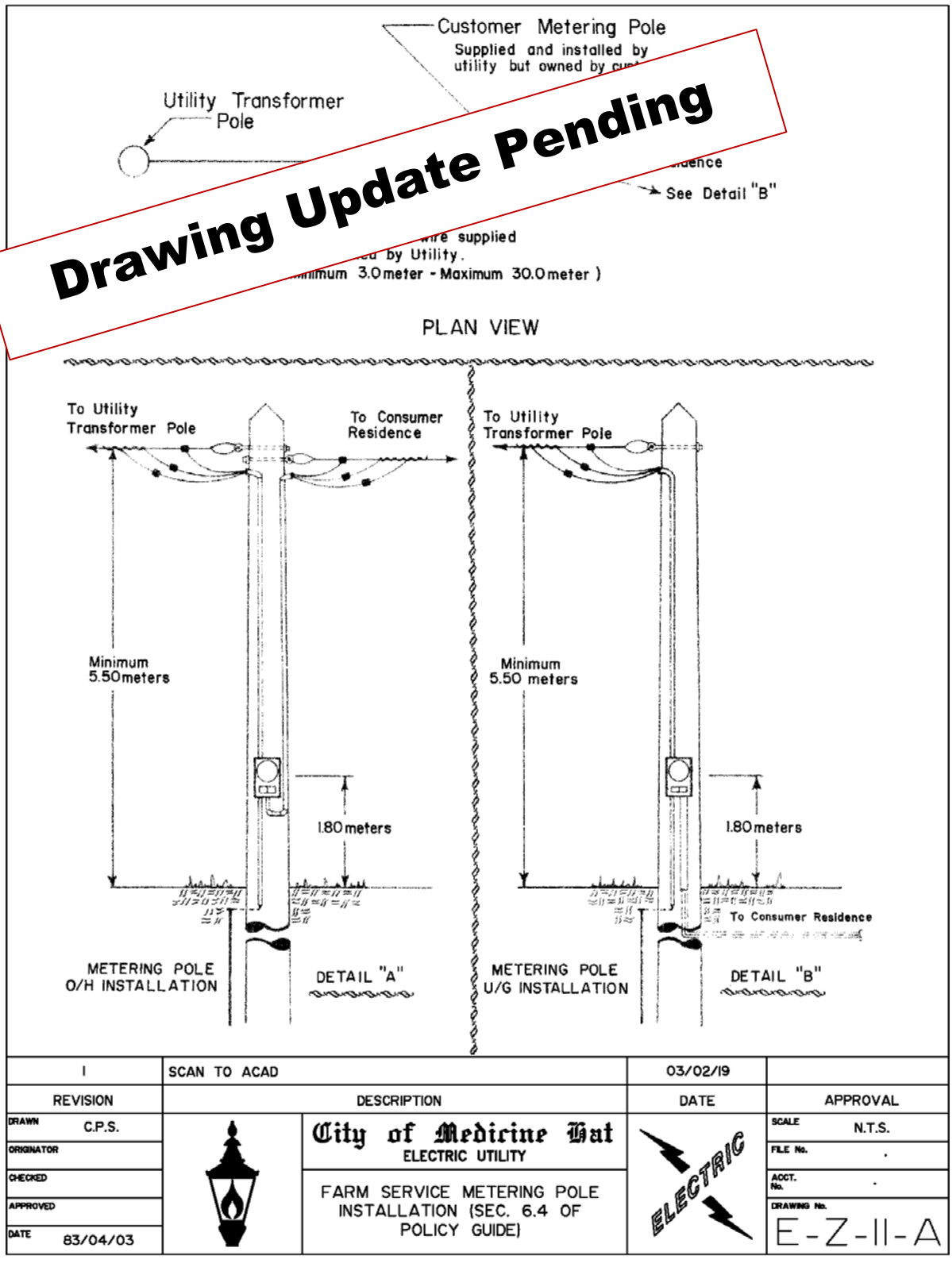
1	SCAN TO ACAD	03/02/19	
REVISION	DESCRIPTION	DATE	APPROVAL

DRAWN C.S.	City of Medicine Hat ELECTRIC UTILITY		SCALE N.T.S.
ORIGINATOR			FILE No. .
CHECKED	METER SOCKET AND SERVICE CONDUIT INSTALLATION FOR SINGLE FAMILY DWELLING UNDERGROUND SINGLE PHASE 100A 120/240V		ACCT. No. .
APPROVED			DRAWING No. E-Z-1-A
DATE 83/02/22			

11.4. Instrument Transformer Enclosure Drawing



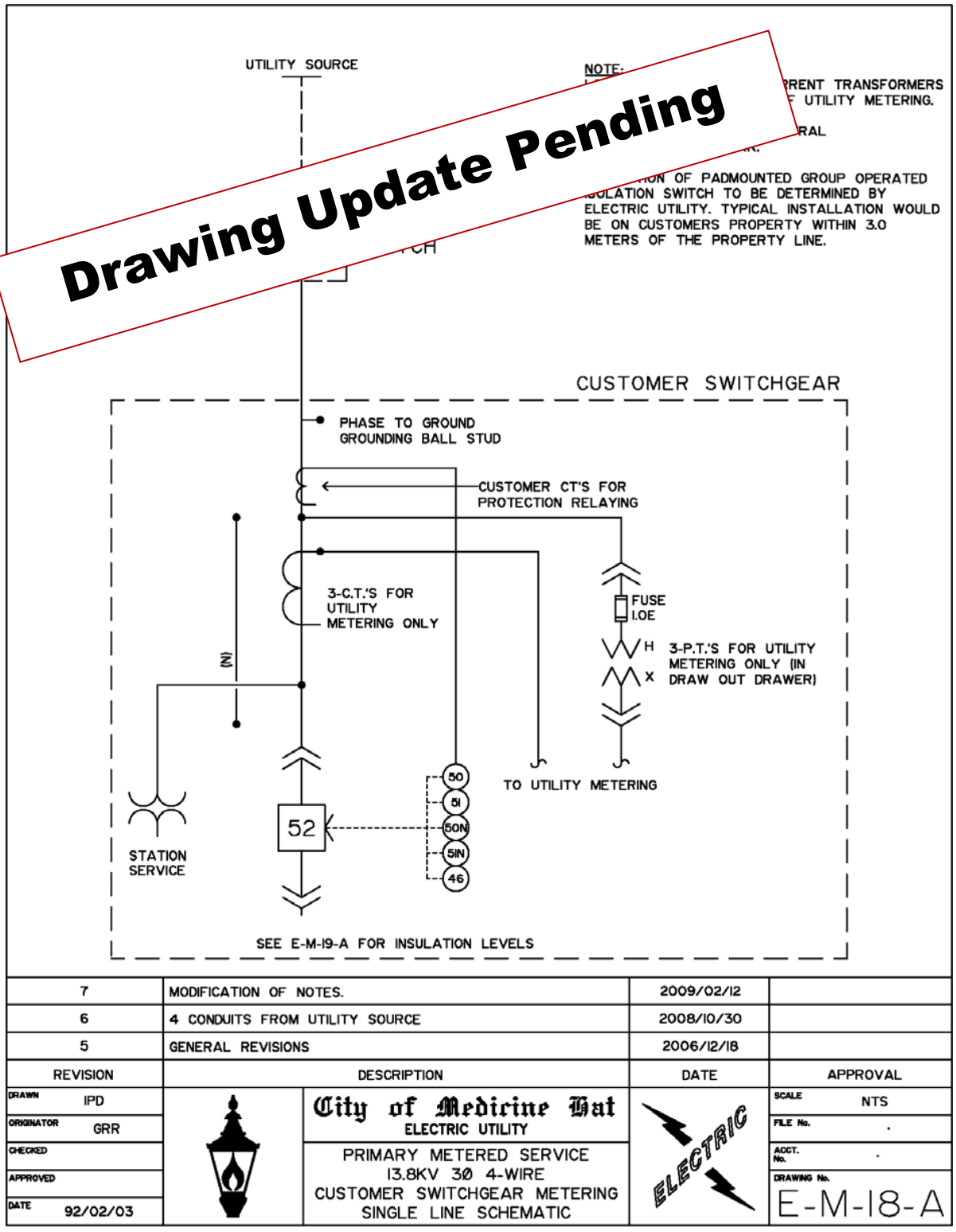
11.5. Rural Customer Pole Drawing



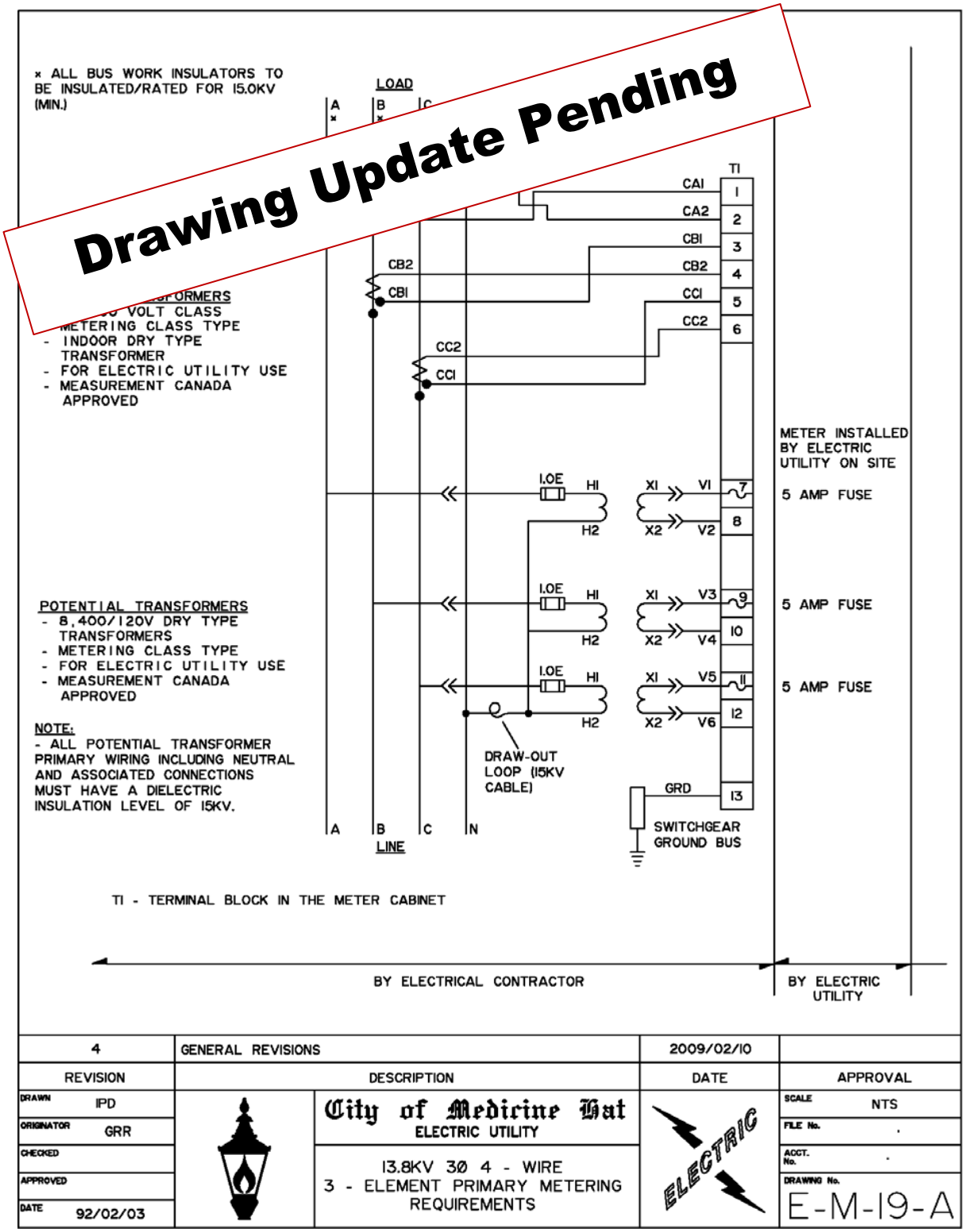
1	SCAN TO ACAD	03/02/19	
REVISION	DESCRIPTION	DATE	APPROVAL

DRAWN C.P.S.	City of Medicine Hat ELECTRIC UTILITY		SCALE N.T.S.
ORIGINATOR			FILE No. .
CHECKED	FARM SERVICE METERING POLE INSTALLATION (SEC. 6.4 OF POLICY GUIDE)		ACCT. No. .
APPROVED			DRAWING No. E-Z-11-A
DATE 83/04/03			

11.6. Customer Switchgear Metering Single Line Drawing

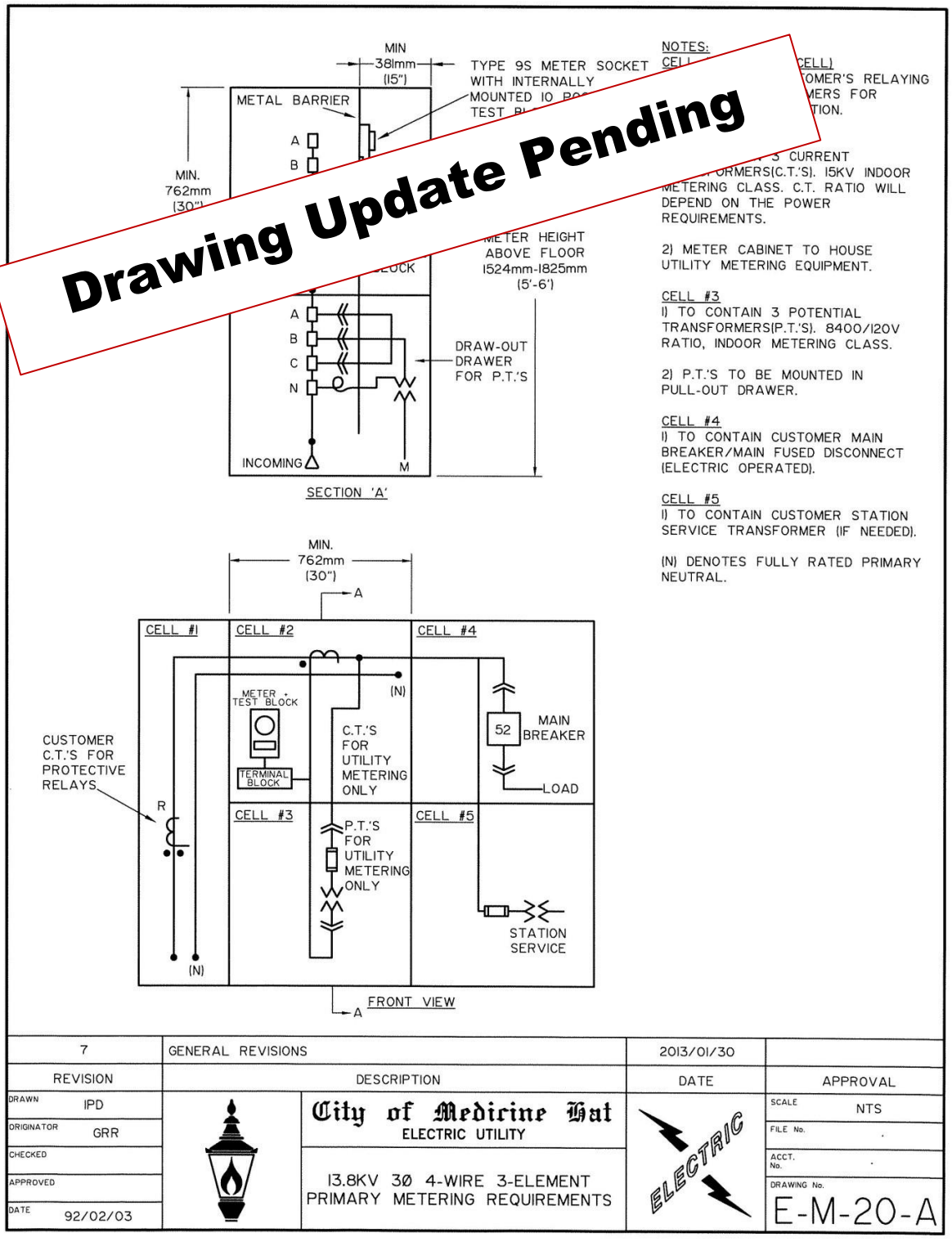


11.7. Customer Switchgear Metering – Three Element Metering Requirements

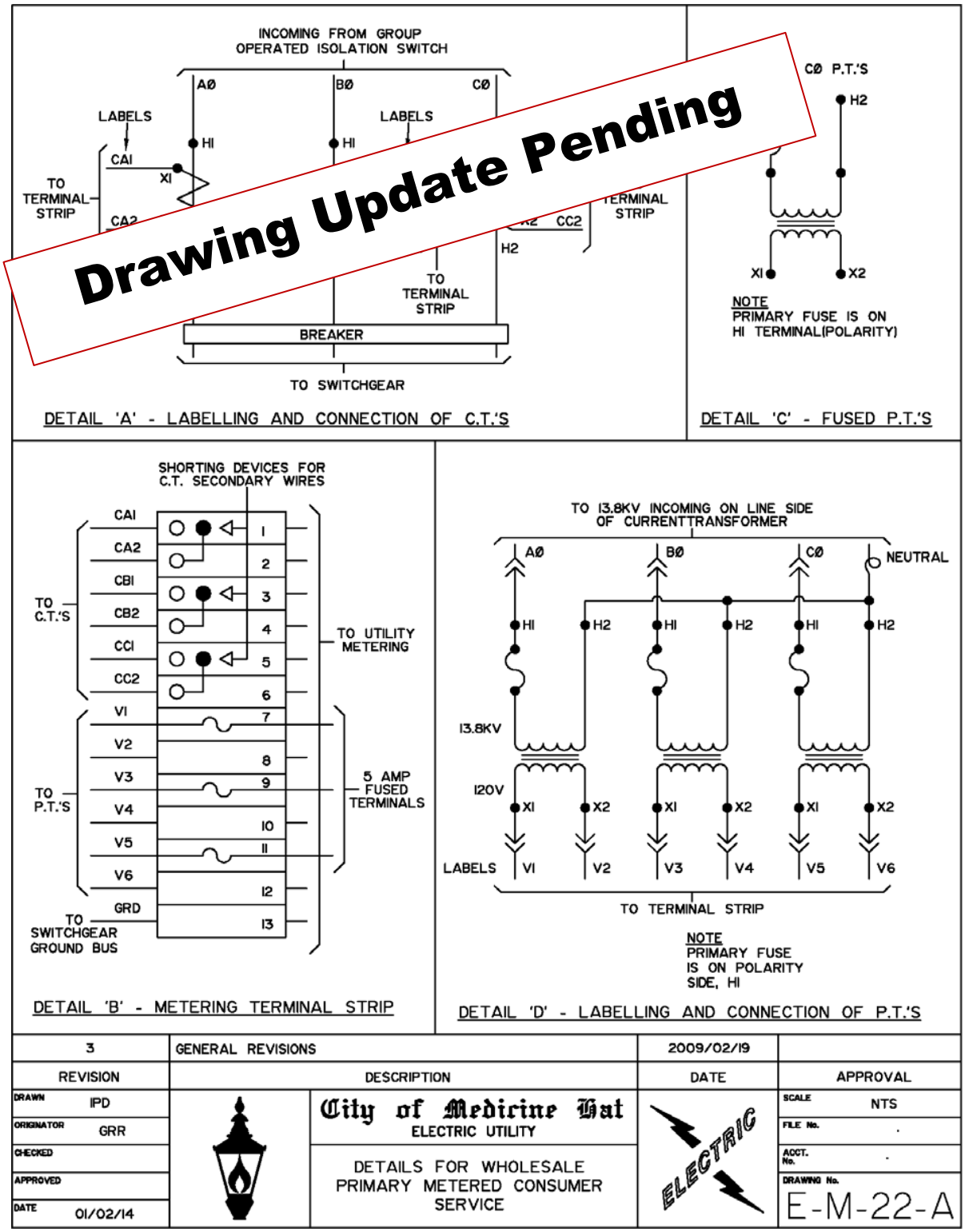


4	GENERAL REVISIONS	2009/02/10	
REVISION	DESCRIPTION	DATE	APPROVAL
DRAWN IPD	City of Medicine Hat ELECTRIC UTILITY		SCALE NTS
ORIGINATOR GRR	13.8KV 3Ø 4 - WIRE 3 - ELEMENT PRIMARY METERING REQUIREMENTS		FILE No. .
CHECKED			ACCT. No. .
APPROVED			DRAWING No. E-M-19-A
DATE 92/02/03			

11.8. Customer Switchgear – Utility Metering Cell Layout

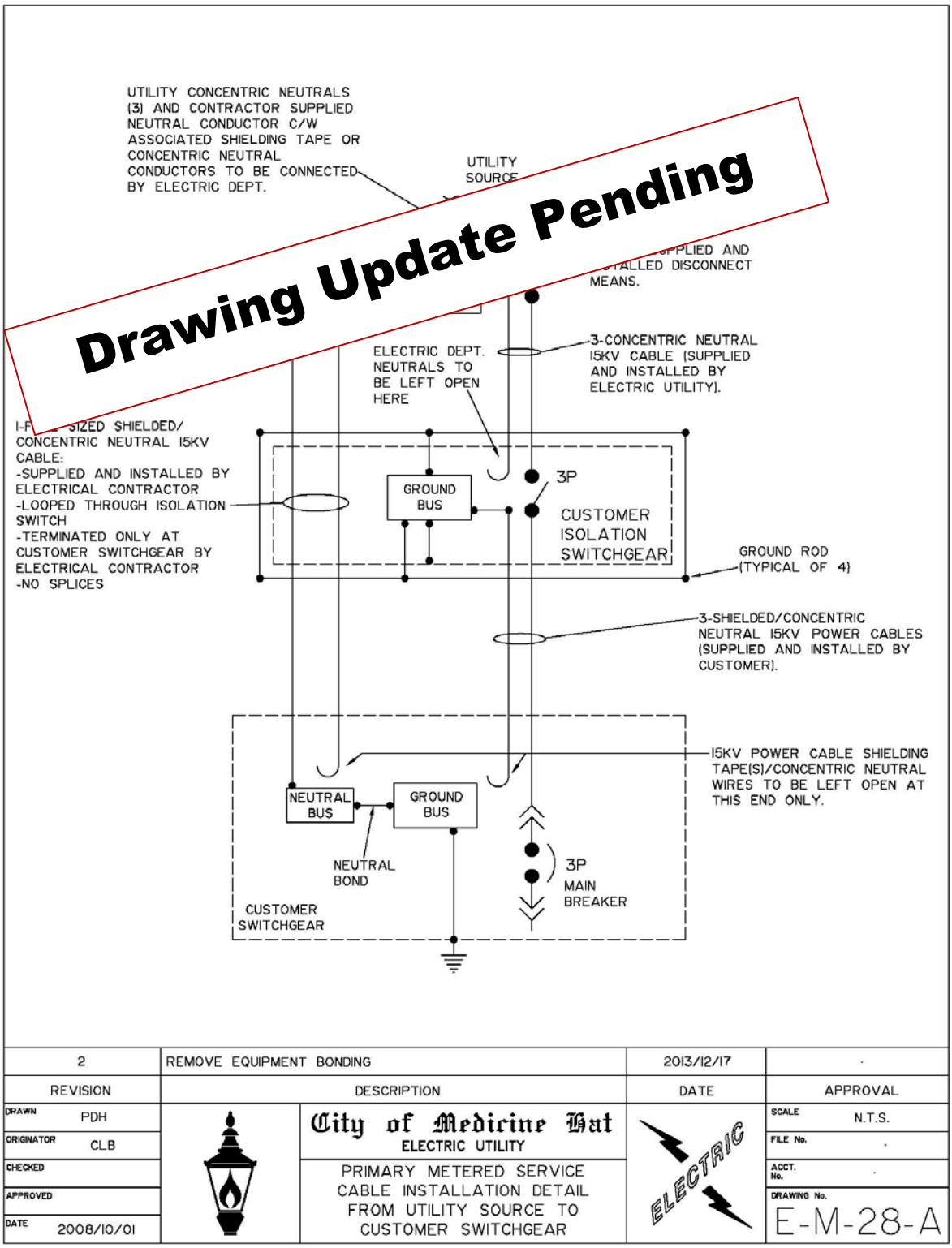


11.9. Customer Switchgear – Utility Metering Cell Labelling and



Termination Details

11.10. Primary Metered Service Cable Installation – From Utility to Customer Switchgear



11.11. Customer Isolation Switch – Primary Conduit Details