GENERAL CONDITIONS

THIS DRAWING IS A SUMMARY OF THE GENERAL REQUIREMENTS FOR THE PROJECT, THE CONTRACTOR SHALL REFER TO THE TECHNICAL SPECIFICATION FOR FURTHER DETAILED INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FULLY UNDERSTAND THE WORKS PRIOR TO SUBMISSION OF TENDERS. THE CONTRACTOR MUST CONDUCT ALL SURVEYS AND INSPECTIONS NECESSARY TO UNDERSTAND THE WORKS OUTLINED IN THE DRAWINGS AND OTHER ASSOCIATED DOCUMENTATION. THE CONTRACTOR IS TO MAKE ALLOWANCES IN THE SERVICES FOR ALL ASPECTS COVERED UNDER THIS SPECIFICATION AND COORDINATE THE LOCATION OF ALL ELECTRICAL EQUIPMENT/SERVICES WITH OTHER TRADES, STRUCTURES, AND ALL OTHER SERVICES.

SCOPE OF WORK

THE SCOPE OF WORK INCLUDES THE SUPPLY, DELIVERY, INSTALLATION, TESTING, COMMISSIONING AND DEFECT RECTIFICATION WORK OF THE FOLLOWING SYSTEMS AND EQUIPMENT AND AS SHOWN ON THE ELECTRICAL SERVICES DRAWINGS AND SPECIFICATION. SUPPLY ALL THE REQUIRED MATERIALS UNLESS OTHERWISE SPECIFIED. THE ELECTRICAL CONTRACTOR SHALL ALLOW FOR ANY INCIDENTAL ITEMS THAT HAVE BEEN OMITTED TO PROVIDE A COMPLETE WORKING SYSTEM INCLUSIVE OF:

- SWITCHBOARDS
- LIGHTING AND ASSOCIATED WIRING
- POWER AND ASSOCIATED WIRING
- COORDINATION OF LIGHTING POLE, FOOTING, CROSSARM, etc

ENVIRONMENTAL CONDITIONS

THE EQUIPMENT SUPPLIED BY THE CONTRACTOR SHALL BE SUITABLE FOR CONTINUOUS OPERATION IN AN INDOOR OR OUTDOOR ENVIRONMENT AS APPLICABLE. THE CONTRACTOR IS WHOLLY RESPONSIBLE FOR ENSURING THAT THE EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE CAPABLE OF DELIVERING CONTINUOUS FULL RATED LOAD UNDER THE SITE CONDITIONS LISTED BELOW:

MAXIMUM AMBIENT TEMPERATURE	45°C
MINIMUM AMBIENT TEMPERATURE	-5°C
RELATIVE HUMIDITY	80% (MAX), 10% (MIN)
ALTITUDE	1000m (NOT EXCEEDING)

REGULATIONS, STANDARDS AND CODES

ALL MATERIALS, SUPPLIES AND ALL WORK INSTALLED SHALL COMPLY WITH THE CURRENT CODES. STANDARDS. RULES AND REGULATIONS OF ALL STANDARD AUTHORITIES INCLUDING, BUT NOT NECESSARILY LIMITED TO:

NATIONAL CONSTRUCTION CODE 2022

- AS/NZS 3000, AS/NZS 3008 (LV POWER RETICULATION)
- AS 3017 ELECTRICAL INSTALLATIONS TESTING GUIDELINES
- AS 61439 (LV SWITCHBOARDS)
- AS 2560.2 SPORTS LIGHTING NETBALL
- AS 4282 CONTROL OF OBTRUSIVE LIGHTING

WESTERN AUSTRALIA BUILDING REGULATIONS

WESTERN AUSTRALIA ELECTRICAL REQUIREMENTS

MAKE ALL APPLICATIONS AND PAY ALL FEES REQUIRED TO COMPLY WITH RELEVANT AUTHORITY AND REGULATORY REQUIREMENTS INCLUDING METERING COSTS. BUILDING PERMITS AND SELF-CERTIFICATION COSTS FOR ELECTRICAL AND COMMUNICATION SYSTEMS. AND ALL WORKS REQUIRED FOR BUILDING PERMIT APPROVAL.

INSPECTION AND LOCATION OF SERVICES

THE LOCATION AND MOUNTING HEIGHTS OF THE SERVICES SHOWN ON THE DRAWING/S ARE APPROXIMATE ONLY. FINAL LOCATIONS AND MOUNTING HEIGHTS SHALL BE DETERMINED ON SITE TO SUIT THE PRINCIPAL/CLIENT AND TO PROVIDE OPTIMUM OPERATING PERFORMANCE AND FUNCTIONALITY.

THE CONTRACTOR IS TO BE FULLY INFORMED OF THE CONTRACT WORK BY INSPECTION OF THE SITE AND BY OTHER MEANS CONSIDERED NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING FROM SITE ALL REQUIRED INFORMATION TO ALLOW THE NEW INSTALLATION TO BE COMPLETE AND CONSTRUCTIBLE. THIS INCLUDES, BUT IS NOT LIMITED TO EXISTING EQUIPMENT LOCATIONS. SITE ACCESS LIMITATIONS. SUITABLE CABLE ROUTES AND ROUTE LENGTHS. THE CONTRACTOR SHALL ALLOW TO RECONNECT ALL EXISTING EQUIPMENT, WHERE THAT EQUIPMENT IS NOT BEING REPLACED OR REMOVED. UNFORESEEN DIFFICULTIES DUE TO NEGLECT OF THIS PRECAUTION SHALL IN NO WAY RELIEVE THE RESPONSIBILITY FOR FULL PROPER EXECUTION OF THE WORKS.

WORKMANSHIP

ALL PERSONNEL SHALL BE APPROPRIATELY SKILLED AND LICENSED FOR THEIR PARTICULAR TASKS, AND ALL WORK SHALL BE IN ACCORDANCE WITH ACCEPTABLE TRADE PRACTICES FOR WORKS OF THIS KIND. LICENSES SHALL SATISFY THE REQUIREMENTS OF THE STATE OR TERRITORY AUTHORITY HAVING JURISDICTION OVER THE WORKS.

ALL WORKMANSHIP AND MATERIALS SHALL BE OF A HIGH INDUSTRY STANDARD USING NEW MATERIALS, ANY MATERIALS OR WORKMANSHIP, WHICH ARE CONSIDERED INFERIOR OR NON-CONFORMING, SHALL BE REPLACED AT THE CONTRACTOR COST.

ALL DIMENSIONS SHOWN IN MM. DO NOT SCALE FROM DRAWINGS. DIMENSIONS TAKE PRECEDENCE, IF IN DOUBT REFER TO HK SOLUTIONS.

					Solutions	ENGINEERING PROJECT MANAGEMENT DARWIN. GEELONG. CAIRNS. TOWNSVILLE. PERTH . BALLARAT admin@hksolutions.com.au www.hksolutions.com.au	
В	CONTRACT DOCUMENTATION	18.11.24	JT	HKS			
Α	PRELIMINARY	11.10.24	JT	HKS	Conditions of use. This document may only be used by Harris Kmon		
REV.	DESCRIPTION	DATE	INIT.	COMPANY	Solutions clients for the purpo	ose for which it was prepared and must	
	REVISIONS				not be used by any other person or for any other purpose.		

ASSOCIATED WORK/CO-ORDINATION

CO-ORDINATE ELECTRICAL REQUIREMENTS WITH MAIN CONTRACTOR AND ALL OTHER TRADES. BECOME FULLY INFORMED OF THE CONTRACT WORK BY INSPECTION OF THE SITE AND BY OTHER MEANS CONSIDERED NECESSARY. UNFORESEEN DIFFICULTIES DUE TO NEGLECT OF THIS PRECAUTION SHALL IN NO WAY RELIEVE THE RESPONSIBILITY FOR FULL PROPER EXECUTION OF THE WORKS. NO CLAIM FOR ADDITIONAL WORK ARISING FROM NEGLECT OF A THOROUGH INSPECTION WILL BE APPROVED.

TESTING AND COMMISSIONING

SUPPLY ALL NECESSARY LABOUR AND ASSISTANCE FOR TESTING, LIGHTING MEASUREMENT TEST LOAD BALANCING. OPERATING AND ADJUSTING THE SYSTEM AND EQUIPMENT. CERTIFICATE OF COMPLIANCE AND FOR FULLY INSTRUCTING THE CLIENT OR ITS REPRESENTATIVE IN THE OPERATION OF THE SYSTEM AND EQUIPMENT. PROVIDE FULL OPERATORS MANUAL COMPLETE WITH AS-BUILT DRAWINGS AND ALL TESTS RESULTS. THE CONTRACTOR SHALL CARRY OUT TESTING AND COMMISSIONING OF THE NEW LIGHTING SYSTEM INCLUSIVE OF:

- LUMINAIRES.
- WITH AS2560 SERIES

IN ADDITION. AS PART OF COMMISSIONING THE CONTRACTOR SHALL TAKE HIGH **RESOLUTION PHOTOS (MIN. 4MP) CLEARLY DETAILING:**

- LOCALITY AND POSITION OF LIGHTING POLE FOOTINGS
- LIGHTING POLE FOOTING PRIOR TO CONCRETE POUR
- NUMBER/SIZE CONDUITS INSTALLED AND BURY DEPTH
- HEADMAST

CABLE SUPPORT AND PROTECTION

- WHERE NOT INSTALLED ON CABLE TRAY, CABLES SHALL BE SADDLED TO CONCRETE RUN PLUS A 20% SPARE CAPACITY.

CABLES

CABLES SHALL COMPLY WITH AS/NZS 5000.1 'ELECTRIC CABLES - POLYMERIC INSULATED FOR WORKING VOLTAGES UP TO AND INCLUDING 0.6/1 KV'. UNLESS OTHERWISE INDICATED ALL CABLES SHALL HAVE STRANDED COPPER CONDUCTORS. ALL CABLING AND WIRING SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE APPLICABLE STANDARDS. IN PARTICULAR AS 3000 AND AS 3008. CABLING SHALL BE OF THE SIZE REQUIRED TO MEET THE CURRENT RATING AND VOLTAGE DROP REQUIREMENTS OF AS/NZS 3000 AND AS/NZS 3008 FOR THE ACTUAL CIRCUIT LOADING AND METHOD OF INSTALLATION. OR AS SPECIFIED.

CABLE INSTALLATION:

UPON DELIVERY OF THE CABLE DRUMS, THEY SHALL BE VISUALLY INSPECTED FOR DAMAGE INCURRED DURING TRANSPORT OR STORAGE. THE SEAL ON THE INNER AND OUTER CABLE END SHALL BE EXAMINED AND THE CONDITION OF ARMOURING. SERVING OR SHEATH INSPECTED FOR DAMAGE, CORROSION OR LEAKAGE OF IMPREGNATING OIL. ANY DAMAGE DISCOVERED SHALL BE REPORTED TO THE SUPERINTENDENT.

DURING INSTALLATION CABLES SHALL BE HANDLED WITH DUE CARE. WHEN PULLING CABLES, ANY WINCH USED SHALL HAVE AUTOMATIC TENSION LIMITERS AND THE TENSION SHALL NOT EXCEED THAT SPECIFIED BY THE MANUFACTURERS FOR THE PARTICULAR CABLE AND CONDITIONS OF INSTALLATION. WINCHING ROPES SHALL BE ATTACHED TO THE CABLE ARMOUR WITH STEEL MESH SLEEVES AND CARE SHALL BE TAKEN THAT CABLE SHEATHS ARE NOT DAMAGED IN ANY WAY. CABLES SHALL NOT BE BENT TO A RADIUS LESS THAN THAT RECOMMENDED BY THE

NIGHT TIME COMMISSIONING TO TEST OPERATION AND FUNCTIONALITY OF

 RECORDING AND PROVIDING PRINCIPAL OF FIELD OF PLAY HORIZONTAL ILLUMINANCE LEVELS AT ALL SWITCHING LEVELS (TRAINING AND COMPETITION) IN ACCORDANCE

 ONE NIGHT OF SPORTS LIGHTING COMMISSIONING FOR FINAL ADJUSTMENT OF LUMINAIRE AIMING TO ACHIEVE COMPLIANCE AND TO INCREASE PERFORMANCE IN ACCORDANCE WITH AS2560 SERIES ILLUMINANCE AND UNIFORMITY REQUIREMENTS.

LIGHTING POLE FOOTING EXCAVATION PRIOR TO CAGE/REO INSTALLATION

REPRESENTATIVE PHOTOS OF UNDERGROUND CONDUIT INSTALLATION SHOWING

 PRIOR STANDING EACH LIGHT TOWER, A PHOTO OF EACH LIGHTING POLE HEADMAST INSTALLATION SHOWING ALL INSTALLED LUMINAIRES AND THEIR CONNECTIONS

CLOSE UP OF LUMINAIRE MOUNTING TO HEADMAST

CLOSE UP OF ARMOURED CONDUIT CONNECTION BETWEEN LUMINAIRE AND

 INSIDE EACH ACCESS PANEL SHOWING SWITCHGEAR AND DRIVER INSTALLATIONS • FINAL INSTALLATION OF SWITCHGEAR AND CONTROL PANEL INSTALLATIONS

 CABLES SHALL BE ADEQUATELY SUPPORTED ALONG THEIR ENTIRE LENGTH TO THE APPROVAL OF THE SUPERINTENDENT. SUPPORTS SHALL BE INSTALLED AT MAXIMUM INTERVALS OF 1000 MM AND AT LESSER INTERVALS WHERE REQUIRED TO PREVENT UNDUE SAGGING. CABLES IN VERTICAL RUNS SHALL BE SUPPORTED EVERY 600 MM.

MASONRY OR STEELWORK OR CLIPPED BY CABLE CLAMPS TO UNISTRUT CHANNELS. CHANNELS SHALL BE OF SUFFICIENT WIDTH TO ACCOMMODATE ALL CABLES IN THE

 STRUCTURAL STEELWORK SHALL NOT BE DRILLED. WELDED OR CUT TO FACILITATE CABLE INSTALLATION WITHOUT THE SUPERINTENDENT'S WRITTEN PERMISSION.

MANUFACTURER

SHOULD ANY DAMAGE OCCUR TO ANY PART OF A CABLE (INCLUDING SERVING) DURING HANDLING OR INSTALLATION, THE SUPERINTENDENT SHALL BE INFORMED AND WORK SHALL ONLY PROCEED AFTER HIS INSPECTION AND AUTHORISATION TO CONTINUE HAS BEEN GIVEN.

CUT-OFFS AND JOINTING:

DURING INSTALLATION, ALL CABLES SHALL BE CUT FROM DRUMS IN SUCH A MANNER THAT CUT-OFFS ARE A MINIMUM AND ANY SURPLUS CABLE REMAINING IS IN A SINGLE LENGTH. CABLES SHALL BE INSTALLED IN CONTINUOUS LENGTHS.

CABLE GLANDS:

CABLE GLANDS SHALL BE OF AN APPROVED WEATHERPROOF TYPE OF A TYPE THAT IS CONSISTENT WITH THE IP RATING OF THE ENCLOSURE

AS A MINIMUM, GLANDS IN GENERAL AREAS SHALL BE CONSTRUCTED FROM:

CABLES UP TO 25MM OVERALL DIA: NYLON OR PVC

CABLES LARGER THAN 25MM OVERALL DIA: NICKEL-PLATED BRASS

NICKEL PLATED BRASS GLANDS SHALL NOT BE USED IN CONJUNCTION WITH ALUMINIUM ALLOY BOXES OR ALUMINIUM GLAND PLATES.

DAMAGE AND REINSTATEMENT:

ANY DAMAGE TO CIVIL WORKS OR STEEL, INCLUDING PAINTWORK CAUSED BY ELECTRICAL INSTALLATION WORK SHALL BE MADE GOOD BY THE CONTRACTOR.

AFTER ERECTION ALL HOLES IN FLOORS AND WALLS AND IN CABLE PIPES THROUGH WHICH PASS CABLES. CONDUITS OR EARTH BARS SHALL BE SEALED. ALL PENETRATIONS SHALL BE SEALED WITH A FIRE RESISTANT TWO PART EXPANDING SILICON RUBBER. THE CONTRACTOR SHALL ENSURE THAT ALL PENETRATIONS ARE FIRE. WEATHER AND RODENT PROOF.

UNDERGROUND ELECTRICAL INSTALLATION

TRENCHING:

ALL TRENCHES, UNLESS OTHERWISE DIRECTED BY THE SUPERINTENDENT, SHALL BE EXCAVATED IN GROUND AS FOUND ALONG THE LINE AND TO THE DEPTHS AND WIDTHS SHOWN ON THE DRAWINGS. FINAL LOCATIONS OF UNDERGROUND INFRASTRUCTURE TO BE SURVEYED AND ALIGNMENTS SHALL BE ACCURATELY PRESENTED IN AS-BUILT DRAWINGS

THE LINE OF THE TRENCH MUST BE KEPT PERFECTLY STRAIGHT AND PARALLEL TO THE PLANNED ALIGNMENT. THE BOTTOM MUST BE KEPT LEVEL ACROSS THE TRENCH AND THE SIDES AS NEAR THE VERTICAL AS IS PRACTICABLE. ANY CAVITIES IN THE BOTTOM OF THE TRENCH MUST BE FILLED WITH SELECTED STONE FREE MATERIAL, PROPERLY COMPACTED TO THE PROPER GRADE.

THE CONTRACTOR SHALL TAKE CARE TO ERECT SHORING AS NECESSARY TO EFFECTIVELY PREVENT THE SIDES OF THE TRENCH FROM RUNNING OR FALLING INTO THE EXCAVATION AND TO KEEP TRENCHES FREE FROM WATER DURING ALL CABLE/CONDUIT LAYING OPERATIONS. SPOIL FROM THE TRENCH EXCAVATION NOT REQUIRED FOR BACKFILL IN THE TRENCH SHALL BE MOUNDED ABOVE THE BACKFILLED TRENCH. WHERE ELECTRICAL TRENCHES ARE TO BE EXCAVATED ACROSS SPORTING FIELD OF PLAY. THE CONTRACTOR SHALL ENSURE THAT THE BACKFILL DOES NOT INTERFERE WITH SPORTING PLAY SURFACES AND SUB-SURFACES.

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION THAT IS NECESSARY FOR THE PROTECTION FROM INJURY OF ALL EXISTING DRAIN PIPES. ELECTRIC AND COMMUNICATIONS CONDUITS AND OTHER EXISTING WORKS AND SERVICES WHEREVER MET WITH. OR WHICH ARE ADJACENT TO THE WORK. AND TO AVOID DAMAGING SUCH DRAINS, CONDUITS OR SERVICE CONNECTIONS OR ANY FITTINGS ATTACHED THERETO

THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE KEEPING CLEAN AND THE MAINTENANCE OF THE TRENCHES IN GOOD ORDER AND CONDITION BETWEEN THE TIME OF EXCAVATION AND LAYING AND SHALL OBTAIN THE SUPERINTENDENT'S APPROVAL BEFORE COMMENCING TO LAY CABLES.

INSTALLATION:

ALL CABLES SHALL BE INSTALLED IN THE PRESENCE OF THE SUPERINTENDENT OR ITS REPRESENTATIVE AND THE CONTRACTOR SHALL GIVE A MINIMUM OF 48 HOURS NOTICE OF INTENTION TO PULL THE CABLES. ANY CABLES NOT INSTALLED TO THE ABOVE REQUIREMENTS MAY BE REQUIRED TO BE EXCAVATED AND RELAID. AFTER THE EXCAVATION HAS BEEN COMPLETED AND APPROVED THE TRENCH SHALL BE CLEARED OF ALL SHARP OBJECTS AND A FOUNDATION LAYER OF STONE-FREE BEDDING MATERIAL SHALL BE PLACED.

CABLE DRUMS SHALL BE ARRANGED SO THAT THE CABLE IS ALWAYS PULLED FROM THE TOP OF THE DRUM USING SUITABLE SHOTTERS, HOOKS OR CUMALONGS AND A SWIVEL TO PREVENT DAMAGE TO THE CABLE. THE CABLE SHALL BE PULLED JUST FAST ENOUGH TO KEEP THE DRUM ROTATING SMOOTHLY AND SUDDEN STOPPING SHALL BE AVOIDED. WHEN PULLING CABLES INTO TRENCHES, ROLLERS SHALL BE SPACED TO PREVENT THE CABLE DRAGGING ON THE GROUND. AT BENDS AN ASSEMBLY OF ROLLERS AND SKIDS OR ROLLERS AND ANGLE ROLLERS SHALL BE USED AND THE CABLE SHALL NOT BE BENT TO LESS THAN 15 TIMES OD. ALL CHANGES IN DIRECTION OR GRADE SHALL BE IN EASY STAGES.

PITS:

CABLE PITS SHALL CONSIST OF HIGH DENSITY POLYETHYLENE PITS WITH

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CONCRETE/STEEL LIDS. UNLESS OTHERWISE INDICATED. PITS. LIDS AND THE METHOD OF INSTALLATION SHALL BE SUITABLE FOR THE ANTICIPATED WHEEL LOADINGS IN THE AREA IN WHICH THEY ARE INSTALLED OR SHOWN IN THE DRAWINGS, WHICHEVER IS GREATER. LIDS TO ELECTRICAL PITS SHALL BE MARKED 'ELECTRICAL'. LIDS FOR COMMUNICATIONS PITS SHALL BE MARKED 'COMMUNICATIONS'

CONTRACTORS DOCUMENTATION

THE CONTRACTOR SHALL DEVELOP THE FOLLOWING DOCUMENTATION AS PART OF THE WORK AND SUBMIT TO SITE SUPERINTENDENT DOCUMENTATION IN A COMPLETE CONSOLIDATED SET. THROUGHOUT THE PROGRESS OF THE WORKS THE CONTRACTOR SHALL MAINTAIN RECORDS OF ANY CHANGE TO ITS DOCUMENTATION WHICH MAY HAVE BEEN APPROVED FOR CONSTRUCTION PURPOSES SUCH THAT ON COMPLETION OF THE WORKS ACCURATE "AS CONSTRUCTED" INFORMATION IS AVAILABLE.

AS-CONSTRUCTED DRAWINGS

PROVIDE A FULL SET AND A 'DWG' (AUTOCAD LATEST VERSION) USB OF AS-BUILT DRAWINGS, TO THE SATISFACTION OF THE SUPERINTENDENT, WITHIN 7 DAYS OF PRACTICAL COMPLETION. THE AS BUILT DRAWINGS SHALL COMPREHENSIVELY REFLECT DETAILS OF ALL INSTALLED SYSTEMS AND COMPONENTS, AS DETAILED IN THE SCOPE OF

OPERATION AND MAINTENANCE MANUALS

PROVIDE TWO SETS OF OPERATION AND MAINTENANCE MANUALS. THE AIM OF THESE BEING TO PROVIDE A DETAILED UNDERSTANDING OF THE ITEMS OF EQUIPMENT, TESTS RESULTS AND ITS OPERATION. AN AID FOR TRAINING OF OPERATORS, A REFERENCE FOR FAULT DIAGNOSIS AND A FRAMEWORK FOR PREVENTIVE AND BREAKDOWN MAINTENANCE THE MANUALS SHALL INCLUDE AS A MINIMUM

NAME, ADDRESS, TELEPHONE NUMBERS, EMAIL ADDRESS AND WEB PAGE ADDRESS OF THE MANUFACTURER AND SUPPLIER OF ITEMS OF EQUIPMENT INSTALLED. TOGETHER WITH CATALOGUE LIST NUMBERS. INCLUDE DETAILS FOR ALL CONSULTANTS AND CONTRACTORS INVOLVED IN THE DESIGN AND CONSTRUCTION PHASE.

TECHNICAL DESCRIPTION AND MODES OF OPERATION OF THE SYSTEMS INSTALLED.

PRODUCT LITERATURE FOR THE SYSTEMS INSTALLED AND CONTACT DETAILS FOR SUPPLIERS AND MANUFACTURERS OF THESE SYSTEMS.

CONTROL AND SWITCHING SEQUENCES AND FLOW DIAGRAMS FOR THE SYSTEM INSTALLED, INCLUDING SAFETY FEATURES. ALSO PROVIDE INSTRUCTIONS FOR FOR OPERATING AND ADJUSTING CONTROL SYSTEMS.

MANUFACTURER'S OPERATIONAL AND SAFETY LITERATURE, AS APPROPRIATE.

EMERGENCY MAINTENANCE PROCEDURES, INCLUDING TELEPHONE NUMBERS FOR EMERGENCY SERVICES AND AFTER HOURS CONTACTS FOR SUPPLIERS AND CONTRACTORS AND PROCEDURE FOR FAULT FINDING.

STATUTORY CERTIFICATES OF COMPLIANCE FOR ALL ELECTRICAL AND COMMUNICATION WORK, COPIES OF MANUFACTURER'S WARRANTIES.

CERTIFICATES FROM AUTHORITIES AND UTILITIES. PRODUCT CERTIFICATION. COPIES OF TEST CERTIFICATES, ETC.

COMMISSIONING PHOTOS

AS-BUILT DRAWINGS. SYSTEM SCHEMATICS, ETC.

INSPECTION AND TEST PLANS, TEST SHEETS AND COMMISSIONING RECORDS.

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 DENOTES IN-BUILDING CABLE INSTALLATION IN ACCORDANCE WITH AS/NZS3000. REFER TO DRAWING E201 FOR CABLE SIZE. 10m LIGHTING POLE STRUCTURE INCLUSIVE OF POLE, LUMINAIRES, FOOTING, AND CROSSARM. CONTRACTOR SHALL DESIGN, CONSTRUCT AND CERTIFY LIGHTING POLE STRUCTURE AND FOOTING. REFER TO DRAWINGS E101 FOR INFORMATION ON LUMINAIRES AND DRAWING E301 FOR POLE GENERAL ARRANGEMENT. REFER TO BELOW POLE SCHEDULE FOR LOCATION, ORIENTATION & HEIGHT. INDICATIVE LOCATION OF EXISTING MAIN SWITCHBOARD DISTRIBUTION SWITCHBOARD ELECTRICAL PIT WITH CLASS C STEEL LID. MINIMUM SIZE 450mm LENGTH x 450mm WIDE x 800 DEEP TYPE MASCOT OR APPROVED EQUAL INDICATIVE LOCATION OF LIGHTING SWITCH PANEL (LSP) LOCKABLE WITH CODE 	<u>(x</u>	INDICATIVE ALIGNMENT OF NEW BURIED ELECTRICAL CONDUITS INSTALLED WITH DRAW WIRE IN ACCORDANCE WITH TYPICAL CABLE TRENCH SECTION DETAIL AND AS/NZS3000. 'n' DENOTES QUANTITY OF CONDUITS, 'E' DENOTES ELECTRICAL ORANGE HD PVC CONDUIT 'xx' DENOTES THE DIAMETER OF THE CONDUIT FOR EXAMPLE: 1E50 - 1x 50 DIA ELECTRICAL HD PVC CONDUITS
 10m LIGHTING POLE STRUCTURE INCLUSIVE OF POLE, LUMINAIRES, FOOTING, AND CROSSARM. CONTRACTOR SHALL DESIGN, CONSTRUCT AND CERTIFY LIGHTING POLE STRUCTURE AND FOOTING. REFER TO DRAWINGS E101 FOR INFORMATION ON LUMINAIRES AND DRAWING E301 FOR POLE GENERAL ARRANGEMENT. REFER TO BELOW POLE SCHEDULE FOR LOCATION, ORIENTATION & HEIGHT. INDICATIVE LOCATION OF EXISTING MAIN SWITCHBOARD DISTRIBUTION SWITCHBOARD ELECTRICAL PIT WITH CLASS C STEEL LID. MINIMUM SIZE 450mm LENGTH x 450mm WIDE x 800 DEEP TYPE MASCOT OR APPROVED EQUAL INDICATIVE LOCATION OF LIGHTING SWITCH PANEL (LSP) LOCKABLE WITH CODE 		DENOTES IN-BUILDING CABLE INSTALLATION IN ACCORDANCE WITH AS/NZS3000. REFER TO DRAWING E201 FOR CABLE SIZE.
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INDICATIVE LOCATION OF LIGHTING SWITCH PANEL (LSP) LOCKABLE WITH CODE		ELECTRICAL PIT WITH CLASS C STEEL LID. MINIMUM SIZE 450mm LENGTH x 450mm WIDE x 800 DEEP TYPE MASCOT OR APPROVED EQUAL
	\geq	INDICATIVE LOCATION OF LIGHTING SWITCH PANEL (LSP) LOCKABLE WITH CODE

NOTES

1. LOCATION OF EXISTING ELECTRICAL BURIED CABLING AND INFRASTRUCTURE IS INDICATIVE ONLY. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS AND ALIGNMENTS ON-SITE TO THE APPROVAL OF THE SITE SUPERINTENDENT.

2. CONTRACTOR SHALL RE-INSTATE ALL DISTRIBUTED PAVED SURFACES TO ORIGINAL OR AS NEW CONDITION.

3. ELECTRICAL ITEMS ARE NOT ON SCALE. SHOWN FOR CLARITY.

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NOTES

1. FIELD OF PLAY CALCULATED POINTS ARE HORIZONTAL ILLUMINANCE MADE AT GROUND LEVEL.

2. ISOLUX LINES ARE CALCULATED HORIZONTAL ILLUMINANCE VALUES SHOWN AT GROUND LEVEL.

3. LUMINARE ID NOTATION Px-y, WHERE

x:DENOTES POLE NUMBER I.E. P1 y: DENOTES LUMINAIRE CROSSARM POSITION . POSITIONS ARE RELATIVE TO FINAL CROSSARM SIZE AND POSITION.

4. TILT SHALL BE IN ACCORDANCE TO LUMINAIRE TILT DIAGRAM AND THE CONTRACTOR SHALL CALIBRATE LUMINAIRE TILT 0 DEGREE ANGLE AS LEVEL AND IN ACCORDANCE TO MANUFACTURERS REQUIREMENTS.

5. ORIENTATION MAY NOT ALIGN PRECISELY WITH TRUE NORTH. REFER TO DIRECTION DIAGRAM FOR ORIENTATION. THE CONTRACTOR SHALL PRECISELY ORIENTATE IN ACCORDANCE WITH THE DIRECTION DIAGRAM.

LUMINAIRE TYPE & AIMING SCHEDULE

INARE ID TE 3)	MODEL	OPTICS	TILT (NOTE 4)	ORIENTATION (NOTE 5)
21-1	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	0°
1-2	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	50°
2-1	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	350°
2-2	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	40°
' 3-1	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	180°
3-2	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	230°
24-1	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	170°
4-2	3PH 400V 600W SYLVANIA RAPTOR SR1A1G4	A1+APRON HOOD	10°	220°

ELECTRICAL LOAD 4.8kW

FIELD OF PLAY CALCULATION SUMMARY

LE	STANDARD: AS2560.2	
ΡL	AY: COMPETITION 200 LUX	

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NAIRE LLF: 0.85		077					
GMENT LABEL	CALC TYPE	UNITS	AVG	MAX	MIN	U1 (MIN/AVG)	U2 (MIN/MAX)
COURT 1	HORIZONTAL ILLUMINANCE	LUX	275.1	338.2	203.3	0.74	0.60
COURT 2	HORIZONTAL ILLUMINANCE	LUX	274.6	337.3	203.6	0.74	0.60



PRELIMINARY

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 COMPANY

 Solutions clients for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

 B CONTRACT DOCUMENTATION A PRELIMINARY REV. DESCRIPTION REVISIONS

MENSIONS SHOWN IN MM. DO NOT SCALE FROM DRAWINGS. DIMENSIONS TAKE DENCE. IF IN DOUBT REFER TO HK SOLUTIONS.



ENGINEERING PROJECT MANAGEMENT DARWIN. GEELONG. CAIRNS. TOWNSVILLE. PERTH. BALLARAT admin@hksolutions.com.au www.hksolutions.com.au

	OBTRUSIVELIGHT_RES_BOUNDARY_NORTH ObtrusiveLight_TL_WS_EB ObtrusiveLight_TL_WS_WB	NOTES 1. SEE DRAWI 2. OBTRUSIVE OF 200LUX: LIGHTING ZO	S NG E101 FOR LUMINAIRE TYPE LIGHTING BOUNDARY SEGMEN THE CALCULATIONS WERE PER ONE 'A3' & L1 CURFEW CONDITI	AND AIMING SCHEDULE. IT WAS ASSESSED USING T FORMED WITH AGI32 SOFT ONS AS PER AS4282-2023.	THE LIGHTING LEVEL WARE USING A	
		OBTRUSIVE APPLICABLE STANDARD: AS ENVIRONMENTAL ZONE: A3 CONDITIONS: NON-CURFEW LUMINAIRE LLF: 1.0	E LIGHTING C 5/NZS 4282:2023	ALCULATIO	ON SUMN	IARY
		SEGMENT LABEL	CALC TYPE UNITS	CALC MAX	AS4282 LIMIT	AS4282 COMPLIANT?
	↓ P3	OBTRUSIVELIGHT_RES_BOUNDA	LUMINOUS INTENSITY Cd	443	12500	YES
			VERTICAL LUX	0	10	YES
	P2 \vert	OBTRUSIVELIGHT_RES_BOUNDA	INTENSITY Cd	110	12500	YES
	• P4		ILLUMINANCE	0	10	YES
		Obtrusive Light - ASINZS 4282:2023, A3 - Filename: 24285 14/11/2024 11:21:34 AM Illuminance Maximum Allowable Valu Calculations Tested (4): Calculations Tested (4): Calculation Label ObtrusiveLight_North_III_ ObtrusiveLight_North_Coto ObtrusiveLight_North_Coto ObtrusiveLight_North_Coto ObtrusiveLight_North_Coto ObtrusiveLight_West_Coto Threshold Increment Maximum Allowable Valu Calculations Tested (6): Calculations Tested (6): Calculation Label ObtrusiveLight_TI_WS_E ObtrusiveLight_TI_WS_F	Compliance Report Medium District Brightness, Non-Curfew I Medium District Brightness, Non-Curfew I Test Max. Results Illum. Seg1 PASS 0.0 Seg1 PASS Seg1	L1 Test Results PASS PASS PASS PASS PASS PASS		
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×_	CIRCUIT BREAKER
<u></u>	LOAD ISOLATOR
¯¥	RESIDUAL CURRENT CIRCUIT BREAKER
	N/O CONTACT
	FUSE
	SURGE ARRESTOR
	MOMENTARY PUSHBUTTON
LED	SPORTS LIGHTING LED DRIVER
+	SINGLE PHASE CABLE

THREE PHASE CABLE

COIL

NOTES

- 1. SPD FUSE TO BE gG TYPE AND SIZED TO MANUFACTURERS REQUIREMENTS.
- 2. ALL LUMINARIES SHALL BE FITTED WITH PROPRIETARY THERMAL PROTECTION AND WIRED TO REMOTE DRIVER.
- 3. REFER TO LUMINAIRE SCHEDULE ON DRAWING E101 FOR LUMINAIRE QUANTITIES FOR EACH POLE.
- 4. INSTALL CODE/KEY LOCKABLE LSP AT LOCATION NOMINATED BY CLUB/COUNCIL.
- 5. THE LIGHT OPERATION CONTROL SHALL ADHERE TO THE FOLLOWING FUNCTIONAL DESCRIPTION FOR EACH MODE. THE CONTRACTOR SHALL ALLOW TO PROVIDE ALL NECESSARY LABELING OF FUNCTIONALITY AND TRAINING OF PERSONNEL ON THE OPERATION AND MAINTENANCE OF THE LIGHTING CONTROL SYSTEM:

TIME CLOCK MODE (DEFAULT MODE): THE TIME CLOCK IS TO BE CONFIGURED TO CONTROL ALL OF THE DOWNSTREAM LIGHT SWITCHES DURING PRINCIPAL AGREED NON-CURFEW LIGHTING PERIODS/SCHEMES (EG 6PM - 10:30PM). THE TIME CLOCK SHALL BE PROGRAMMABLE TO ALLOW MULTIPLE NON-CURFEW LIGHTING SCHEMES FOR DIFFERENT SEASONS AND USAGES THROUGHOUT THE YEAR.

MANUAL MODE: THE MANUAL MODE SHALL BYPASS THE TIME CLOCK CONTROL AND ALLOW THE USER TO MANUALLY OPERATE DOWNSTREAM SWITCHES AT ANY TIME.

PRELIMINARY QUAIRADING NG NETBALL COURTS LIGHTING **N**STREET **FRICAL SERVICES FRICAL AND CONTROL SCHEMATICS** SHEET SIZE **A1** PROJECT No DRAWING No DISCIPLINE REV. ELECTRICAL A 06 24285-E201







LIGHTING POLE TYPICAL CROSSARM **& LUMINAIRE POSITION** (LOOKING FRONT ON AT POLE)



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1. CROSSARM TO BE DESIGNED TO CAUSE NO LIGHTING INTERFERENCE OR SHADOWING FROM ANOTHER LUMINAIRE AND LIGHTING POLE. COORDINATE LUMINAIRE CROSSARM MOUNTING RECOMMENDATIONS WITH LUMINAIRE SUPPLIER.

2. SUPPLY AND INSTALL BIRD RESISTANT FLEXIBLE CONDUIT AND FITTINGS (ATKORE FLEXICON OR APPROVED EQUAL) ON ALL EXPOSED SECTIONS OF LIGHTING CABLE FROM LIGHTING POLE STRUCTURE TO LUMINARIES. THE CONTRACTOR SHALL PROVIDE SUPPORTS TO ALL EXPOSED FLEXIBLE CONDUITS AT MAXIMUM 600mm CENTRES (PLASTIC STRAPS/TIES WILL NOT BE ACCEPTED). ALL FLEXIBLE CONDUIT SHALL ENTER THE POLE STRUCTURE AND CONTINUE MINIMUM 100mm INTO THE STRUCTURE. ALL CONDUIT OPENINGS AND CONDUIT ENTRIES INTO POLE STRUCTURE SHALL BE WEATHERPROOF SEALED.

3. CONCEPT GENERAL ARRANGEMENTS SHOWN ONLY, THE CONTRACTOR SHALL ENSURE SHOP DRAWINGS TO BE SUBMITTED FOR ACCEPTANCE PRIOR TO MANUFACTURE.

4. FINAL EQUIPMENT SELECTION TO BE SUITABLE FOR APPLICATION

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