STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	87 N-0275-01	2001	12	18

K. AERIAL SPLICE BOX

THE CONTRACTOR SHALL FURNISH AND INSTALL AERIAL ENCLOSURES FOR SPLICING OVERHEAD COMMUNICATION CABLE. SPLICED ENCLOSURES SHALL BE OF POLYETHYLENE CONSTRUCTION AND BE CAPABLE OF ACCOMMODATING UP TO A 12-PAIR CABLE. THE ENCLOSURE SHALL PROVIDE EASY ACCESS TO AERIAL CABLE, WHILE PROVIDING WEATHER PROTECTION FOR THE SPLICE. NO AERIAL SPLICE BOXES SHALL BE INSTALLED AT LOCATIONS THAT CANNOT BE ACCESSED BY A MAINTENANCE TRUCK, OR THAT REQUIRE THE CLIMBING OF A POLE FOR SERVICE.

THE ENCLOSURE SHALL HAVE THE FOLLOWING OVERALL MAXIMUM EXTERIOR DIMENSIONS: 760 mm LONG, 250 mm HIGH, AND 100 mm WIDE. MINIMUM DIMENSIONS OF 400 mm LONG, 150 mm HIGH, AND 85 mm WIDE SHALL BE PROVIDED FOR THE INTERIOR COMPARTMENT.

THE ENCLOSURE COVER SHALL BE CAPABLE OF EASY REMOVAL FOR SPLICING THE COMMUNICATION CABLE AND EASILY STORED FOR TYPICAL MAINTENANCE ACTIVITY, SUCH AS REPLACEMENT OF INTERIOR TERMINATION BLOCKS OR CABLE DIAGNOSTICS.

ALL COMMUNICATION CABLE CONDUCTORS SHALL BE ACCOMMODATED ON TERMINATION BLOCKS PROVIDED WITHIN THE ENCLOSURE. THE AERIAL ENCLOSURE SHALL BE CAPABLE OF BEING INSTALLED WHILE ENCLOSING THE OVERHEAD SUPPORTING MESSENGER STRAND. ONCE INSTALLED, THE ENCLOSED MESSENGER STRAND AND COMMUNICATION CABLE SHALL APPEAR AS ONE UNIT UNDER THE SPLICE COVER.

BONDING AND GROUNDING OF THE SPLICE ENCLOSURE SHALL BE ACCOMPLISHED THROUGH ATTACHMENT TO THE MESSENGER SUPPORT STRAND.

CABLE BINDING POSTS SHALL BE CONFIGURED TO ALLOW UP TO THREE-WIRE CONDUCTORS EACH.

VII. TRAFFIC SIGNAL HEADS

A. INSTALLATION: SIGNAL HEADS SHALL NOT BE INSTALLED AT ANY INTERSECTION UNTIL ALL OTHER SIGNAL EQUIPMENT, INCLUDING THE CONTROLLER, IS IN PLACE AND READY FOR OPERATION AT THAT INTERSECTION, EXCEPT THAT THE SIGNAL HEADS MAY BE MOUNTED IF THE FACES ARE NOT DIRECTED TOWARD TRAFFIC OR IF THE FACES ARE COMPLETELY COVERED. IN NO CASE SHALL THE HEADS BE INSTALLED MORE THAN 10 DAYS PRIOR TO THE SIGNAL TURN-ON. THE ENGINEER SHALL DIRECT THE FINAL POSITIONING OF THE SIGNAL HEADS FOR OPTIMUM VISIBILITY. VERTICAL BRACKET AND PEDESTAL MOUNTED TRAFFIC SIGNAL HEADS SHALL BE INSTALLED AT A HEIGHT OF 3 m FROM THE BASE OF POLE TO THE BOTTOM OF SIGNAL HEAD UNLESS OTHERWISE SPECIFIED IN THE PLANS. MAST ARM MOUNTED SIGNAL HEADS SHALL BE INSTALLED AT A HEIGHT OF 5 m TO 6 m FROM THE PAVEMENT TO THE BOTTOM OF SIGNAL HEAD.

TYPE II SIDE-OF-POLE PEDESTRIAN SIGNAL BRACKET TO BE MOUNTED ON BACK SIDE OF POLE 135 DEGREES CLOCKWISE FROM MAST ARM OR AS SHOWN ON THE PLANS.

B. BRACKET MOUNTING: BRACKETS CLAMPS, ETC., SHALL BE FURNISHED IN ACCORDANCE WITH THE DETAILS ON THE PLANS AND/OR ITEMS LISTED IN THE BILL OF MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE TO ADVISE THE SUPPLIER OF THE EXACT INTENT OF THE PLANS WITH REGARD TO PROPOSED SIGNAL MOUNTING COMBINATIONS AND THEIR CORRESPONDING SIGNAL OPERATIONS AND SIGNAL HEAD TYPES AS WELL AS THE REQUIREMENTS FOR OTHER APPURTENANCES SUCH AS CABINETS OR SIGNS. IN THIS MANNER IT IS INTENDED THAT ALL FITTINGS, SPACERS, BOLTS, CLAMPS, BUCKLES, ETC, SHALL BE FURNISHED IN SUFFICIENT QUANTITY TO EFFECT THE COMPLETE MOUNTING OF ALL SIGNAL HEADS AND APPURTENANCES WHETHER OR NOT EACH INDIVIDUAL ELEMENT IS DELINEATED OR ITEMIZED ON THE PLANS.

1. BRACKET ASSEMBLIES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A. CONSTRUCTION SHALL BE FROM MALLABLE IRON OR ALUMINUM.

B. PROVISIONS SHALL BE MADE FOR ACCEPTING AND DIRECTING WIRE FEEDS COMING FROM INSIDE THE SIGNAL SUPPORT POLE OR ARM

C. ALL BRACKETS SHALL BE SHOP PAINTED.

C. MAST-ARM MOUNTING: MAST-ARM SIGNAL HEAD ASSEMBLIES SHALL BE RIGID MOUNTED. THE ASSEMBLY SHALL CONSIST OF BOTH TOP AND BOTTOM BRACKETS AND BE EASILY AND COMPLETELY ADJUSTABLE IN BOTH HORIZONTAL AND VERTICAL PLANES. THE TOP AND BOTTOM BRACKETS SHALL HAVE 72 TOOTH SERRATIONS CAST INTO THE ARM TO ASSURE A POSITIVE LOCK WITH THE SIGNAL HOUSING. THE MAST ARM SIGNAL BRACKET SHALL BE CONSTRUCTED OF A HIGH STRENGTH ALUMINUM. IT SHALL HAVE A MINIMUM OPENING OF 37 mm TO COMPLETELY ENCLOSE THE SIGNAL WIRING. THE BRACKET SHALL ACCOMMODATE THE NUMBER AND SIZE OF SIGNAL HEADS AS SHOWN ON THE PLAN. IT SHALL BE ATTACHED TO THE SIZE AND SHAPE OF THE MAST ARM SUPPLIED BY MEANS OF STEEL BANDS.

D. BACKPLATES: WHERE SHOWN ON THE PLAN, 125 mm BACKPLATES SHALL BE FURNISHED AND ATTACHED TO THE SIGNAL FACES TO PROVIDE A DARK BACKGROUND FOR SIGNAL INDICATIONS. BACKPLATES SHALL BE CONSTRUCTED OF DURABLE PLASTIC ABLE TO WITHSTAND A 160 km/h WIND.

E. VEHICLE AND PEDESTRIAN TRAFFIC SIGNAL HEADS

1. ASSEMBLY: EACH SIGNAL HEAD SHALL BE A WEATHERTIGHT ASSEMBLY OF ONE OR MORE SIGNAL FACES OF THE EXPANSIBLE, ADJUSTABLE, INCANDESCENT TYPE, TOGETHER WITH ALL BRACKETS AND FITTINGS NECESSARY FOR PROPER MOUNTING WITH THE TYPE OF SIGNAL SUPPORT DESIGNATED ON THE PLAN. EACH SIGNAL FACE SHALL CONSIST OF ONE OR MORE SIGNAL SECTIONS, RIGIDLY AND SECURELY FASTENED TOGETHER, POSITIVELY POSITIONED TO CONTROL THE MOVEMENT OF ONE DIRECTION OF TRAFFIC. EACH SIGNAL SECTION SHALL BE A SELF-CONTAINED ASSEMBLY CONSISTING OF AN OPTICAL UNIT WITH HOUSING, HOUSING DOOR, AND VISOR. TIE RODS SHALL NOT BE USED TO FASTEN SIGNAL SECTIONS TOGETHER TO FORM A SIGNAL FACE. ALL SIGNAL HEADS ON A PROJECT SHALL BE THE PRODUCT OF ONE MANUFACTURER, EXCEPT FOR PROGRAMMED HEADS. TERMINAL BLOCKS OF SUITABLE SIZE SHALL BE PLACED IN THE BOTTOM SECTION OF THE SIGNAL HEAD, EXCEPT IN THE CASE OF MAST ARM SUSPENDED SIGNAL HEADS, WHEREIN THE TERMINAL BLOCK SHALL BE PLACED IN THE TOP SECTION.

2. HOUSING: THE HOUSING FOR EACH SIGNAL SECTION SHALL BE MADE OF A DURABLE POLYCARBONATE. IT SHALL BE CLEAN, SMOOTH, AND FREE FROM FLAWS, CRACKS, BLOWHOLES, AND OTHER IMPERFECTIONS. THE HOUSING SHALL BE BLACK WITH BLACK DOORS. IT SHALL BE DESIGNED AS A SELF-CONTAINED UNIT FOR SEPARATE MOUNTING OR INCLUSION IN A SIGNAL FACE CONTAINING TWO OR MORE SIGNAL SECTIONS RIGIDLY AND SECURELY FASTENED TOGETHER. IT SHALL BE EQUIPPED WITH ROUND OPENINGS IN THE TOP AND BOTTOM AND SHALL HAVE 72 TOOTH SERRATIONS TO ASSURE A POSITIVE LOCK BETWEEN SIGNAL HEADS AND BRACKETS AND ALLOW POSITIONING OF THE TRAFFIC SIGNAL HEADS IN INCREMENTS OF 5 DEGREES. THE DOORS SHALL BE SUITABLY HINGED AND HELD SECURELY TO THE BODY OF THE HOUSING BY SIMPLE STAINLESS STEEL LOCKING DEVICES. ALL OTHER DOOR PARTS SUCH AS HINGE PINS, LENS CLIPS, SCREWS, ETC. SHALL ALSO BE OF STAINLESS STEEL MATERIAL. A NEOPRENE OR SILICON GASKET SHALL BE USED BETWEEN THE LENS AND REFLECTORS TO EXCLUDE DUST AND MOISTURE.

3. VISORS: THE VISORS FOR EACH SIGNAL SECTION SHALL BE A DURABLE POLYCARBONATE NOT LESS THAN 1 mm (NO. 18 U.S. GAUGE) IN THICKNESS. IT SHALL BE DESIGNED TO FIT TIGHTLY AGAINST THE DOOR BY MEANS OF FOUR FASTENING SCREWS AND SHALL NOT PERMIT ANY PERCEPTIBLE FILTRATION OF LIGHT BETWEEN IT AND THE HOUSING DOOR. VISORS SHALL BE AT LEAST 240 mm LONG FOR ALL 300 mm DIAMETER SIGNALS, SHALL ANGLE SLIGHTLY DOWNWARD, AND SHALL BE OF THE TUNNEL TYPE; PEDESTRIAN HEAD VISORS MAY BE OF THE EGGCRATE TYPE WITH A DEPTH OF 38 mm AND A THICKNESS OF 0.8 mm. THE OPTICAL UNIT AND VISOR SHALL BE DESIGNED AS A WHOLE SO AS TO ELIMINATE OUTSIDE RAYS ENTERING THE UNIT FROM ABOVE THE HORIZONTAL. ALL VISORS SHALL BE BLACK.

4. LENSES: LENSES SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE EQUIPMENT AND MATERIALS STANDARDS OF THE INSTITUTE OF TRANSPORTATION ENGINEERS-VEHICLE TRAFFIC CONTROL SIGNAL HEADS. LENSES SHALL BE GLASS UNLESS OTHERWISE STATED IN THE PLANS. LETTERING SHALL NOT APPEAR ON LENSES. NOMINAL 300 mm DIAMETER SIGNAL LENSES SHALL BE FURNISHED FOR VEHICLE SIGNALS.

5. ARROW LENSES: ARROW LENSES SHALL CONSIST OF AN ARROW INDICATION DESIGNED TO MEET THE LATEST EDITION OF THE INSTITUTE OF TRANSPORTATION ENGINEERS' SPECIFICATION 9.00 "VEHICLE TRAFFIC CONTROL SIGNAL HEADS" FOR A 300 mm LENS. DULL OR DARK GRAY ENAMEL SHALL BE APPLIED TO THE CONVEX SURFACES OF THE LENS IN SUCH A MANNER THAT WHEN IN USE THE ARROW WILL BE THE ILLUMINATED PORTION OF THE LENS. THE ENAMEL SHALL BE OF A THICKNESS SUFFICIENT TO TOTALLY HIDE THE LIGHT FROM A 150 WATT LAMP PLACED BEHIND IT AND SHALL BE BAKED OR FIRED INTO THE GLASS OR PERMANENTLY BONDED TO THE POLYCARBONATE RESIN. THE ENAMEL SHALL BE HARD AND DURABLE AND SHALL NOT PEEL OR FLAKE. AN ARROW SHIELD MAY BE SUBSTITUTED.

6. PEDESTRIAN LENSES: PEDESTRIAN SYMBOL LENSES SHALL BE RECTANGULAR WITH A SIDE DIMENSION OF 300 mm IF TWO PIECES OR WITH DIMENSIONS OF 475 mm WIDE BY 475 mm HIGH IF ONE PIECE. THEY SHALL BE OF A MOLDED PRISMATIC GLASS OR POLYCARBONATE NOT LESS THAN THE AREA OF THE DON'T WALK OR WALK SYMBOL. THE PEDESTRIAN SYMBOLS SHALL BE 225 mm HIGH. THE DON'T WALK SYMBOL SHALL BE IN PORTLAND ORANGE, AND THE WALK SYMBOL IN LUNAR WHITE. THE INDICATIONS SHALL BE FORMED ON THE LENSES IN THE SAME MANNER AS SPECIFIED FOR ARROWS. THE DON'T WALK AND WALK SYMBOLS SHALL BE LEGIBLE TO ANYONE WITH NORMAL VISION AT ALL DISTANCES FROM 3 m TO THE FULL WIDTH OF THE AREA TO BE CROSSED.

7. REFLECTORS: REFLECTORS SHALL BE MOUNTED IN THE HOUSING. A REFLECTOR MOUNTING IS TO BE PROVIDED ON NONCORROSIVE MATERIAL, SO ARRANGED THAT THE REFLECTOR CAN BE EASILY REMOVED OR SWUNG OUT OF THE HOUSING IN ORDER TO MAINTAIN ANY NECESSARY WIRING. THE METHOD OF MOUNTING AND FASTENING SHALL BE SUFFICIENTLY RIGID TO SECURE PROPER ALIGNMENT BETWEEN THE LENS AND REFLECTOR WHEN THE DOOR IS CLOSED. ALUMINUM REFLECTORS SHALL BE PROVIDED MEETING THE REQUIREMENTS OF THE LATEST EDITION OF THE EQUIPMENT AND MATERIALS STANDARDS OF THE INSTITUTE OF TRANSPORTATION ENGINEERS-VEHICLE TRAFFIC CONTROL SIGNAL HEADS. METALIZED POLYCARBONATE REFLECTORS MAY BE USED AS AN ACCEPTABLE ALTERNATE.

8. LAMP SOCKET: THE LAMP SOCKET SHALL BE MADE OF MOLDED PHENOLIC. IT SHALL BE SO MANUFACTURED THAT IT WILL BE IMPOSSIBLE FOR THE LAMP TO LOOSEN DUE TO VIBRATION. THE LAMP SOCKET SHALL BE OF THE FIXED FOCUS TYPE AND IT SHALL BE POSSIBLE TO ROTATE THE LAMP SOCKET ABOUT ITS AXIS IN ORDER TO POSITION THE OPENING OF THE LAMP FILAMENT. IT SHALL BE POSSIBLE TO ROTATE THE LAMP AND SOCKET WITHOUT THE USE OF TOOLS. 300 mm DIAMETER SIGNALS SHALL ACCOMMODATE TRAFFIC SIGNAL LAMPS WITH A 75 mm FOCAL LENGTH.

9. WIRING: WIRING FOR EACH LAMP RECEPTACLE SHALL BE PROVIDED BY COLOR CODED NO. 18 GAUGE LEAD WIRES WITH POLYVINYL CHLORIDE INSULATION AND A NYLON JACKET. WIRES SHALL BE OF SUFFICIENT LENGTH TO EXTEND TO THE TERMINAL BLOCK WITH THE REFLECTOR FULLY OPEN WITHOUT SPLICING.

10. LAMPS LAMPS FOR VEHICULAR AND PEDESTRIAN SIGNALS SHALL MEET THE FOLLOWING REQUIREMENTS:

A. 300 mm SIGNALS

A NOMINAL 135 WATT, 120 VOLT, A21 CLEAR TRAFFIC SIGNAL LAMP OF 6,000 HOUR LIFE RATING GUARANTEED BY THE MANUFACTURER, TO BE USED IN ALL 300 mm VEHICULAR AND PEDESTRIAN INDICATIONS. LAMPS SHALL BE 80% KRYPTON FILLED WITH HEAT REFLECTION.

B. CANDLEPOWER

ALL TRAFFIC SIGNAL LAMPS MUST MEET BEAM CANDLEPOWER SPECIFICATION OF ITE-1110(1970).

C. MASS SPECTROMETRY ANALYSIS

MASS SPECTROMETRY ANALYSIS TO VERIFY PERCENT KRYPTON SHALL BE PROVIDED WITH CATALOG CUT SHEETS.

TRAFFIC SIGNAL SPECIFICATIONS

PROJECT NUMBER

DRAWN BY: TM	APPROVED BY	REVISED:
DATE: FEB. 98		DATE:

CITY OF WICHITA

DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING DIVISION — SCALE

WM. G. McKINLEY, TRAFFIC ENGINEER