

EXAMINATION OF SITE AND CONDITIONS

- 1) Examine the site and local conditions affecting the work with all Tender Documents to ensure the work can be satisfactorily performed as shown. Prior to commencing work, examine the work of other divisions and report at once any defect or interference affecting the work of this contractor. No allowance will be made later for any expenses incurred through failure to make this examination or report any discrepancies in writing.
- 2) This contractor is to attend all site meetings prior to close of tender to confirm scope of work.

WORKMANSHIP

- 1) Workmanship and method of installation shall conform to best standards and practice and be performed to the Engineers approval by licensed tradesmen only skilled in the work of this division.

COOPERATION AND RESPONSIBILITY

- 1) Include full responsibility for layout of electrical work, for damage caused to other divisions of work by reason of improper location or installation of work in advance of concrete pouring or similar work for conditions of all material and equipment supplied under this division and for protection and maintenance of work completed and accepted until termination.
- 2) Cooperate with other divisions to ensure that items installed under this division are located in proper relation with building construction, architectural finishes and with other equipment or apparatus.

COMPLETION

- 1) Leave all new and relocated equipment clean, free of construction debris and other foreign matter.
- 2) Provide "as built drawings", letter of warranty, owners manual and worker's compensation clearance certificate.

BY-LAWS AND REGULATIONS

- 1) Conform with latest rules, regulations, and definitions of the Canadian Electrical Code, applicable Municipal and Provincial Codes and Regulations and with requirements of other Authorities having jurisdiction in the area where work is to be performed.
- 2) Standards established by drawings and Specifications shall not be reduced by any codes referred to above and minor change to Contract Amount.

CONDUIT AND WIRE

- 1) Branch feeders from the service distribution and subdistribution equipment to panels, major equipment, etc. shall be sized as indicated on the drawings. Conductors in conduit, TECK or mineral insulated cable may be used.
- 2) Branch circuit wiring shall be conductors in conduit, where exposed; where subject to mechanical damage; in concrete; underground; in concrete block walls; in wet locations; in hazardous locations and where indicated. Armoured cable type AC90 (BX) may be used for light fixture drops and for wiring in stud walls. Fixture drop length not to exceed 3 meters in length.
- 3) Ground all electrical equipment to CSA Standards and as required by local inspection Authority.

OUTLET, JUNCTION AND PULL BOXES

- 1) Provide steel boxes for all devices of a suitable size to permit installation of conductors and device.
- 2) Install junction boxes in conduit runs at 100ft. intervals, sized to suit number and size of conductors.

SAFETY REQUIREMENTS

- 1) Clean site of regularly scheduled times. Leave work clean before inspection process commences.
- 2) Do not leave the site in dangerous conditions under any circumstance during the progress of work.

EQUIPMENT LOCATIONS

- 1) Approximate locations of electrical equipment, lighting fixtures, switches, outlets and the like are shown on the drawings. Refer to Architectural drawings and room elevations for application. In the absence of definite details, the exact locations of outlets shall be determined on site by the Engineer as work progresses with all outlets aligned vertically or horizontally as required in a symmetrical pattern.
- 2) Outlets and fixtures shall be located centered in wall panels, ceiling panels, ties or columns, between or above doors and the like. Local switches for control of lighting shall generally be installed on the lock side of doors unless otherwise noted, with locations verified on the site prior to installation.

GUARANTEE

- 1) Guarantee material and workmanship for a period of one year from date of final acceptance by Engineer, except for incandescent lamps which shall be guaranteed for a period of 90 days from date of final acceptance. All defects shall be corrected and made good during this period except defects occurring from misuse by owner.

CUTTING, CORING, PATCHING AND SEALING

- 1) Provide all openings and sleeves in walls, ceilings and floors and perform all cutting and patching as required for the work of this division.
- 2) Seal holes and sleeves through floors to serve as a water dam and comply with requirements of CSA No. A23.3 paragraph 5-17.

TRENCHING BACKFILLING AND REINSTATEMENT

- 1) This contractor is responsible for all trenching, backfilling and reinstatement of all areas affected by this work.
- 2) No vehicles are allowed on the playing surfaces of the fields, all crane and truck access shall be from the exterior boundary of the playing field / fence.

AS BUILT DRAWINGS

- 1) Contractor must maintain on site one set of up to date as built drawings and have them available for review at all times. At the end of this contract, this contractor shall supply to the owner a complete set of as built drawings for his/her review and acceptance.

MATERIAL

- 1) Materials supplied by this contractor shall be new, of Canadian manufacture where available and of first quality and uniform throughout.
- 2) All electrical materials shall be CSA approved and labeled and all materials not approved shall receive acceptance for installation by special application to CSA prior to delivery, with all modifications and changes required for such acceptance included in this division. Materials shall not be installed or connected to source of electrical power until approval is obtained.

CONTRACT DRAWINGS

- 1) Drawings are intended to serve as a guide showing quantities and general arrangements are not necessarily working drawings from which measurements can be taken, except where dimension figures are specifically shown. Information involving accurate measurements of building shall be taken from the building drawings or at the site.

PERMITS, FEES AND CERTIFICATES

- 1) File contract drawings with proper Authorities and obtain approval of installation and permits for the same prior to proceeding with the work. Prepare and submit necessary detail shop drawings as required by Authorities.
- 2) Pay all fees in connection with examination of drawings, for permits, inspections and final certificates of approval.
- 3) Supply necessary certificates as evidence that work as installed conforms with laws and regulations of all Authorities having jurisdiction.

EQUIPMENT SHOP DRAWINGS

- 1) Prepare and submit a minimum of six shop drawings of all major items of equipment prior to equipment fabrication, delivery or installation. Shop drawings shall indicate manufacturer, catalogue number, dimensions, special features or finishes. Submit shop drawing within (7) days of award of contract.
- 2) Due to time restraints, the owner may waive approval drawings and accept record drawings, this in no way relieves the contractor from supplying the specific equipment.
- 3) This contractor shall be responsible for checking all shop drawings for errors or omissions to conform with requirements, for accuracy of dimensions to conform with site conditions and for information that pertains solely to equipment fabrication processes.

1.) SYSTEM DESCRIPTION.

THE BALL FIELD LIGHTING SYSTEM DESIGN IS BASED ON THE MUSCO LIGHT STRUCTURE GREEN. ANY ALTERNATES TO THE SPECIFIED SYSTEM SHALL SUBMIT ADEQUATE INFORMATION AT THE TIME OF TENDER TO SUPPORT THEIR SYSTEM AND IT PERFORMANCE.

2.) SYSTEM PERFORMANCE.

THE LIGHTING LEVELS IN THE BALL FIELD LIGHTING SHALL MEET THE FOLLOWING CRITERIA.

INFIELD - 30 FOOTCANDELES (MAINTAINED)
OUTFIELD - 20 FOOTCANDELES (MAINTAINED)

ALL MANUFACTURERS SHALL SUBMIT COMPUTER MODELS GUARANTEEING LIGHT LEVELS ON THE FIELD OVER A 10 YEAR PERIOD. IN PREPARING CALCULATIONS A LIGHT LOSS FACTOR OF .70 SHALL BE USED. MAX TO MIN RATIOS SHALL NOT EXCEED

2.25 IN THE OUTFIELD
1.75 IN THE INFIELD

AVERAGE TO MIN RATIOS SHALL NOT EXCEED

1.5 IN THE OUTFIELD
1.5 IN THE INFIELD.

3.) SPILL CONTROL.

THE LIGHTING SYSTEM SHALL LEAVE A MINIMUM LIGHT SPILL ON THE NEIGHBORING PROPERTIES. MANUFACTURING SHALL SUBMIT COMPUTER MODELING SHOWING THE LIGHT SPILL OUTSIDE OF THE BALL FIELD AREA.

4.) WARRANTY.

THE LIGHTING SYSTEM MANUFACTURER SHALL INCLUDE 10 YEAR WARRANTY ON THE COMPLETE OPERATION OF THE SYSTEM. WARRANTY SHALL INCLUDE GUARANTEE OF LIGHT LEVELS. WARRANTY SHALL EXCLUDE STORM DAMAGE, VANDALISM, ABUSE, AND UNAUTHORIZED REPAIRS OR ALTERATIONS.

5.) POLE STRUCTURES.

THE POLE STRUCTURES FOR THE LOWER FIELD SHALL BE GALVANIZED STEEL POLES AND CROSS ARMS. ALL MOUNTING HARDWARE GALVANIZED AND OR STAINLESS STEEL. ALL EXPOSED HOT DIPPED GALVANIZED COMPONENTS SHALL MEET ASTM STANDARD "ASTM A123". ALL EXPOSED STAINLESS STEEL HARDWARE SHALL BE A MINIMUM OF 18-8 GRADE PASSIVATED AND POLYMER COATED TO PREVENT GALVANIC CORROSION.

6.) CONCRETE BASES.

LIGHT STANDARD BASES FOR THE LOWER FIELD SHALL BE PRE-STRESSED CONCRETE EMBEDDED IN CONCRETE BACKFILL. POLE BASES AND CONCRETE BACKFILL SHALL BE ALLOWED TO HARDEN FOR A MINIMUM OF 28 DAYS PRIOR TO PLACEMENT OF THE POLE.

7.) LUMINAIRE CONSTRUCTION AND BALLAST ENCLOSURES.

ALL LUMINAIRES SHALL BE CONSTRUCTED OF DIE-CAST ALUMINUM HOUSING TO PROTECT THE LUMINAIRE REFLECTOR SYSTEM. ALL LUMINAIRE BALLASTS SHALL BE LOCATED IN ALUMINUM ENCLOSURES MOUNTED ON THE POLE STRUCTURES AT APPROXIMATELY 3 METERS ABOVE GRADE. EACH BALLAST ENCLOSURE SHALL INCLUDE A SEPARATE BALLAST AND CAPACITOR FOR EACH LUMINAIRE. A SAFETY DISCONNECT SHALL ALSO BE PROVIDED. ALL COLLECTIVE SURFACES SHALL BE ANODIZED, COATED WITH A CLEAR, HIGH GLOSS, DURABLE FLUOROCARBON, AND PROTECTED FROM ENVIRONMENTAL EXPOSURE.

8.) WIRING HARNESSSES

THE LIGHTING SYSTEM MANUFACTURER SHALL INCLUDE ALL WIRING HARNESSSES REQUIRED TO ASSEMBLE THE LIGHTING SYSTEM FROM THE MAIN BALLAST BOX DISCONNECTS UP THROUGH THE POLES TO THE LUMINAIRES. WIRING HARNESSSES SHALL INCLUDE PROTECTIVE SLEEVES, STRAIN RELIEF AND PLUG-IN CONNECTORS.

9.) CONTROL CABINET.

THE CONTROLS CABINET SHALL INCLUDE LOCAL ON-OFF CONTROL VIA A KEYPAD WEATHERPROOF SWITCH LOCATED ON THE OUTSIDE OF THE MAIN DISTRIBUTION CABINET.

10.) LIGHTNING PROTECTION.

THE POLE STRUCTURES SHALL BE EQUIPPED WITH LIGHTNING PROTECTION MEETING NFPA 780 AND CSA STANDARDS.

11.) PRECAST FOUNDATIONS AND POLE STRUCTURES

THE LIGHTING SYSTEM MANUFACTURER SHALL SUBMIT TO THE STRUCTURAL ENGINEER FOUNDATION DRAWINGS LISTING THE MOMENT, SHEAR FORCE AND AXIAL FORCE AT GROUND LEVEL FOR EACH POLE.

12.) SITE REVIEW AND INSPECTION.

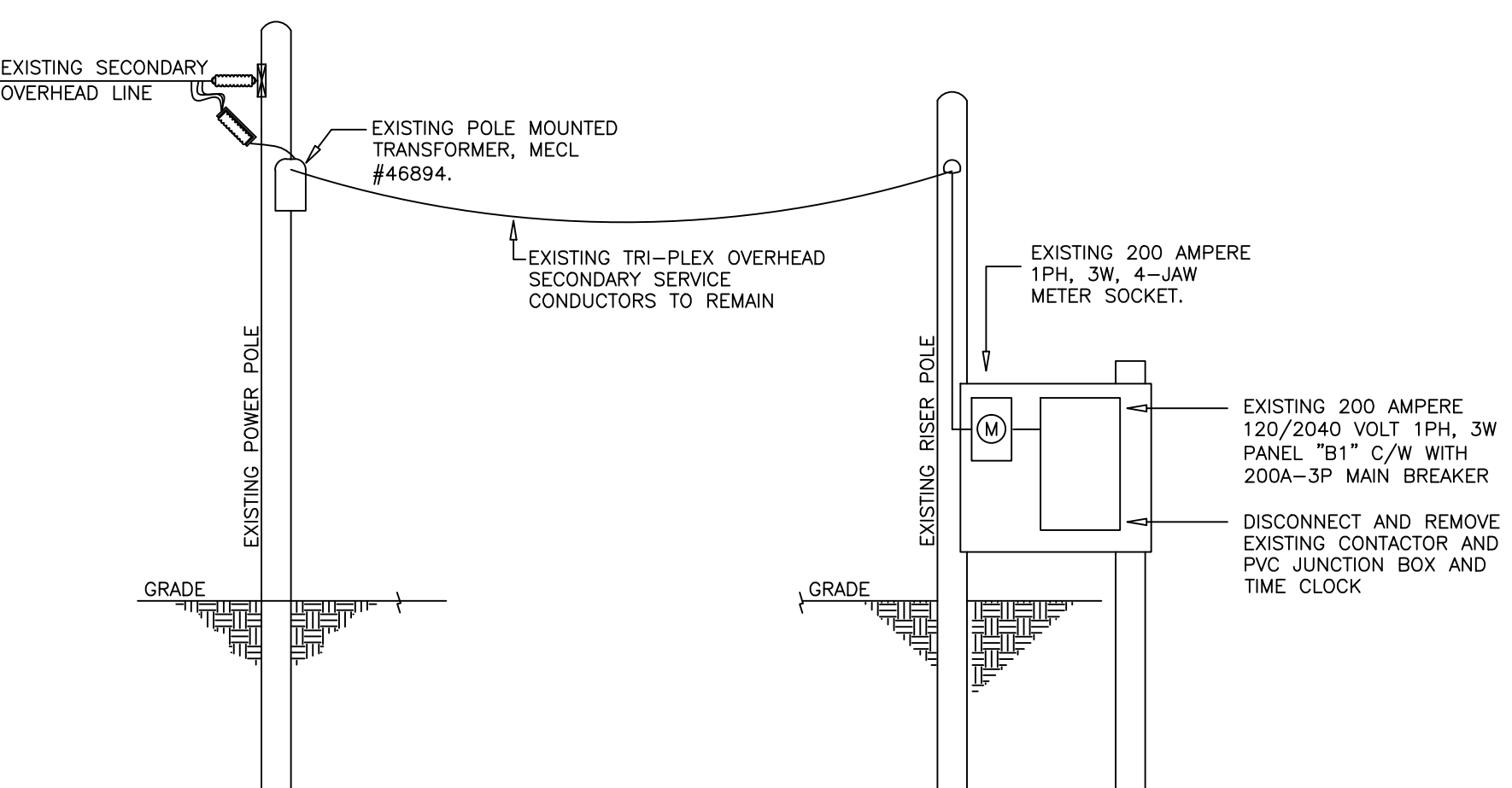
THE LIGHTING SYSTEM MANUFACTURER SHALL PROVIDE ASSISTANCE AND TECHNICAL SUPPORT TO THE ELECTRICAL CONTRACTOR INSTALLING THE SYSTEM DURING THE COURSE OF CONSTRUCTION. MANUFACTURER SHALL ALSO INCLUDE FOR A SITE INSPECTION AND SYSTEM REVIEW PRIOR TO THE SYSTEM BEING ENERGIZED. IN ADDITION THE MANUFACTURER SHALL ALSO UNDERTAKE FIELD VERIFICATION AND LIGHT LEVEL MEASUREMENTS AND SUBMIT WRITTEN VERIFICATION THAT THE LIGHTING PERFORMANCE OF THE SYSTEM IS BEING MET.

1 GENERAL CONDITIONS

E3 E3

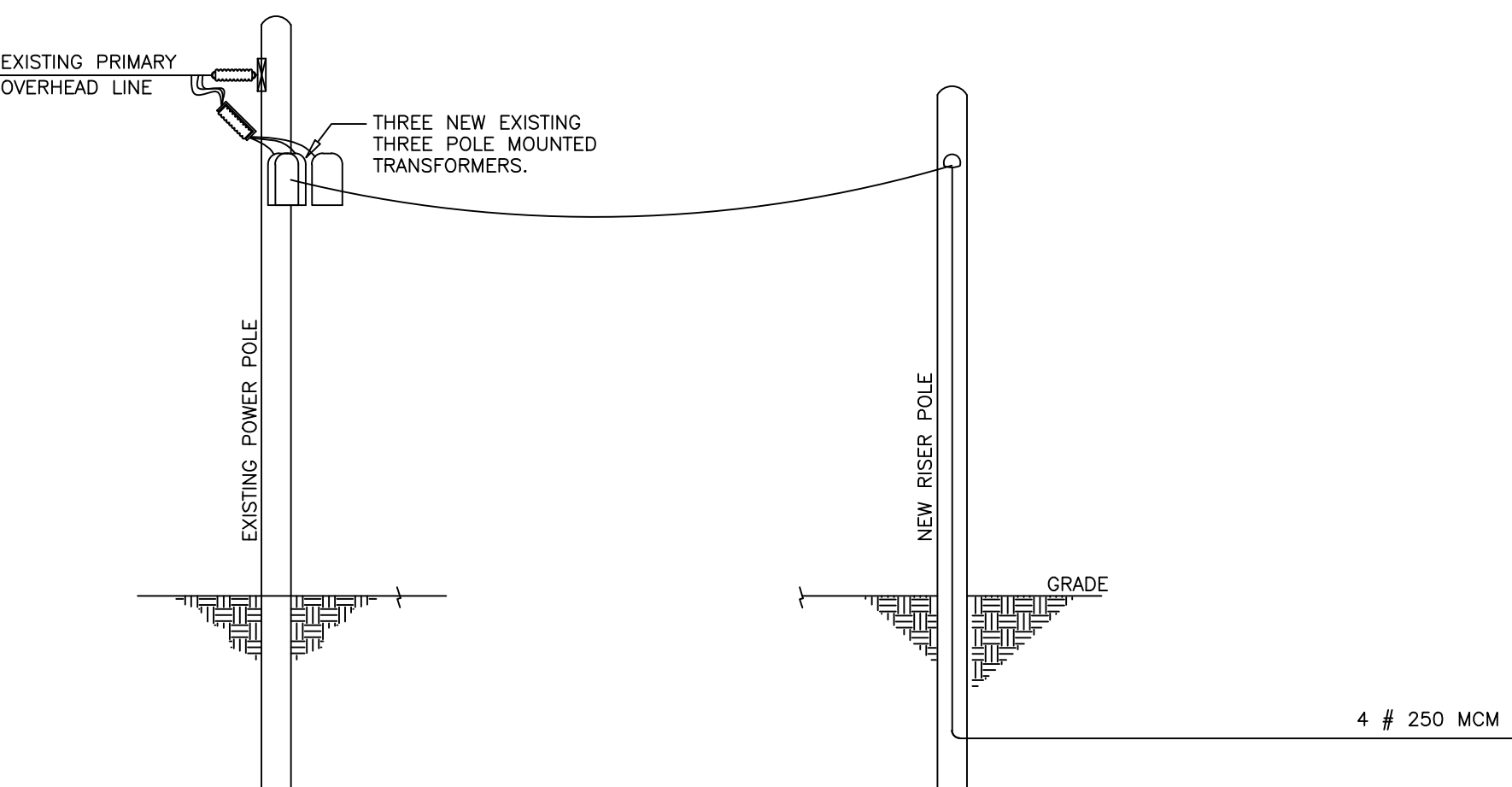
2 LIGHTING SYSTEM DETAILS

E3 E3



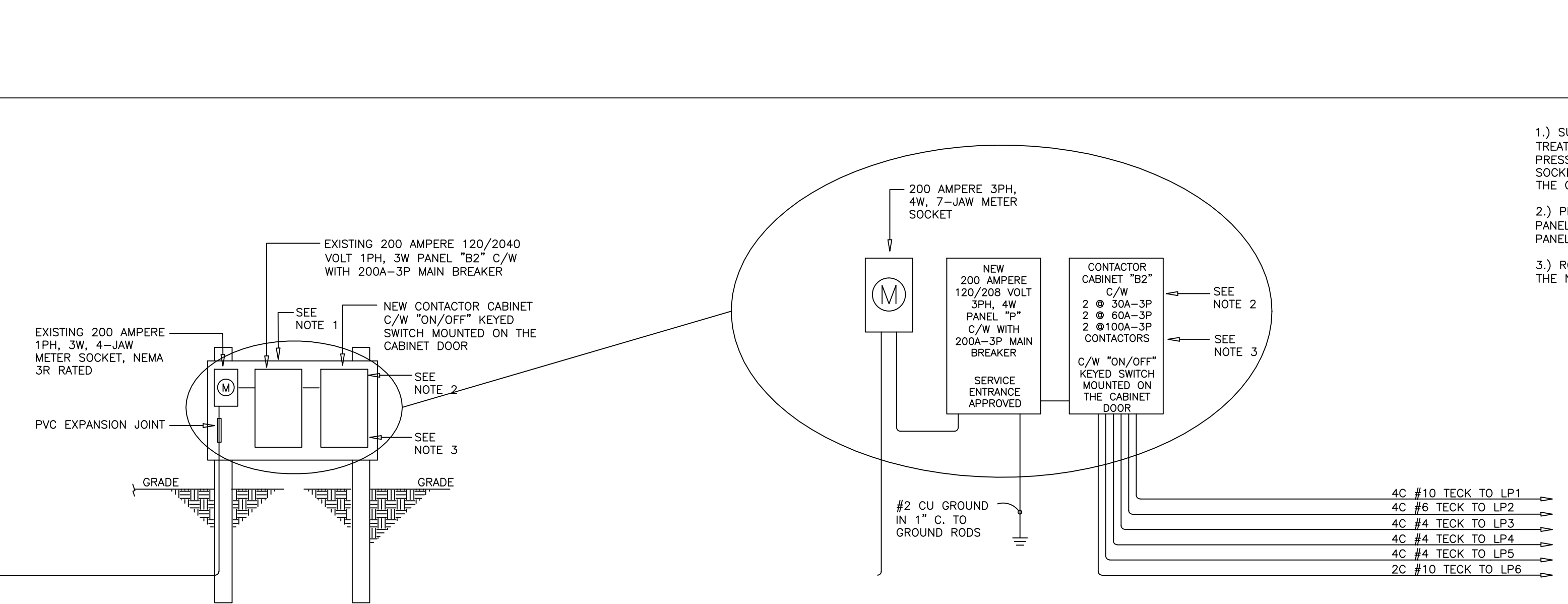
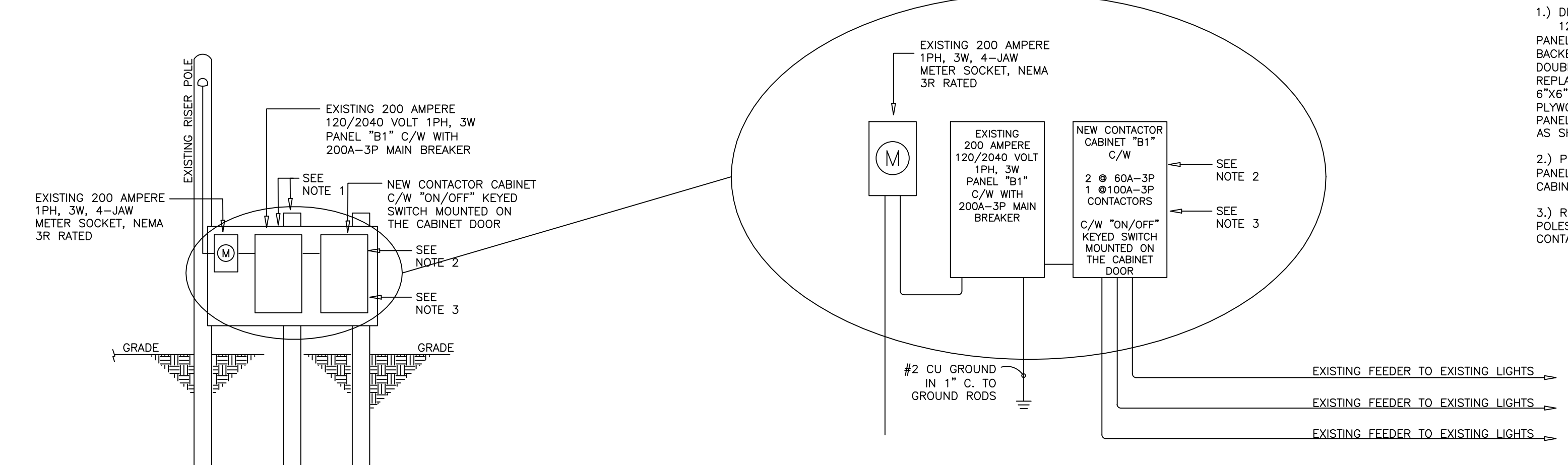
3 UPPER FIELD SERVICE SCHEMATIC

E3 E3



4 LOWER FIELD SERVICE SCHEMATIC

E3 E3



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Project	STRAITFORD MACNEIL UPPER + LOWER FIELDS		
Detail	ELECTRICAL DETAILS + SPECIFICATIONS		
Drawn	JH / MM	Approved	RLS
Project no.	2017082	Date	OCTOBER 6, 2017
Sheet no.	2017082-E3	Scale	AS NOTED