The Project Manual is bound in three separate volumes as follows:

Volume 1:	Project Specifications, Division 00 to Division 19
Volume 2:	Project Specifications, Division 20 to Division 29
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VOLUME 1

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

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PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials and installation for steel lighting poles.

.2 Architectural concrete bases.

1.2 RELATED REQUIREMENTS

.1 Section 03 30 00 – Cast-in-Place Concrete.

.2 Section 26 27 26 – Wiring Devices: receptacles at pole bases.

.3 Section 26 56 19 – LED Exterior Lighting.

.4 Section 28 20 00 – Video Surveillance: CCTV camera brackets.

.5 Section 31 23 00 – Excavation and Fill.

1.3 REFERENCES

.1 CSA Group:

.1 CSA C22.2 No. 206-17, Lighting poles.

1.4 COORDINATION

.1 Ensure shop drawings are submitted promptly to ensure adequate time for the Consultant's review and to permit timely release of anchor bolts.

.2 Coordinate the installation of all light poles with the work of other trades. This includes but is not limited to placement of poles in conjunction with civil work such as sidewalks, roadways, parking lots, landscaping and building exteriors.

1.5 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00.

.2 Product Data: For each pole, accessory, luminaire-supporting and lowering device, arranged as indicated on the plans and as required.

.1 Include data on construction details, profiles, effective projected area (EPA), cable entrances, materials, dimensions, weight, rated design load, and ultimate strength of individual components.

.2 Include finishes for lighting poles and luminaire-supporting devices.

.3 Anchor bolts.

.4 Manufactured pole foundations.

.5 Manufacturer cut sheets indicating pole catalog number selections with highlighted selections. Include pole designations that match the project designations if applicable.

.6 All distinct poles required on the project shall be submitted in one single submittal so all poles can be reviewed at one time.

.3 Shop Drawings:

.1 Anchor-bolt templates keyed to specific poles and certified by manufacturer.

.2 Include plans, elevations, sections, and mounting and attachment details.

.3 Include details of equipment assemblies, indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

.4 Detail fabrication and assembly of poles and pole accessories.

.5 Foundation construction details, including material descriptions, dimensions, anchor bolts, support devices, and calculations, signed and sealed by a professional engineer licensed in the jurisdiction of the project site.

.6 Method and procedure of pole installation. Include manufacturer's written installation instructions.

.4 Delegated Design Submittals:

.1 Soil test report prepared by a Geotechnical Engineer licensed in the jurisdiction of the project site.

.2 Provide pole base details using the submitted poles and luminaires, sealed by a Structural Engineer licensed in the jurisdiction of the project site.

.3 Contractor is responsible for hiring geotechnical and structural engineers as part of base bid.

1.6 CLOSEOUT SUBMITTALS

.1 In accordance with Section 01 78 00.

.2 Include soil reports and sealed base details in O&M manual.

.3 Reviewed shop drawings.

.4 Warranty documentation.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Protect products from moisture and dust by storing them in a clean, dry location remote from areas involved in construction operations. Provide additional protection in accordance with manufacturer's instructions.

.2 Store poles on decay-resistant skids at least 305 mm (12 in) above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.

.3 Retain factory-applied pole wrappings on metal poles until immediately before pole installation. Handle poles with web fabric straps.

.4 Protect pole finishes prior and during install by applying a strippable, temporary protective covering as required.

1.8 WARRANTY

.1 Special Warranty: Manufacturer agrees to repair or replace components of pole(s) that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within a specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs from special warranty period.

.1 Warranty Period: Five (5) years from date of Substantial Completion.

.2 Warranty Period for Corrosion Resistance: Five (5) years from date of Substantial Completion.

.3 Warranty Period for Colour Retention: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ARCHITECTURAL CONCRETE BASES

.1 Manufacturers:

.1 Manufacturer list:

.1 ArtFORMS International Inc. (basis of design).
Tel: 905 642-3225, Fax: 905-642-3227,
Email: ArtFORMS@ArtFORMSConcreteBases.com.

.2 Substitution limitations:

.1 Equivalent architectural precast concrete luminaire pole base by Utility Structures Inc.

.2 Provide bases in styles, sizes, and profiles indicated. Depth of bases to be in accordance with Structural Engineer's detail.

.3 Cast-in-place architectural concrete base (basis of design):

.1 Use single-use Concrete Forms.

.2 Provide cast-in-place architectural concrete bases for lighting poles, bollards, floodlights, flagpoles, signs, columns fence posts, and other applications as noted.

.3 Self-locking, vandal-resistant, wraparound aluminum colour accent band around finished bases, where indicated.

2.2 PAINTED GALVANIZED STEEL POLES

.1 Galvanized steel poles: to CSA C22.2 No. 206 designed for underground wiring and:

.1 Suitable for mounting on concrete anchor base.

.2 Monotube style, minimum 3.0 mm thick, straight or tapered, round or square as indicated.

.3 Access handhole 300 mm (12 inches) above pole base for wiring connections, with welded-on reinforcing frame and bolted-on cover.

.4 Galvanized anchor bolts complete with galvanized double nuts and galvanized washers, and plastic bolt covers.

.5 Two lugs: one for grounding and one for bonding.

.6 Two-piece aluminium base cover to suit pole.

.7 Manufacturer's standard flat pole cap.

.8 For poles noted with other services including CCTV cameras or other extra low voltage equipment, provide a conduit or suitable voltage divider in the pole.

.9 Effective Projected Area (EPA) rating to meet or exceed the requirement of luminaires, mounting brackets, etc.

.10 Finishes:

.1 Polyester powder coat finish.

.11 Manufacturer's nameplate indicating manufacturer's name, model number of pole, and date of manufacture with a permanent, stamped/printed or engraved label.

.2 Manufacturers:

.1 Aluminous Lighting Products.

.2 Dynapole.

.3 LSI Industries.

.4 Lumec.

.5 Polefab.

.6 Spina.

.7 Valmont West Coast Engineering.

2.3 POLE ACCESSORIES

.1

.2 Duplex Receptacle: Only where required of particular project scope, a 120 V, 15 A, specification grade receptacle in a weatherproof assembly complying with Section 26 27 26, ground-fault circuit-interrupter type.

.1 Surface mounted, a minimum of 300 mm (12 inches) above finished grade, or at the height indicated on the plans.

.2 Nonmetallic polycarbonate, weatherproof, while-in-use cover.

.3 With cord opening allowing for use while the cover is pad locked.

2.4 LUMINAIRE MOUNTING BRACKETS

.1 Mounting brackets for specified luminaires:

.1 Single, twin, and quad brackets as indicated.

2.5 LUMINAIRES

.1 In accordance with Section 26 56 19.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

.2 Examine poles, luminaire-mounting devices, lowering devices, and pole accessories before installation. Components that are scratched, dented, marred, wet, moisture damaged, or visibly damaged are considered defective.

.3 Examine roughing-in for foundation and conduit to verify actual locations of installation.

.4 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 BASE INSTALLATION

.1 Install specified below-grade fiber form, reinforcing steel, ducts, etc. to required grade.

.2 Place form on top of empty fiber form. Position vertical seams in desired direction.

.3 Pour specified concrete through open top of form into fiber form below. Avoid contact with inside surface. Bring concrete to top of formwork.

.4 Mechanically vibrate concrete with small vibrator, and vigorously hand tap outside surface of formwork.

.5 Place and centre anchor bolt assembly (or post, etc.) into concrete. Trowel-finish top surface of concrete.

.6 Reinforce bases with vertical steel reinforcing rods and horizontal steel reinforcing ties as noted on the drawings.

.7 Coordinate installation of conduit at bases for lighting poles, bollards, floodlights, and signs.

.8 Cast and cure bases in accordance with requirements of Section 03 30 00.

.9 Install self-locking, vandal-resistant, wraparound aluminum colour accent band around finished bases, where indicated.

.10 Base Stripping:

.1 Strip concrete form within 24 hours of pouring of base.

.2 Cut steel bands. Strip form in two halves. Pry open at the two vertical seams with flat-bladed hand-tool e.g. ice-scraper or square-nose shovel. Insert blade and separate form at top, middle, and bottom of first seam. Repeat for second seam.

.3 Wire brush any traces of form material remaining on finished concrete base.

.4 Use rubbing stone to make smooth any rough concrete edges around top of base and along vertical seams.

.5 If there is risk of damage by construction equipment to exposed base, protect base by tie-wiring or duct taping the two formwork halves back in place around base until safe to remove protection.

.6 Install colour accent band(s), where applicable, in horizontal reveal(s) around finished base.

3.3 POLE INSTALLATION

.1 Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.

.2 Raise and set poles using web fabric slings (not chain or cable) at locations indicated by manufacturer.

.3 Install poles true and plumb, complete with brackets in accordance with manufacturer's instructions.

.4 Mount standards on bases plumb and true utilizing shims as required and then securely anchor standards to anchor bolts. Touch up all chips and scratches on poles upon completion.

.5 Provide label on each pole to allow for individual identification of each pole, minimum 125 mm (5 inch) text height of contrasting colour to that of pole finish, installed at approximately 3048 mm (10 feet) above finished grade.

.6 Install luminaires on pole.

.7 Check luminaire orientation, level, and tilt.

.8 Connect luminaires to lighting circuits.

END OF SECTION