

GENERAL NOTES

FED RD DIVISION	STATE	PROJECT	FISCAL YEAR
5	OHIO	T-4030 (11)	1973

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WILLOUGHBY CITY SIGNALS, LAKE COUNTY
LAK 20/84/640

SCOPE

THE SCOPE OF THESE SPECIFICATIONS SHALL BE THE FURNISHING, INSTALLING AND ACTIVATING OF A COMPLETE TRAFFIC CONTROL SIGNAL SYSTEM AS DETAILED ON THE ACCOMPANYING DRAWINGS.

ALL TRAFFIC SIGNAL LIGHTS AND CONTROL EQUIPMENT AND THE INSTALLATION OF SAME SHALL COMPLY WITH THE STATE OF OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AS IS CURRENTLY IN EFFECT AND SHALL ADDITIONALLY MEET THE REQUIREMENTS AND SPECIFICATIONS OF THE INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION FOR CABLE AND WIRE.

FURTHER, THE CONTRACTOR SHALL COMPLY WITH ALL NATIONAL, STATE, COUNTY AND LOCAL CODES AND REGULATIONS AND ALSO OBSERVE ANY AND ALL REGULATIONS OF THE VARIOUS UTILITIES COMPANIES WHEN WORKING ON OR ADJACENT TO THEIR FACILITIES.

GENERAL

THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT EIGHT (8) SETS OF ALL EQUIPMENT LISTS, WIRING DIAGRAMS, SEQUENCE CHARTS, OPERATING INSTRUCTIONS, MAINTENANCE MANUALS, SPECIAL DIAGRAMS, ALTERATIONS, MODIFICATIONS, DEVICES AND BRACKETS (EACH SET BEING BOUND IN A SINGLE, MANUSCRIPT-TYPE COVER) TO THE ENGINEER FOR HIS APPROVAL PRIOR TO THE COMMENCEMENT OF ANY WORK. TWO SETS, PROPERLY STAMPED AND SIGNED, WILL BE RETURNED TO THE CONTRACTOR.

THE CONTRACTOR SHALL TAKE ALL REASONABLE CARE IN THE REMOVAL OF ANY AND ALL EXISTING SIGNALS, POLES AND CONTROLLERS. ANY EQUIPMENT WHICH IS NOT SUBSEQUENTLY SCHEDULED FOR USE IN THE NEW TRAFFIC SIGNAL SYSTEM, SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF THE CONTROLLER LOCATED AT BEN HUR AVENUE AND VINE STREET.

ALL TESTING OF THE SYSTEM FOR THE PURPOSES OF PROVING THE WORKABILITY OF THE SYSTEM AND ESTABLISHING THE MOST EFFECTIVE TIMING OF THE CONTROLLERS WHICH NECESSITATES THE REMOVAL OF THE SIGNAL SHROUDS SHALL ONLY BE DONE AFTER WRITTEN NOTIFICATION TO THE ENGINEER. SUCH WRITTEN TEST NOTIFICATION SHALL HAVE BEEN DELIVERED INTO THE HANDS OF THE ADDRESSEES AT LEAST TWO (2) WORKING DAYS PRIOR TO THE PROPOSED TEST DATE.

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO SAFEGUARD THE VEHICULAR AND PEDESTRIAN TRAFFIC AND NOT REMOVE OR DISTURB ANY EXISTING SIGNAL DEVICE OR CONTROL UNIT UNTIL ABSOLUTELY NECESSARY TO FACILITATE THE NEW CONSTRUCTION.

PRIOR TO THE REMOVAL OF ANY SIGNAL DEVICE OR CONTROL UNIT BOTH THE MUNICIPAL POLICE DEPARTMENT(S) AND THE ENGINEER SHALL HAVE BEEN NOTIFIED IN WRITING AND THE WRITTEN NOTIFICATION DELIVERED INTO THE HANDS OF THE ADDRESSEES AT LEAST TWO (2) WORKING DAYS IN ADVANCE OF SUCH PROPOSED REMOVAL. SUCH NOTIFICATION SHALL CLEARLY DEFINE THE UNITS TO BE REMOVED AND

ALL NEW SIGNAL LIGHTS SHALL BE AMPLY AND SECURELY COVERED WITH BURLAP, CANVAS OR OTHER APPROVED OPAQUE MATERIAL WHICH SHALL BE MAINTAINED IN PLACE UNTIL SUCH TIME AS THE SYSTEM HAS BEEN PLACED IN ACTUAL SERVICE.

816 SIGNAL POLE

THE POLE ASSEMBLY SHALL CONSIST OF A TAPERED STEEL SHAFT WITH A CAST STEEL BASE, HAND HOLE WITH COVER, WEATHERHEAD FOR THE TOP, POLE TOP CAP, ANCHOR BOLTS AND NUTS.

THE ROUND TAPERED SHAFT SHALL BE FABRICATED FROM A SINGLE PIECE OF SINGLE THICKNESS HOT-ROLLED, OPEN HEARTH STEEL. IT SHALL BE ROLL FORMED, WELDED, SHAPED AND TRIMMED IN SUCH MANNER AS TO RESULT IN A ROUND, TAPERED TUBE WITH A SMOOTH SEAMLESS EXTERIOR AND FINISHED YIELD STRENGTH OF AT LEAST 48,000 PSI.

A HAND HOLE, OF AT LEAST FOUR INCHES BY EIGHT INCHES IN SIZE, COMPLETE WITH WATERTIGHT COVER SHALL BE PROVIDED IN EACH POLE AS SHOWN. THE WATERTIGHT COVER SHALL BE ATTACHED TO THE SHAFT BY MEANS OF A NO. 35 STAINLESS STEEL "CAPTIVE" CHAIN ATTACHED TO THE INSIDE OF BOTH THE COVER AND SHAFT.

A CAST STEEL WIRE INLET OR WEATHERHEAD WITH PROVISIONS FOR THE OVERHEAD WIRING AND WEATHER PROOF CONTROL ENTRANCE, SHALL BE AFFIXED NEAR TO THE TOP OF THE POLE. THE SHAFT SHALL BE COMPLETED WITH A RAIN TIGHT POLE CAP OR TOP, COMPLETE WITH SET SCREWS.

LASTLY, A GROUNDING NUT, SIZED TO RECEIVE A HALF-INCH - 13 UNC STUD OR BOLT, SHALL BE WELDED TO THE INSIDE OF THE SHAFT IN SUCH A LOCATION AS TO BE READILY ACCESSIBLE FROM THE HAND HOLE AND TO THE GROUND WIRE ATTACHMENT.

THE BASE SHALL BE OF CAST STEEL IN ACCORDANCE WITH ASTM SPECIFICATION A-27-58, GRADE 65-35 AND SHALL BE CAST IN ONE PIECE OF SUCH SHAPE, SIZE AND STRENGTH AS TO AMPLY SUPPORT THE SHAFT AND ITS LOADING. THE BASE SHALL TELESCOPE THE SHAFT AT LEAST TWO INCHES, AND BE WELDED CONTINUOUSLY AROUND THE INSIDE AT THE BOTTOM OF THE SHAFT AND CONTINUOUSLY AROUND THE OUTSIDE AT THE TOP OF THE BASE SECTION.

FOUR REMOVABLE ANCHOR BOLT COVERS OF CAST IRON MEETING ASTM SPECIFICATIONS A126-42, CLASS "A", SHALL BE PROVIDED ALONG WITH THE HEX HEAD CAP SCREWS FOR ATTACHING SAME.

WITH THE COMPLETION OF THE POLE FABRICATION, THE POLE AND ALL ITS COMPONENT PARTS SHALL, FOLLOWING ERECTION, BE GIVEN TWO COATS OF AN EPOXY TYPE PAINT (COLOR TO BE AT THE OPTION OF THE ENGINEER) TO A TOTAL DRY THICKNESS OF AT LEAST 4.0 MILS.

IN LIKE FASHION, ALL CONTROLLER BOXES, AND OTHER EQUIPMENT AS DESIGNATED BY THE ENGINEER, SHALL BE EQUALLY FIELD PAINTED.

FOUR HIGH STRENGTH STEEL ANCHOR BOLTS, ALONG WITH BOTH SQUARE MOUNTING NUTS AND HEX LOCKING NUTS, SHALL BE FURNISHED WITH EACH POLE UNIT. EACH BOLT SHALL HAVE A SIX INCH "L" BEND AND BE OF SUCH LENGTH AS TO PROVIDE THE PENETRATION, AS DETAILED, INTO THE CONCRETE BASE. THE ANCHOR BOLTS SHALL BE OF SUCH DIAMETER AS TO MORE THAN AMPLY SUPPORT THE BENDING LOADS TO WHICH THEY WILL BE SUBJECTED. THE BOLTS SHALL BE GALVANIZED TO TWO INCHES INTO THE CONCRETE BASE (6 TO 12 INCHES TOTAL) FOR CORROSION PROTECTION.

PAYMENT FOR ITEM 816 SIGNAL STRAIN POLE OR PEDESTRIAN SUPPORT POLE WILL BE MADE AT THE CONTRACT UNIT PRICE PER POLE OF THE VARIOUS SIZES LISTED IN PLACE, WITH ALL ACCESSORIES COMPLETE AND READY FOR USE.

625 GROUND ROD UNITS

ALL SUPPORT POLES AND CONTROLLER BOXES SHALL BE AMPLY GROUND AS DETAILED ON THE ACCOMPANYING DRAWINGS.

THE GROUND RODS SHALL BE OF WROUGHT IRON IN ACCORDANCE WITH ITEM 625.10 AND AT LEAST ONE INCH IN DIAMETER BY TEN FEET IN LENGTH.

A NO. 4 RHW INSULATED COPPER GROUND WIRE SHALL BE EXOTHERMIC WELDED TO THE TOP OF THE GROUND ROD AND ALL BURNED PORTIONS OF THE GROUND ROD AS WELL AS ALL BARE PORTIONS OF THE GROUND WIRE WELL COATED WITH TWO APPLICATIONS OF AN INSULATING VARNISH.

THE FREE END OF THE GROUND WIRE SHALL THEN BE FED THROUGH THE ENTRANCE CONDUIT, SO PROVIDED IN THE MOUNTING BASE AND ATTACHED TO THE POLE GROUNDING NUT OR CONTROLLER BOX GROUND TERMINAL. THE TWO ENDS OF THE ENTRANCE CONDUIT SHALL THEN BE MADE WATERTIGHT.

816 MESSENGER WIRE

ALL INTERSECTION SIGNAL AND CONTROL CONDUCTORS SHALL BE SUPPORTED BY A GALVANIZED, SEVEN STRAND, STEEL CABLE THREE-EIGHTHS OF AN INCH IN DIAMETER. THE CABLE SHALL HAVE A MINIMUM BREAKING STRENGTH OF 15,400 POUNDS AND MEET THE SPECIFICATIONS OF ASTM SPECIFICATION NUMBER 475-62T FOR EXTRA-HIGH STRENGTH CABLE.

THE ACCESSORY ITEMS FOR USE IN MOUNTING THE MESSENGER WIRE SHALL BE AS DETAILED ON THE ACCOMPANYING DRAWINGS.

EACH MESSENGER WIRE THAT IS SUPPORTING CABLE SHALL BE AFFIXED TO THE STRAIN POLE BY MEANS OF AN ASSEMBLY CONSISTING OF A CLAMP AND CLEVIS WITH ACCESSORY ITEMS, WITH THE CONTROL CONDUCTORS BEING SUSPENDED FROM THE MESSENGER WIRE BY MEANS OF LASHING RODS.

PAYMENT FOR ITEM 816 MESSENGER WIRE, 7 STRAND 3/8" DIAMETER WITH ACCESSORIES WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT IN PLACE, COMPLETED AND READY FOR USE.

625 TRAFFIC SIGNALS

EACH SIGNAL UNIT, WHICH SHALL CONSIST OF ONE OR MORE LENS, SHALL BE SECTIONAL IN CONSTRUCTION, REQUIRING ONE SECTION FOR EACH LENS.

THE UNITS SHALL BE OF THE POLE MOUNTED OR HANGING TYPE AND SHALL INCLUDE ALL THE ACCESSORY PARTS FABRICATED OF THE LATEST CORROSION RESISTANT MATERIALS.

ALL WORK AND MATERIALS SHALL CONFORM TO THE LATEST INSTITUTE OF TRAFFIC ENGINEERS' SPECIFICATIONS.

THE HOUSINGS AND DOORS FOR THE INDIVIDUAL SECTIONS SHALL BE DIE-CAST OF CORROSION-RESISTANT, COPPER-FREE, NON-FERROUS METAL HAVING A MINIMUM OF TENSILE STRENGTH OF 17,000 POUNDS PER SQUARE INCH.

ALL PARTS SHALL BE CLEAN, SMOOTH AND FREE FROM FLAWS, CRACKS, BLOWHOLES AND OTHER IMPERFECTIONS.

THE HOUSING SHALL HAVE INTEGRAL CAST HINGE LUGS LOCATED ON THE LEFT SIDE AND ON INTEGRAL CAST LATCHING BOLT LUG LOCATED ON THE RIGHT SIDE. THE DOOR, LIKEWISE, SHALL HAVE INTEGRALLY CAST HINGE LUGS AND A LATCHING BOLT FORK LUG TO MATCH THE HOUSING LUGS. TWELVE INCH SECTIONS SHALL HAVE TWO INTEGRAL CAST LATCHING BOLT LUGS LOCATED ON THE RIGHT SIDE OF THE CASTING.

THE TOP AND BOTTOM OF EACH LENS SECTION SHALL BE FITTED WITH LOCKING RING ASSEMBLY WITH SEVENTY-TWO SERRATIONS WHICH WILL PERMIT THE ROTATION, ONE SECTION IN RELATION TO THE OTHER, OF EACH SECTION BY FIVE DEGREE INCREMENTS, IN ADDITION, THE OPENINGS OF THE TOP AND BOTTOM SECTIONS SHALL BE ADAPTABLE TO ACCOMMODATE A STANDARD INCH AND ONE HALF BRACKET ARM OR SUSPENSION HARDWARE AS SPECIFIED.

THE DOOR SHALL HAVE AN INTEGRALLY CAST RIM COMPLETELY ENCIRCLING THE LENS OPENING TO PREVENT ANY LIGHT LEAKAGE BETWEEN THE DOOR AND LENS. ALSO, THE INSIDE OF THE DOOR SHALL HAVE CAST THEREIN A GROOVE TO ACCOMMODATE A ONE PIECE NEOPRENE TYPE GASKET FOR A TOTALLY WEATHERPROOF AND DUSTPROOF ASSEMBLY WHEN THE DOOR IS IN THE CLOSED POSITION.

ALL INCIDENTAL PARTS OF THE COMPLETED, READY-TO-MOUNT ASSEMBLY SHALL BE OF STAINLESS STEEL OR OTHER CORROSION RESISTANT MATERIAL.

WHERE THE SIGNAL UNIT IS TO BE OF THE SUSPENDED OR HANGING TYPE, THE COMPLETED ASSEMBLY SHALL ALSO BE EQUIPPED WITH BALANCE ADJUSTORS TO MAINTAIN A VERTICAL UNIT WHEN MOUNTED.

EACH SIGNAL UNIT SECTION SHALL BE FITTED WITH A STANDARD TUNNEL VISOR FABRICATED OF SHEET ALUMINUM WITH A MINIMUM THICKNESS OF FIVE-HUNDREDTHS (0.05) OF AN INCH.

THE VISOR SHALL BE SO DESIGNED TO ENCIRCLE AND FIT TIGHTLY AGAINST THE DOOR AND LENS RIM SO AS TO PREVENT LIGHT FILTRATION BETWEEN THE VISOR AND THE DOOR.

THE VISOR SHALL BE MOUNTED ON THE DOOR WITH AT LEAST FOUR STAINLESS STEEL SCREWS IN SUCH A MANNER AS TO ALLOW THE REMOVAL OF THE VISOR WITHOUT THE TOTAL REMOVAL OF THE SCREWS.

THE LENS SHALL BE TWELVE INCHES IN DIAMETER AS INDICATED ON THE PLANS, AND SHALL BE CAST OF IMPACT RESISTANT GLASS OR OTHER SIMILARLY ABRASIVE AND IMPACT RESISTANT MATERIAL CONFORMING TO THE LATEST I.T.E. SPECIFICATIONS.

THE LENS SHALL BE ENCASED IN AND PROTECTED BY A NEOPRENE GASKET WHICH PROVIDES A DUST SEAL BETWEEN THE DOOR AND THE LENS.

MOUNTING OF THE LENS TO THE DOOR SHALL BE BY MEANS OF STAINLESS STEEL LUGS AND SCREWS.

THE REFLECTOR ASSEMBLY SHALL CONSIST OF A HIGHLY POLISHED SPECULAR ALUMINUM REFLECTOR, DIE-CAST METAL RETAINING RING, LAMP RECEPTACLE AND SPRING-TYPE BAIL FOR HOLDING THE ASSEMBLY TOGETHER.