

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u> | .1 | CSA International
.1 CSA C22.1-12, Canadian Electrical Code, Part 1 (22st Edition), Safety Standard for Electrical Installations.
.2 CSA C22.2 No.179-00(R2005), Airport Series Lighting Cables.
.3 CSA C22.2 No.180-M1983(R2008), Series Isolating Transformers for Airport Lighting. |
| | .2 | Transport Canada / Air Navigation System Requirements Branch
.1 TP 312-1993(R2005), Aerodrome Standards and Recommended Practices. |
| <u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u> | .1 | Submit in accordance with Section 01 33 00. |
| | .2 | Provide written confirmation of compliance with CSA standard CSA C22.2 No.179 and CSA C22.2 No.180. |
| | .3 | Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for airfield lighting, including product characteristics, performance criteria, physical size, finish and limitations. |
| <u>1.3 CLOSEOUT SUBMITTALS</u> | .1 | Submit in accordance with Section 01 78 00. |
| | .2 | Operation and Maintenance Data: submit operation and maintenance data for airfield lighting for incorporation into manual. |
| <u>1.4 MAINTENANCE MATERIAL SUBMITTALS</u> | .1 | Submit extra stock materials in accordance with Section 01 78 00. |
| | .2 | Supply extra material as follows:
.1 One flash head complete.
.2 One power converter complete.
.3 One controller PCB.
.4 One programmer.
.5 Two flashtubes.
.6 One trigger transformer.
.7 One HV rectifier PCB.
.8 One timing & trigger PCB. |
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- 1.4 MAINTENANCE MATERIAL SUBMITTALS
(Cont'd)
- .2 Supply extra material as follows:(Cont'd)
- .9 One set of fuses.
 - .10 Five LED runway edge lights.
 - .11 Two LED threshold lights.
 - .12 Two LED taxiway blue lights.
 - .13 One LED apron entrance yellow lights.
 - .14 Two isolating transformers,
20W/25W-6.6A:6.6A.
 - .15 Six isolating transformers,
10W/15W-6.6A:6.6A.
- 1.5 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
- .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect airfield lighting from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse by manufacturer pallets, crates, padding and packaging materials.

PART 2 - PRODUCTS

- 2.1 SYSTEMS
- .1 Systems: to TP 312.
- .2 Description:
- .1 ODALS: Omni Directional Approach Lighting System at runway ends 10 & 28.
 - .2 Runway edge lighting system including threshold lights.
 - .3 Taxiway edge lighting including apron entrance edge lights.
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- 2.2 PRIMARY CABLES .1 Single conductor stranded soft drawn copper, #8 AWG, 5000 volt, combined cross linked polyethylene insulation and jacket: CSA C22.2 No.179.
- 2.3 PRIMARY PLUG RECEPTACLE CONNECTORS .1 Primary plug and receptacle connector kit, straight type, one male plug, one female plug, for use with isolating transformer or use for separable straight splice of #8 AWG primary cable.
- 2.4 SECONDARY PLUG AND RECEPTACLE CONNECTORS .1 Secondary male plug connector kit; to field assemble secondary extension or terminate fixture lead, using 2 - #12 AWG conductors.
- .2 Secondary female receptacle connector kit; to field assemble secondary extension or repair transformer lead, using 2 - #12 AWG conductors.
- .3 Construction to DOT specification K-255.
- 2.5 ISOLATING TRANSFORMER .1 CSA C22.2 No.180, rated as indicated.
- .1 Use for 5000 volt series circuits.
- 2.6 TRANSFORMER PULLPIT .1 Construction to DOT specification K-303, galvanized metal cover locking type with tabs to centre and prevent side movement.
- .1 450 mm diameter, 600 mm depth for single transformer.
- 2.7 GROUND COUNTERPOISE WIRE .1 Single conductor #8 AWG, soft drawn copper wire:
- .1 Solid bare for direct burial as counterpoise for airfield lighting circuits.
- .2 Stranded with green TW insulation for placing in duct or conduit, as counterpoise for airfield lighting circuits buried beneath hard surfaces, and for power circuit insulated bonding conductors.
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- 2.8 GROUND ROD .1 Copper clad steel 19 mm x 3000 mm long complete with ground connector.
- 2.9 OTHER MATERIAL .1 Cable, secondary:
.1 Two conductor #12, copper, type SOW, cable.
.2 Cable ties: nylon black.
.3 Conductor markers: lamacoid tags 20 mm diameter with width for 15 mm high letters.
.4 Planking, cable protection: 50 x 152 mm timber free from checks, shakes, waness and loose knots, treated with pentachlorophenol wood preservative.
.5 Tape: PVC type:.

PART 3 - EXECUTION

- 3.1 EXAMINATION .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to airport lighting installation.
.1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- 3.2 GENERAL .1 Install Airport Lighting underground circuitry in accordance with Canadian Electrical Code, Part I, CSA C22.1.
- 3.3 PREPARATION .1 Temporary Erosion and Sedimentation Control:
.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to: requirements of authorities having jurisdiction
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- 3.3 PREPARATION .1 (Cont'd)
(Cont'd)
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- 3.4 INSTALLATION .1 Install isolating transformers adjacent to
ISOLATING primary cable trench, at locations indicated:
TRANSFORMERS
- .1 In transformer pullpits
 - .1 Place suitable transformers in pullpits.
 - .2 Make connections to:
 - .1 Primary cable.
 - .2 Edge light secondary cable or FTC controller of ODALS system.
 - .3 Ground counterpoise.
 - .3 Place back cover.
- 3.5 INSTALLATION OF .1 Install transformer pullpits at locations
TRANSFORMER indicated.
PULLPITS
- .1 Excavate to size and depth indicated.
 - .2 Cover bottom of excavation with layer of bedding material.
 - .3 Place pullpit so that cover is 75 mm minimum below adjacent ground surface.
 - .4 Make holes in pullpit wall suitable for tubing used.
 - .5 Install incoming and outgoing tubing and/or conduit.
 - .6 Backfill with washed stone and common backfill material around pullpit and compact to same level and density as adjacent ground as indicated.
 - .7 Place cover on pullpit and lock, turning cover in clockwise rotation.
- 3.6 INSTALLATION OF .1 Install airport lighting primary underground
AIRPORT LIGHTING cables, in accordance with PWGSC Standard
PRIMARY U/G CABLES Drawing number 0000S230P014 as indicated.
- .1 Pull cable in ducts.
 - .2 Make connections using approved connectors as indicated.
 - .1 Leave 600 mm loop of loose cable at each connection, avoid mechanical tension on connector.

- 3.6 INSTALLATION OF .2 (Cont'd)
AIRPORT LIGHTING
PRIMARY U/G CABLES
(Cont'd)
- .3 Install markers on cable identifying circuit numbers in each pullpit.
- 3.7 INSTALLATION OF .1
GROUND COUNTERPOISE
- .1 Install with runs of series lighting primary cables, in trench, duct and/or tubing at locations as indicated:
.1 Use 1 conductor #8 SDBC wire with cables directly buried in trench or in protective tubing:
.1 Place counterpoise wire on top of additional 75 mm layer of bedding material above cables or tubing.
.2 Run counterpoise wire in straight line or in zig-zag pattern as indicated.
- .2 Use 1 conductor #8 stranded with TW green insulation, with cables pulled in ducts and/or tubing under pavement.
- .3 Use appropriate ground connector and connect counterpoise wire to:
.1 Power supply system common ground.
.2 Isolating transformer.
.3 Each ground rod.
.4 Other ground wires in same trench.
.5 Pullpit cover.
- 3.8 INSTALLATION OF .1
SECONDARY CABLES
- .1 Install as indicated:
.1 Place cable in tubing.
- .2 Make connections using approved connectors as indicated.
.1 In series lighting circuits, connect to isolating transformer secondary outlet.
.2 Leave 60 cm loop of loose cable at connection to transformer.
.3 Backfill as indicated and compact to same level and density as adjacent ground.
- 3.9 FIELD QUALITY .1
CONTROL
- Testing requirements:
.1 Assign tests to qualified personnel only.
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- 3.9 FIELD QUALITY CONTROL
(Cont'd)
- .1 (Cont'd)
 - .2 Provide necessary instruments and equipment to demonstrate that:
 - .1 Circuits are continuous, free of short circuits and unspecified grounds.
 - .2 Circuits are connected according to applicable wiring diagrams.
 - .3 Circuits perform designated functions in sequence and manner intended.
 - .4 Resistance to ground of circuits, measured with 5 kV Megger is not less than 100 megohms.
 - .5 Circuits are operable by:
 - .1 Energizing and operating each circuit at each brightness not less than 10 times.
 - .2 Provide Departmental Representative with list of test results indicating:
 - .1 Location at which test was made.
 - .2 Circuit number or designator of circuit tested.
 - .3 Individual test results.
- 3.10 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 00.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00.
 - .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- 3.11 PROTECTION
- .1 Protect installed products and components from damage during construction.
 - .2 Repair damage to adjacent materials caused by airfield lighting system installation.

PART 1 - GENERAL

<u>1.1 REFERENCES</u>	.1	Transport Canada .1 TP 312-1993(R2005), Aerodrome Standards and Recommended Practices.
<u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u>	.1	Submit in accordance with Section 01 33 00.
	.2	Product Data: .1 Submit manufacturer's instructions, printed product literature and data sheets for airfield elevated edge lighting and include product characteristics, performance criteria, physical size, finish and limitations.
	.3	Test Reports: submit certified test reports from established third party testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
<u>1.3 CLOSEOUT SUBMITTALS</u>	.1	Submit in accordance with Section 01 78 00.
	.2	Operation and Maintenance Data: submit operation and maintenance data for airfield elevated edge lighting for incorporation into manual.
<u>1.4 DELIVERY, STORAGE AND HANDLING</u>	.1	Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's written instructions.
	.2	Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
	.3	Storage and Handling Requirements: .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area. .2 Store and protect airfield elevated edge lighting units from nicks, scratches, and blemishes. .3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

- 2.1 PRODUCTS .1 To TP 312-1993(R2005)
- 2.2 MEDIUM INTENSITY ELEVATED LIGHT - SERIES CIRCUIT .1 Light unit - runway edge:
.1 LED type, 20 Watt.
.2 White.
.3 SOW cord assembly with male plug.
.4 Breakable coupling.
.5 Suitable for mounting on 50.8 mm diameter threaded anchor stake coupling.
.6 Isolating transformer 6.6A/6.6A - 20W/25W and as recommended by light manufacturer.
- .2 Light unit - runway threshold/end:
.1 LED type, 12 Watt.
.2 Green/red filters.
.3 SOW cord assembly with male plug.
.4 Breakable coupling.
.5 Suitable for mounting on 50 mm diameter threaded anchor stake coupling.
.6 Isolating transformer 6.6A/6.6A - 10W/15W and as recommended by light manufacturer.
- .3 Light unit - taxiway and apron edge:
.1 LED type, 12 Watt.
.2 Blue
.3 SOW cord assembly with male plug.
.4 Breakable coupling.
.5 Suitable for mounting on 50.8 mm diameter threaded anchor stake coupling.
.6 Isolating transformer 6.6A/6.6A - 10W/15W and as recommended by light manufacturer.
- .4 Light unit - apron entrance edge:
.1 LED type, 12 Watt.
.2 Yellow
.3 SOW cord assembly with male plug.
.4 Breakable coupling.
.5 Suitable for mounting on 50.8 mm diameter threaded anchor stake coupling.
.6 Isolating transformer 6.6A/6.6A - 10W/15W and as recommended by light manufacturer.
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PART 3 - EXECUTION

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| <u>3.1 EXAMINATION</u> | .1 | Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to airfield elevated edge lighting installation.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative. |
| <u>3.2 LIGHT UNIT INSTALLATION</u> | .1 | Remove all existing edge lights as directed by Departmental Representative. |
| | .2 | Install new edge lights at locations indicated or as directed by Departmental Representative. |
| | .3 | Install in accordance with Section 34 43 05 and as indicated:
.1 On conduit anchors. |
| | .4 | Assemble in accordance with manufacturer's written installation instructions.
.1 Connect isolating transformer secondary lead to light unit cord assembly by means of disconnecting plug and receptacle.
.2 Do not tape this connection. |
| | .5 | Level in accordance with manufacturer's written instructions. |
| | .6 | Install coloured filters as indicated. |
| <u>3.3 FIELD QUALITY CONTROL</u> | .1 | Perform field tests in accordance with Section 34 43 05. |

- 3.4 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 00.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00.
 - .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- 3.5 PROTECTION
- .1 Protect installed products and components from damage during construction.
 - .2 Repair damage to adjacent materials caused by airfield elevated edge lighting installation.

PART 1 - GENERAL

<u>1.1 REFERENCES</u>	.1	Transport Canada .1 TP 312-1993(R2005), Aerodrome Standards and Recommended Practices.
<u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u>	.1	Submit in accordance with Section 01 33 00.
	.2	Product Data: .1 Submit manufacturer's instructions, printed product literature and data sheets for omni-directional approach lighting system and include product characteristics, performance criteria, physical size, finish and limitations.
	.3	Shop Drawings: .1 Submit drawings.
	.4	Test Reports: submit certified test reports from established 3rd party testing laboratories confirming TP-312 compliance with specifications for specified performance characteristics and physical properties.
	.5	Field Test Reports: submit test reports relative to work of this Section.
<u>1.3 CLOSEOUT SUBMITTALS</u>	.1	Submit in accordance with Section 01 78 00.
	.2	Operation and Maintenance Data: submit operation and maintenance data for omni-directional approach lighting system for incorporation into manual.
<u>1.4 DELIVERY, STORAGE AND HANDLING</u>	.1	Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's written instructions.
	.2	Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
	.3	Storage and Handling Requirements: .1 Store materials indoors in dry location and in accordance with manufacturer's

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| 1.4 DELIVERY,
STORAGE AND
HANDLING
(Cont'd) | .3 | Storage and Handling Requirements:(Cont'd)
.1 (Cont'd)
recommendations in clean, dry, well-ventilated
area.
.2 Store and protect omni-directional
approach lighting system from nicks,
scratches, and blemishes.
.3 Replace defective or damaged materials
with new. |
| | .4 | Packaging Waste Management: remove for reuse
by manufacturer of pallets, crates, padding
and packaging materials. |

PART 2 - PRODUCTS

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| 2.1 OMNI-
DIRECTIONAL
APPROACH LIGHTING
SYSTEM (ODALS) | .1 | Products to: TP 312. |
| | .2 | Sequenced flashing system consisting of five
Runway Alignment Identifier Lights (RAIL) plus
two simultaneously flashing Runway End
Identifier Lights (REIL), seven power
converter units for connection to 240 V
system, including special cable between light
units and power converter units 5/c
multiconductor, 2#10, 3#14, 600 volts,
shielded, with PVC jacket. |
| 2.2 AIRPORT
LIGHTING
SPECIALIZED
MATERIAL FOR
APPROACH LIGHTING
SYSTEM | .1 | Aluminum tower and accessories in accordance
with Section 34 43 16.39. |
| | .2 | Sequence flashing control cable for
connection between power converter units, 2/C
#12 twisted together, 600 V, TECK 90 direct
buried. |
| | .3 | Power cable, #6 AWG, 1000 V. |
| | .4 | Ground rods in accordance with Section
34 43 05. |
| | .5 | Ground counterpoise wire in accordance with
Section 34 43 05. |

PART 3 - EXECUTION

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| <u>3.1 EXAMINATION</u> | .1 | Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for omni-directional approach lighting system installation in accordance with manufacturer's written instructions.
.1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative. |
| <u>3.2 ODALS</u> | .1 | ODALS Approach Lighting System Layout in accordance with PWGSC standard drawing 0000S237P357 as indicated. |
| | .2 | ODALS Approach Lighting System circuit wiring in accordance with PWGSC standard drawing 00000S237P356 as indicated. |
| <u>3.3 INSTALLATION OF ODALS SYSTEM</u> | .1 | Install power cables in accordance with Section 34 43 05, as a feeder circuit, along route indicated.
.1 Pull cable in duct. |
| | .2 | Install airport lighting primary cable in accordance with Section 34 43 05, as brightness control to controller via isolating transformer as indicated.
.1 At runway ends 10 and 28.
.2 Place cable in PVC duct.
.3 Splice to primary cable in pull-pit of threshold light. |
| | .3 | Install approved isolating transformers, 45 W 6.6A/6.6A for brightness control.
.1 Place in transformer housings as detailed. |
| | .4 | Connect each power converter unit with a 2 conductor #6 AWG cables. |
| | .5 | Install ODALS flashhead and power converter units on aluminum conduit and connect with special 5/C cable in accordance with PWGSC |

- 3.3 INSTALLATION OF ODALS SYSTEM (Cont'd) .5 (Cont'd)
standard drawing number 0000S237P320 as indicated.
- .6 Install ODALS flashhead and power converter units on aluminum tower and connect with special 5/C cable in accordance with PWGSC standard drawing number 0000S237P355 as indicated.
- .7 Install sequence flashing control cable, TECK 90, 2/C #12, between power converter units located at each light unit location.
.1 Bury cable directly in the ground in accordance with Section 26 05 43.01.
- 3.4 INSTALLATION OF GROUNDING .1 Install "copperweld" ground rods at locations and in accordance with PWGSC Standard drawing number 0000S237P355 as indicated.
- .2 Install ground rods as indicated.
- .3 Install 1 conductor #8 SDBC wire (counterpoise) and make connections to ground rods, transformer lugs, column ground anchors, tower grounding lugs using suitable ground connectors.
- 3.5 ADJUSTMENT .1 Align units to ensure their location and elevation are in accordance with TP 312 as indicated.
- .2 Assist in flight test of complete system as arranged by Departmental Representative.
- 3.6 FIELD QUALITY CONTROL .1 Perform field tests in accordance with Section 34 43 05.
- 3.7 CLEANING .1 Progress Cleaning: clean in accordance with Section 01 74 00.
.1 Leave Work area clean at end of each day.
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- 3.7 CLEANING
(Cont'd)
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00.
 - .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- 3.8 PROTECTION
- .1 Protect installed products and components from damage during construction.
 - .2 Repair damage to adjacent materials caused by airfield ODALS equipment installation.

PART 1 - GENERAL

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| 1.1 ACTION AND
INFORMATIONAL
SUBMITTALS | .1 | Submit in accordance with Section 01 33 00. |
| | .2 | Product Data:
.1 Submit manufacturer's instructions,
printed product literature and data sheets for
aluminum tower assembly and include product
characteristics, performance criteria,
physical size, finish and limitations. |
| | .3 | Shop Drawings:
.1 Submit drawings. |
| 1.2 DELIVERY,
STORAGE AND
HANDLING | .1 | Deliver, store and handle materials in
accordance with Section 01 61 00 and with
manufacturer's written instructions. |
| | .2 | Delivery and Acceptance Requirements: deliver
materials to site in original factory
packaging, labelled with manufacturer's name
and address. |
| | .3 | Storage and Handling Requirements:
.1 Store materials in accordance with
manufacturer's recommendations in clean, dry,
well-ventilated area.
.2 Store and protect tower assembly from
nicks, scratches, and blemishes.
.3 Replace defective or damaged materials
with new. |

PART 2 - PRODUCTS

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| 2.1 AIRPORT
LIGHTING
SPECIALIZED
MATERIALS | .1 | Aluminum alloy tower in accordance with PWGSC
standard drawing number 0000S237P310 , and
number 0000S237P311 as indicated, complete
with accessories.
.1 Height as indicated. |
| 2.2 ACCESSORIES | .1 | Anchor bolts: in accordance with PWGSC
standard drawing number 0000S237P311, as
indicated. |
| | .2 | Concrete form: cylindrical, spirally wound
laminated fiber, internally treated with |

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| <u>2.2 ACCESSORIES
(Cont'd)</u> | .2 | Concrete form:(Cont'd)
release agent, for tower footings of diameter indicated:
.1 On approach lighting detail drawing.
.3 Concrete and backfill requirements: in accordance with Section 03 30 00 and 31 23 33.
.4 Support bracket for power converter, including horizontal bars and mounting hardware. |
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PART 3 - EXECUTION

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| <u>3.1 REMOVAL OF
EXISTING APPROACH
LIGHTING SYSTEMS</u> | .1 | Remove existing approach lighting systems on both runway ends including lights, towers, columns, concrete foundations and cables.
dispose concrete foundations off site. |
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| <u>3.2 EXAMINATION</u> | .1 | Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for aluminum tower installation in accordance with manufacturer's instructions.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval from Departmental Representative. |
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| <u>3.3 CONCRETE
FOOTINGS
INSTALLATION</u> | .1 | Excavate required size and depth and install concrete footings for mounting aluminum towers.
.1 Build footing to diameter as indicated on detail drawing.
.2 Construct footing to elevation, length and depth indicated on approach lighting site drawing.
.3 In solid rock, drill holes and install dowels as indicated on detail drawing.
.4 Install 50 mm polyethylene tubing as indicated on PWGSC standard drawing number 0000S237P311, PVC elbow or 90 degrees bend |
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| <u>3.3 CONCRETE
FOOTINGS
INSTALLATION
(Cont'd)</u> | .1 | (Cont'd) |
| | .4 | (Cont'd) |
| | | within concrete footing and PVC/poly adapters to connect outside footing. |
| | .5 | Align and set anchor bolts firmly in position in accordance with manufacturer's written instructions. |
| | .6 | Pour concrete in clean dry hole. |
| | .7 | Allow curing period of 7 days minimum before starting erection of towers. |
|
<u>3.4 ALUMINUM TOWER
INSTALLATION</u> | .1 | During concrete curing period, assemble each aluminum tower to height indicated and profile in accordance with manufacturer's written instructions and in accordance with PWGSC standard drawing number 0000S237P310 as indicated. |
| | .2 | Install hardware for mounting of specified light units on tower top as indicated. |
| | .3 | Erect assembled aluminum tower on concrete footings to height and location indicated. |
| | .1 | Mount tower on anchor bolts. |
| | .2 | Place galvanized washers and nuts above and below aluminum tower base in accordance with PWGSC standard drawing number 0000S237P310, as indicated. |
| | .3 | Make final adjustment ensuring that overall tower is plumb in vertical and horizontal planes. |
| | .4 | Tighten nuts above base firmly in accordance with manufacturer's written recommended torque. |
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<u>3.5 ALIGNMENT OF
TOWERS</u> | .1 | Set towers plumb in vertical and horizontal planes. |
| | .2 | Ensure towers are aligned in straight rows, transversely and longitudinally. |
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<u>3.6 CLEANING</u> | .1 | Progress Cleaning: clean in accordance with Section 01 74 00. |
| | .1 | Leave Work area clean at end of each day. |
| | .2 | Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00. |

- 3.7 PROTECTION
- .1 Protect installed products and components from damage during construction.
 - .2 Repair damage to adjacent materials caused by aluminum tower assembly and erection.

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u> | .1 | CSA C22.2 No9-08 Luminaires. |
| | .2 | Transport Canada |
| | .1 | TP312E-1993(R2005), Aerodrome Standards and Recommended Practices. |
| <u>1.2 SHOP DRAWINGS AND PROJECT DATA</u> | .1 | Submit shop drawings in accordance with Section 01 33 00. |
| | .2 | Submissions should indicate vertical and horizontal beam spreads, beam lumens, beam efficiency and complete photometric data as shown in laboratory tests. |

PART 2 - PRODUCTS

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| <u>2.1 GENERAL</u> | .1 | Floodlights to be in conformance with CSA C22.2 No9. |
| <u>2.2 ELECTRIC DISCHARGE TYPE</u> | .1 | Lamp: 1000 watts, 208 volts, high pressure sodium. |
| | .2 | Horizontal beam spread: as required. |
| | .3 | Vertical beam spread: as required, cut-off. |
| | .4 | Cast aluminum housing. |
| | .5 | Canopy protecting, front lense. |
| | .6 | Integral quartz halogen re-strike lamp: 250 Watt. |
| | .7 | Visor or louvre to eliminate upward component of light. |
| | .8 | Bracket for wall mounted. |
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2.3 LIGHTING CONTROL .1 Intergrated photo-cell control device. Turn on setting 300 lux and turn off setting 600 lux.

PART 3 - EXECUTION

3.1 INSTALLATION .1 Install floodlights to manufacturer's instructions and as indicated.

.2 Aim and align energized floodlights as indicated during darkness and in Airport Manager's presence.

.3 Lock floodlights in final aiming position after Airport Manager's approval.

3.2 CONTROLS .1 Mount photo-cell control devices as indicated with sensing eye facing the north sky.