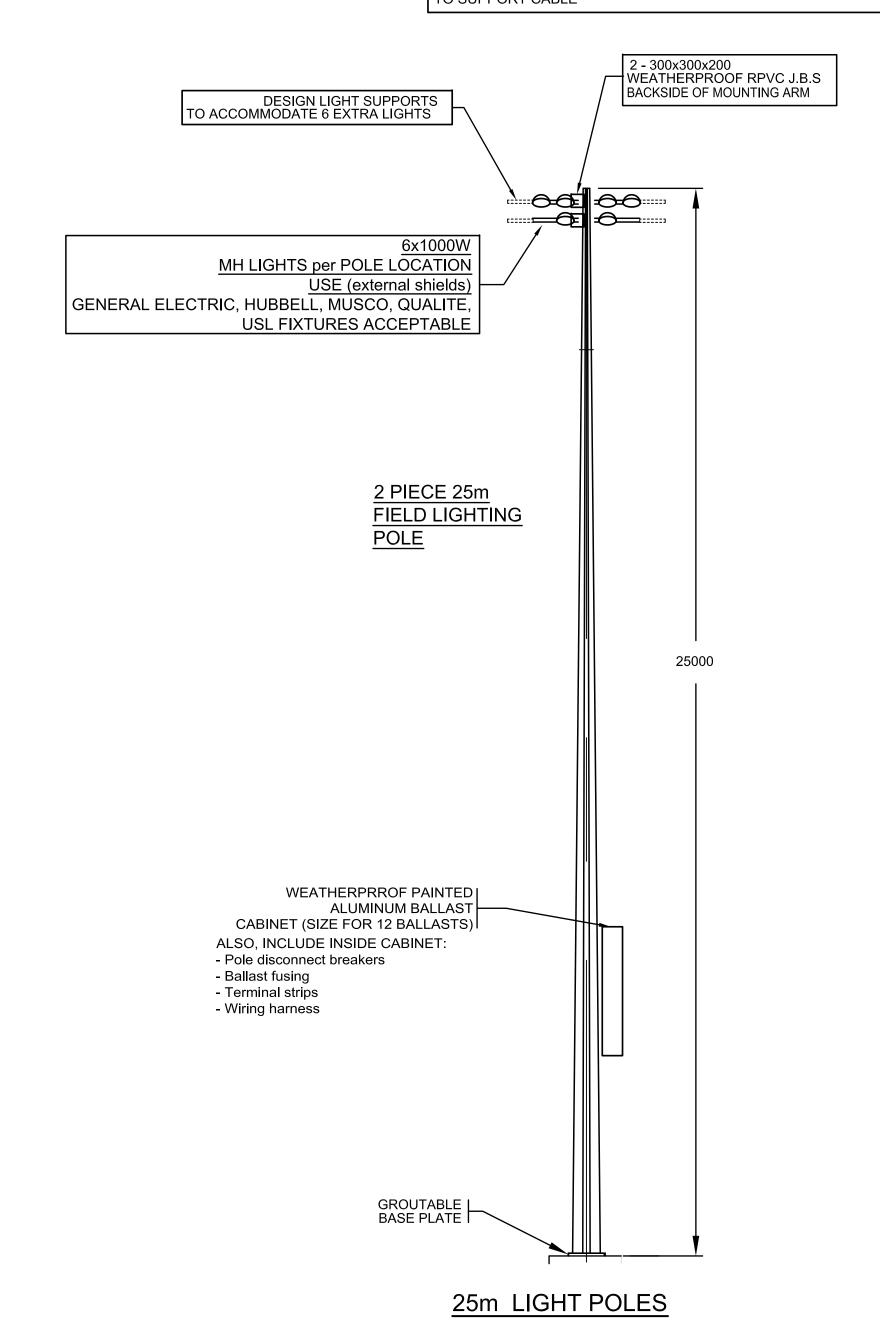


KIOSK NOTES:

- 1. KIOSK SHALL BE SECURED TO CONCRETE BASE WITH A MINIMUM OF 4 CONCRETE INSERTS.
- 2. CONCRETE SHALL HAVE A STRENGTH OF 25Mpa AT 28 DAYS.
- 3. LOCATE CONDUITS IN CONCRETE BASE TO SUIT KIOSK EQUIPMENT.
- 4. KIOSK SHALL MEET THE APPROVAL OF THE PROVINCIAL ELECTRICAL INSPECTOR & SHALL BARE A 'PROVINCIAL INSPECTION' STICKER.
- 5. SERVICE PANEL SHALL HAVE LAMICOID NAME PLATES INDICATING VOLTAGES & LABELING ALL EQUIPMENT.
- 6. A TYPE WRITTEN PANEL DIRECTORY SHALL BE LOCATED ON THE INSIDE OF THE PANEL DOOR.
- 7. ALL BREAKERS SHALL BE RATED AT A MINIMUM OF 18,000 AIC.
- 8. PROVIDE SHELF INSIDE KIOSK FOR IRRIGATION CONTROLLER. (APPROX. CONTROLLER SIZE 290W x 295H x 165D)
- 9. PROVIDE WIREWAY AND PULL-BOX ON IN-COMING SERVICE SIDE TO SUIT BC HYDRO. REFER TO DWG.
 - FIELD CONTROL CABINET

DESIGN POLE WITH 2 LARGE 2 HOLE HAND HOLE COVER PLATES FOR WIRE ACCESS, INCLUDE CABLE SUPPORT HANGERS AND USE KELLUM GRIPS AS STRAIN RELIEF TO SUPPORT CABLE



5			UBC PRO	PERTIES TRUST Engineering	Engineering Department	
4			DESIGNED - CDC		DWG FILE:	
3			DRAWN - KN	COMMUNITY FIELD	Lots.DWG	
2			METRIC		SHEET 2 OF 3	
1			LIGHTING PLAN			
-	JULY 2012	ISSUED FOR REVIEW	CHECKED - PB		REVISION NO.	
REV. No	DATE	REVISION	DATE - JUNE 2012		1	

Destroy All Prints Bearing Rev. No. less than one indicated above

PART 1 - GENERAL SUMMARY OF WORK 1.1 DOCUMENTS PART 1 - GENERAL .1 Scope of Work 1.1 DOCUMENTS Scope of Work included in the Equipment Supply shall include: interpreted, and coordinated with all other parts. .1 This section of the specification forms part of the Contract Documents and is to be read, - Supply of shop drawings and documentation outlined in Submittals Specification 1.2 SCOPE - SPORTS FIELD LIGHTING interpreted and coordinated with all other parts. 1.2 STANDARDS - Supply of sports field lighting luminaires, ballasts, and fixture support assembly. a pad mounted weatherproof enclosure. .1 Illumination Engineering Society RP-6-01 - Supply of sports field lighting poles. .2 Field lighting control for Soccer Field shall consist of: IES Recommended Practice for Sports and Recreational Area Lighting - Supply of lighting control panel. - Manual ON-OFF, key operated - 50% illumination level .2 Illumination Engineering Society RP-33-99 - Assisting Installation Contractor with procedures and requirements of pole and - Manual ON-OFF, key operated - 100% illumination level 'IES Recommended Practice of Lighting for Exterior Environments' luminaire installation. - Time clock override .3 IES Technical Memoranda TM-11-00 - Assisting Installation Contractor with Testing and Commissioning as outlined in 1.3 SHOP DRAWINGS Technical Memorandum on Light Trespass: Research Results and Recommendations Specification 16950. .1 Submit shop drawings of lighting control panel. PART 2 - PRODUCTS .4 Canadian Electrical Code - Part I - Current Edition .1 Time is of the essence for this Contract. The Equipment Supplier shall schedule and 2.1 SPORTS FIELD LIGHTING CONTROL CSA C22.1-06 coordinate delivery of submittals and equipment with Installation Contractor to meet 1 General 1.3 DESIGN CRITERIA project schedule Field lighting control panel shall be provided for one illuminated field. .1 General Selection of lighting criteria for the Bowen Island Sports Field has been based on the 2 Operations PART 3 - EXECUTION Illuminating Engineers Society' Recommendations for Sports and Recreational Area Operation of sports field lighting shall be: 3.1 PROTECTION OF EQUIPMENT Soccer Field .1 Provide maximum protection of major equipment such as luminaires and electronic - Manual 'ON' with keyed switches - 100% illumination Selection of criteria includes: equipment, Equipment shall be kept clean and dry at all times and caution shall be taken - Manual 'OFF' with keyed switches - Class of play and facilities to ensure no mechanical damage is done to the equipment. - Average illumination levels 3.2 PAYMENT SCHEDULE The IES Recommendations also provide criteria for quality and standards of illumination: 1. To be provided by others. time to 10:30 pm (to be confirmed). - Coefficient of Variation 3.3 PRF-APPROVAL OF FOUIPMENT - Maximum to minimum ratios .1 The Owner or Engineer will not assess the suitability of alternate equipment prior to Uniformity control panel. tender opening. .2 Class of Play .3 Enclosure .2 Alternatives to specified equipment will be assessed after the Tender Opening. Sports and recreation activities have been divided by the IES into four categories: 3.4 DELIVERY OF EQUIPMENT Class I Facilities with spectator capacity over 5000 .1 Time is of the essence for this project. Class II Facilities for spectators of 5000 or less .2 Delivery period of the equipment shall be a factor in the award of this Contract. Class III No special provision for spectators - 347/600 volt 3 phase, 4 wire panelboard .3 Delivery shall be UBC South Campus Schoole (play field), UBC. Class IV Social and recreational - Lighting contactors 3.5 CODES, PERMITS, AND INSPECTIONS .1 The installation shall comply with all the by-laws applying to electrical installations in the following 'class of play' has been selected for here; Soccer Field Class IV, 10fc average illumination Selector switches effect locally and with the BC Electrical Code Regulations, Municipal Regulatory Control switch Services, BC Department of Labour, and Worksafe BC, where such regulations do not Lighting Cutoff While maintaining quality illumination on the playing surface, it is essential to cut off light - Wiring terminal blocks conflict with those by-laws. 3.6 WARRANTY outside the playing surface as quickly as possible. PART 2 - PRODUCTS .1 The entire electrical system shall be left in proper working order and without additional Illumination is required for both the playing boundary and adjacent areas where illumination levels must be maintained. The total illuminated area is called 'Primary 2.1 PANELBOARDS charges. Any work or materials which develop defects shall be replaced, except for ordinary wear and tear, within one year from the date of substantial completion referred Playing Area' (PPA). For each sport the area beyond the official field levels are: to in the General Conditions. Soccer 3 - 5 metres Outside the primary playing area, the illumination levels shall be cutoff as quickly as otherwise noted. PART 2 - PRODUCTS . İllumination cutoff shall comply with recommendations of IES Technical Memoranda TM– 11-00 and IES Report RP-33-99. 2.1 PANELBOARDS .1 Panels shall have bolted breakers and tubs for flush or surface mounting as called for on the drawings. Panel tub shall be zinc coated, and surface mounted panels shall be 1.4 APPROVED MANUFACTURERS finished with standard baked grey enamel. Panelboard mains shall be 225 amp unless .1 The following manufacturers are approved subject to compliance with the Illumination terminal strip in panelboard. otherwise noted. Design Criteria and Specifications. .2 The manner in which the circuit breaker shall be connected to the busses and the Cooper Lumark numbering and ampere rating of these breakers shall be as indicated on the drawing. - General Electric The breakers shall be thermo magnetically operated type and two and three pole Hubbell breakers shall have common trip without tie bar handle. The mains for the panels shall Keene .4 Ground Fault Circuit Interrupting Breakers be arranged as shown on the drawing. All ground wires shall terminate in ground - Musco terminal strip in panelboard. Qualite .3 The circuit number arrangements as laid out on the drawings shall be adhered to a neatly Other manufacturers may be approved subject to submitting product literature for typed list of these numbers and relevant room or locations together with room numbers approval. .5 Lockout Devices shall be posted on the back of the door of the panelboard in an approved directory holder. Above the directory a lamicoid label with the name of the panel shall be installed. .6 347/600 Volt Panelboard .4 Ground Fault Circuit Interrupting Breakers .1 Ballasts shall be remotely mounted from the luminaire and mounted in a weatherproof Where noted on the drawings, ground fault circuit interrupting breakers shall be installed EEMAC 4x ballast enclosure at 12 feet from base of pole. on the amperage and poles shown. Breakers shall be Class A, Group 1 ground fault .2 Ballasts shall be: Shall be equivalent to: circuit interrupters with test and reset function in addition to normal trip. - 1000 watt metal halide - either standard or pulse start ballasts are acceptable. - Cutler Hammer Pow-R-Line 3a .5 Lockout Devices - 347 volt input - Square 'D' NF All panelboard breakers shall have provision for lockout. - One ballast per luminaire .7 120/240 Volt Panelboard Each ballast shall be individually fused. .6 347/600 Volt Panelboard Shall have, unless otherwise noted, 225 amp mains arranged for 3 phase, 4 wire, solid .3 Ballast enclosures shall house: - Ballasts with mounting brackets neutral, 347/600 volt distribution for single, 2 or 3 pole breakers. Fusing Shall be equivalent to: Wiring harness - Cutler Hammer Pow-R-Line 3a **Approved Manufacturers:** - Square 'D' NF Ballast enclosure shall be aluminum or stainless steel weatherproof EEMAC 4X cabinet - Cutler Hammer Pow-R-Line 1a .7 120/240 Volt Panelboard Square D NQOD with hinged, gasketted door, door latch, and securing hardware. Shall have, unless otherwise noted, 225 amp mains, 24 circuits, arranged for 1 phase, 3 Secure ballast enclosure to pole with bottom of enclosure at 12 feet. wire solid neutral 120/240 volt distribution for single or 2 pole breakers. Panels shall be 2.3 ENCLOSURES mounted as called for on the drawings with bolted breakers. Breakers shall have a .1 Lamps shall be 1000 watt, clear standard or pulse start metal halide. minimum 10,000 amps symmetric interrupting capacity, unless otherwise noted. watertight construction to EEMAC 4X Standards. Approved Manufacturers: - Minimal Initial Lumens 110.000V - Cutler Hammer Pow-R-Line 1a Minimal Mean Lumens 96,000HAverage Rated Life 12,000V Approved Manufacturers: 2.3 ENCLOSURES Panels shall have common keys. - General Electric .1 Enclosures for ground level distribution equipment shall be stainless steel, gasketted Osram watertight construction to EEMAC 4X Standards. Community Standards AE-1 Key. Philips 2.4 LOCKS 2.5 DISCONNECT SWITCHES Sylvania .1 Panelboard and enclosure locks shall be flush mounted cylinder type lock equivalent to 2.4 POLES Corbin, Chicago, or Yale to Bowen Island Community Standards, If additional backing is .1 Poles shall be galvanized tapered steel suitable to support selected quantity of required to mount lock it shall be placed behind the door to keep the door face clean. 2.6 LIGHTING CONTACTORS luminaires, mounting and aiming hardware, and ballast enclosures to specified minimal Panels shall have common keys. wind loads .2 All locks providing access to electrical equipment shall be keyed to Bowen Island .2 Pole base shall be bolt style suitable to anchor to concrete pole base with anchor bolts. Community Standards AE-1 Key. .3 Pole heights specified are maximum height, but may be reduced assuming illumination 2.5 DISCONNECT SWITCHES design criteria is still met. .1 The Contractor will supply and install outdoor weatherproof EEMAC 4X, H.P. rated heavy .4 All vertical wiring shall be internal within the pole. duty industrial disconnect switches where indicated on the drawing. Pole features shall include: 2.6 LIGHTING CONTACTORS .1 Lighting Contactors shall be installed where called for on the drawings with the ampere Ground lug - 120/240 volt, single phase, 3 wire panelboard rating and number of poles as called for on the drawings. Contactors shall be permanent - Mounting brackets for ballast enclosures - Strip heater magnet, mechanically held, rated for lighting loads equivalent to Allen Bradley #500L. At - Harnesses for wiring - Ground pad all terminals of contactor, wiring shall be labelled indicating circuit number. Unless Supply pole with anchor bolts, nuts, and nut covers. Wiring otherwise noted, contactors shall have HOA selector switch. .5 Pole design shall have structural capability to handle loads produced by: Labellina .2 Where pilot lights are noted they shall be neon or LED type. − ½" ICE load - 100 mph constant wind load with .4 347/600 Volt 3 Phase 4 Wire Panelboard - 1.3 gust factor Structural loading shall be for final projected areas of pole, luminaires, and support on drawings and in Specification 16100 - 2.2.6. .5 Lighting Contactors 2.5 POLE BASES .1 Pole bases shall be cast-in-place concrete constructed to meet forces of pole under maximum wind loading conditions. .2 Pole base shall have anchor bolts installed to match spacing and dimensions of pole, as .6 Time Clock defined by pole manufacturer. .3 Pole base design and construction shall be approved and certified by a Structural volt with reserve power feature. Engineer registered in the province of BC. .7 Selector Switch .1 Each field lighting pole shall have an in-ground junction box mounted adjacent to the each automatic control device. pole, flush with grade. .2 Junction box shall be 585 mm x 865 mm outside dimensions, AE Concrete #T466 box, Bradley #800T. with two vertical sections, (273 mm each) and galvanize checker steel plate with bolt .8 Control Switch down assembly. Identify cover with welded 'ELEC' marking. Each field lighting control panel shall have two keyed 'ON-OFF' switches flush mounted 2.7 POLE PANEL in control panel door. Switches shall have weatherproof cover. .1 Each pole shall have a pole mounted panel to house: - Pole disconnect breakers Ballast fusing - Terminal strips - Wiring harness Pole panel shall be mounted on pole above 12 feet. .2 Pole panel may be combined or integrated with ballast housings. PART 3 - EXECUTION 3.1 TESTING & COMMISSIONING .1 Prior to acceptance of sports field lighting, the Contractor and Lighting Equipment Supplier shall commission the system. Commissioning shall include: - Installation of internal reflector - Installation of fixture shielding Aiming each fixture Site measurements of final illumination levels on playing surface - Recording final aiming angles

- Site measurements of field perimeter lighting cut off

- Testing of all switching and controls

.1 This section of the specification forms part of the contract documents and is to be read. .1 Sports field shall have individual lighting control. All control equipment shall be housed in - Photocell override for 'ON' position so lights only come on in dusk or dark conditions - Time clock override for 'OFF' position so lights go off at preset time. Set override - Control and override devices shall have HOA selector switches located inside Field lighting control panel shall be pad mounted weatherproof stainless steel enclosure with gasketted hinged door, constructed to EEMAC 4X Standards. Enclosure shall house all equipment associated with field lighting control .1 Panels shall have bolted breakers and tubs for flush or surface mounting as called for on the drawings. Panel tub shall be zinc coated, and surface mounted panels shall be finished with standard baked grey enamel. Panelboard mains shall be 225 amp unless .2 The manner in which the circuit breaker shall be connected to the busses and the numbering and ampere rating of these breakers shall be as indicated on the drawing. The breakers shall be thermo magnetically operated type and two and three pole breakers shall have common trip without tie bar handle. The mains for the panels shall be arranged as shown on the drawing. All ground wires shall terminate in ground .3 The circuit number arrangements as laid out on the drawings shall be adhered to a neatly typed list of these numbers and relevant room or locations together with room numbers shall be posted on the back of the door of the panelboard in an approved directory holder. Above the directory a lamicoid label with the name of the panel shall be installed. Where noted on the drawings, ground fault circuit interrupting breakers shall be installed on the amperage and poles shown. Breakers shall be Class A, Group 1 ground fault circuit interrupters with test and reset function in addition to normal trip. All panelboard breakers shall have provision for lockout. Shall have, unless otherwise noted, 225 amp mains arranged for 3 phase, 4 wire, solid neutral, 347/600 volt distribution for single, 2 or 3 pole breakers. Shall have, unless otherwise noted, 225 amp mains, 24 circuits, arranged for 1 phase, 3 wire solid neutral 120/240 volt distribution for single or 2 pole breakers. Panels shall be mounted as called for on the drawings with bolted breakers. Breakers shall have a minimum 10,000 amps symmetric interrupting capacity, unless otherwise noted. .1 Enclosures for ground level distribution equipment shall be stainless steel, gasketted .1 Panelboard and enclosure locks shall be flush mounted cylinder type lock equivalent to Corbin, Chicago, or Yale to Bowen Island Community Standards. If additional backing is required to mount lock it shall be placed behind the door to keep the door face clean. .2 All locks providing access to electrical equipment shall be keyed to Bowen Island .1 The Contractor will supply and install outdoor weatherproof EEMAC 4X, H.P. rated heavy duty industrial disconnect switches where indicated on the drawing. .1 Lighting Contactors shall be installed where called for on the drawings with the ampere rating and number of poles as called for on the drawings. Contactors shall be permanent magnet, mechanically held, rated for lighting loads equivalent to Allen Bradley #500L. At all terminals of contactor, wiring shall be labelled indicating circuit number. Unless otherwise noted, contactors shall have HOA selector switch. .2 Where pilot lights are noted they shall be neon or LED type. Access to control panel shall have cylindrical lock keyed to Community Standards. Shall be 42 circuit, 347/600 volt 3 phase, 4 wire panelboard with main breaker as detailed Lighting contactors shall be 3 pole, 600 volt, permanent magnet, mechanically held contactor rated for lighting loads of the ampere rating noted on the drawings. Contactor shall have 120 volt coil with electric 'ON' and 'OFF' signal. Time switch shall be 24 hour equivalent to Paragon #4213-0S, two pole, 40 ampere, 120 Selector switches shall be provided for hand-off operation to permit manual bypass of Selector switches shall be oil-tight with features as noted on drawing equivalent to Allen-

.1 The term 'shop drawings' means drawings, diagrams, illustrations, schedule, performance charts, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the Work .2 Allow 10 working days for Engineer review of shop drawings.
.3 Prepare to an AutoCAD standard equivalent to the Contract drawings. .4 Shop Drawings shall be submitted for: - All major electrical equipment Panelboards Seismic Restraints Lighting Fixtures - Poles and assembly Control Panels .5 Indicate materials, methods of construction, and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinate, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications. .6 Make such changes in shop drawings as the Engineer may require, consistent with Contract Documents. When resubmitting, notify the Engineer in writing of any revisions other than those requested .7 Submit 8 prints of shop drawings for each requirement requested in Specification Sections and as the Engineer may reasonably request. .8 Submit 8 copies of product data sheets or brochures for requirements requested in specification Sections and as the Engineer may reasonably request where shop drawings will not be prepared due to standardized manufacture of product. .9 If upon review by the Engineer, no errors or omissions are discovered or if only minor corrections are made, 6 copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through the same procedure indicated above, shall be performed before fabrication and installation of Work may proceed. .10 Manufacturers shop drawings shall be reviewed by the Contractor, Consultant and University for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that the Reviewer approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job-site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all sub-trades. .11 Shop drawings for major electrical equipment shall include mounting and fastening details necessary to comply with British Columbia Building Code Seismic Requirements. Details shall show locations and forces of required supports. All drawings to be stamped by a Professional Engineer registered in the Province of British Columbia. .12 Shop drawings shall include all information necessary for the Consultant to clearly identify and understand the system being provided. This shall include: - Data information sheets of all equipment and devices. - Block or schematic diagram of system interconnections. - Detailed wiring diagram of the complete system as it relates to this particular project. - Operational instructions of system set-up, modifications and operations. - Maintenance and repair data sheets. .13 All Shop Drawings shall be in AutoCAD computer format. Hand drawn sketches are not .14 An AutoCAD computer disc of the shop drawings shall be included with the final shop drawing submittal END OF SECTION **UBC PROPERTIES TRUST Engineering Department** DWG FILE: DESIGNED - CDC Lots.DWG DRAWN - KN COMMUNITY FIELD METRIC SHEET 3 OF 3 LIGHTING PLAN SCALE CHECKED - PB REVISION NO. DATE - JUNE 2012

Switch #1 shall control illumination levels to 50%.

Provide rain shield canopy above switches.

.10 600/120 Volt Distribution Transformer

.9 Wiring Terminal Blocks

Transformer shall be dry type:

- 150°C Class H temp rise

and secure with wiring harnesses.

9 kVA

- Epoxy potted

- Copper windings

.12 Strip Heater

.13 Ground Pad

within panel.

.14 Wiring

.15 Labelling

termination.

.16 Remote Photo Cell

PART 1 - GENERAL

1.1 ADMINISTRATIVE

Contract Documents.

1.2 APPROVALS

of such default will be allowed.

substitutions during the tender period.

1.3 SHOP DRAWINGS AND PRODUCT DATA

Keyed switch shall be oil-tight, equivalent to Allen-Bradley #800T.

- 2% high voltage taps, two above (FCAN), two below (FCBN)

detailed on drawings and in Specification 16100-2.2.7.

Photocell control shall be remotely mounted in nearest pole.

.3 Wiring to photocell shall be 3#14 installed in conduit.

.4 Pathway photocell shall be flush mounted 'button' style.

- Supplied with Cu/Al clamp type terminal lugs

.11 120/240 Volt Single Phase Panelboard

Switch #2 shall control the remaining fixtures to provide illumination levels to 100%.

All wiring entering and leaving control panel and control wiring within the panel shall be terminated in wiring terminal blocks.

600 to 120/240 volt, single phase, epoxy potted, air cooled transformer shall be installed

in control panel as shown on drawings. Transformers shall be designed, manufactured.

Shall be 24 circuit, 120/240 volt, 1 phase, 3 wire panelboard with main breaker as

Provide strip heater in control panel to prevent moisture, condensation, and corrosion

All control wiring shall be copper, stranded conductors. Wiring shall be neatly laid out

.1 Photocell shall be pole mounted on light pole closest to the lighting control panel.

.1 Provide to Engineer for review all submittals specified and in an orderly sequence so as

sufficient reason for an extension of Contract Time and no claim for extension by reason

to not cause delay in the Work. Failure to submit in ample time is not considered

.2 Prepare and submit project schedule with dates for submission and return of shop

.4 Review submittals prior to submission to the Engineer. This review represents that

necessary requirements have been determined and verified, or will be, and that each

.1 All tender submissions shall be bid according to specifications. There shall be no

.2 Alternates to specifications may be submitted for review after award of contract.

submittal has been checked and coordinated with the requirements of the Work and the

drawings, product data or samples. Allow 10 working days for Engineer's review.

.3 Work affected by the submittals shall not proceed until review is complete.

Provide ground pad in control panel to terminate all ground connections.

All devices shall be labelled. All wiring shall be identified and labelled at each

.2 Photocell control shall have HOA selector switch to permit photocell bypass.

.5 Field lighting photocell shall be flush pole mounted equal to Tork #3010.

tested, and completed with standard accessories in accordance with latest CSA Standard

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