ITEM 625. POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE CLEVELAND ELECTRIC ILLUMINATING COMPANY AT THE LOCATION INDICATED ON THE SIGNAL PLAN. POWER SUPPLIED SHALL BE 120 VOLTS. POWER SERVICE SHALL INCLUDE A 2" CONDUIT RISER AND A SEPARATE AND INDIVIDUAL CONDUIT TO THE CONTROLLER (2" MINIMUM).

ITEM 625. TRENCH, AS PER PLAN

THIS ITEM SHALL INCLUDE ANY TRENCH NECESSARY FOR THE INSTALLATION OF CONDUIT AND WIRE FOR THE TRAFFIC SIGNALS AND LOOP DETECTORS. TRENCH IN PAVEMENTS OF ANY THICKNESS SHALL ALSO BE INCLUDED IN THIS ITEM. REPLACEMENT OF DISTURBED PAVEMENT OR SIDEWALK SLABS SHALL BE INCLUDED IN THIS ITEM. ALL TRENCHING SHALL BE DONE AND CONDUIT INSTALLED PRIOR TO FINAL PAVEMENT AND/OR SIDEWALK BEING INSTALLED.

ITEM 625 – PULL BOX, MISC.: (13"x24"), (17"x30"), (24"x36")

SIZE: BOX – 13" X 24" X 26" DEEP (NOMINAL).
SIZE: BOX – 17" X 30" X 26" DEEP (NOMINAL).
SIZE: BOX – 24" X 36" X 26" DEEP (NOMINAL).

COVER AND BOX SHALL HAVE A MINIMUM VERTICAL TEST LOAD OF 10,000 LBS. OVER A 10" X 10" AREA PER ASTM C–857 AND SO BE IDENTIFIED ON THE SURFACE, ALL IN ACCORDANCE WITH THE WESTERN UNDERGROUND COMMITTEE – GUIDE 3.6 (W.U.C. 3.6). THE BOX MUST ALSO MEET THE STRUCTURAL REQUIREMENTS FOR LATERAL (SIDE) LOADING AS DEFINED IN W.U.C. GUIDE 3.6. THE PULL BOX SHALL BE SUITABLE FOR INSTALLATION AND USE THROUGH A TEMPERATURE RANGE OF –40° C TO +90° C.

THE PULL BOX COVER AND RING SHALL BE MADE OF HIGH DENSITY POLYMER CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 20,000 P.S.I. THE BODY OF THE BOX SHALL BE MADE OF FIBERGLASS REINFORCED POLYESTER (FRP). HIGH DENSITY POLYETHYLENE (HDPE), STRUCTURAL FOAM, OR STRUCTURAL THERMOPLASTIC SHALL NOT BE ACCEPTABLE.

THE COVER SHALL BE FASTENED TO THE BOX WITH TWO RECESSED STAINLESS STEEL HEX HEAD BOLTS. THE BOX SHALL HAVE A "SELF–LOCATING" OR "FLOATING" THREADED INSERT MADE OF STAINLESS STEEL AND SHALL BE REPLACEABLE. COVER SURFACE SHALL BE SKID RESISTANT AND SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.50.

IDENTIFICATION "TRAFFIC" SHALL BE PERMANENTLY MOLDED ON THE TOP SURFACE OF THE PULL BOX COVER.

THE BOX SHALL BE WIDER AT THE BASE FOR STABILITY AND TAPERED INWARDS TOWARD THE TOP. THE BOX SHALL BE PROVIDED WITH A BOTTOM FLANGE AT LEAST 1–1/4" WIDE TO PREVENT SETTLING IN FIRM SOIL WHEN SUBJECTED TO SPECIFIED LOADS. TOP REGION OF THE BOX SHALL BE CONFIGURED TO PROVIDE "KEYING IN" TO LOCK THE BOX IN CONCRETE WHEN INSTALLED IN SIDEWALKS.

IF IT IS NECESSARY TO MAKE CONDUIT ENTRY HOLES IN THE FIELD, IT SHOULD BE POSSIBLE TO DO SO WITH A SIMPLE TOOL SUCH AS A WOOD HOLE CUTTING SAW.

NOTE: THE EXACT LOCATIONS OF PULL BOXES ARE TO BE STAKED AND CHECKED BY THE ENGINEER PRIOR TO PLACEMENT TO VERIFY CLEARANCE OF UNDERGROUND FACILITIES AND ANY ABOVE GROUND OBSTRUCTIONS. IF THERE ARE ANY CONFLICTS, THEY ARE TO BE ADJUSTED AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS IS INCIDENTAL TO ALL 625 ITEMS.

PULL BOXES ARE TO BE PROVIDED A 4" DRAIN TO THE NEAREST STORM INLET, UNDERDRAIN OR OTHER SUITABLE OUTLET FROM THE PULL BOX. TWENTY (20) FEET OF 4" PVC CONDUIT SHALL BE USED AND BE INCLUDED IN THE PRICE OF THE PULL BOX. ADDITIONAL 4" CONDUIT IN THE AMOUNT OF 200 L.F. HAS BEEN INCLUDED IN THE BID PROPOSAL FOR USE AS DIRECTED BY THE ENGINEER.

ITEM 632. VEHICULAR SIGNAL HEAD, 12" LENS, POLYCARBONATE, AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

A) SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.

B) GLASS LENSES SHALL BE USED.

C) PROPER EXTERIOR COLORS SHALL BE OBTAINED BY THE USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.

D) SIGNAL HEADS SHALL BE RIGIDLY MOUNTED ON THE MAST ARMS WITH THE RED LENSES CENTERED ON THE CENTERLINE OF THE MAST ARM.

PEDESTRIAN PUSHBUTTON

PEDESTRIAN PUSHBUTTONS SHALL BE CAST ALUMINUM WITH ADA PUSHBUTTON, PEDESTRIAN SYMBOL (PAINTED BLACK) AND INDICATOR LIGHT. THE ENGINEER WILL FIELD LOCATE THE PEDESTRIAN PUSHBUTTON FOR THE CONTRACTOR. ALL HOLES FOR PEDESTRIAN PUSHBUTTONS SHALL BE FIELD DRILLED AFTER BEING LOCATED BY THE ENGINEER.

ITEM 632. LOOP DETECTOR UNITS, DELAY AND EXTENSION TYPE, AS PER PLAN

A) EACH AMPLIFIER SHALL BE NUMBERED AND LABELED TO CORRESPOND TO ITS LOOP NUMBER, DIRECTION/LANE (I.E., WBLL, WBRL, WBLT, . . .) AND PHASE. THE LOOP NUMBERS AND PHASE ARE SHOWN ON THE INTERSECTION SIGNAL PLANS.

B) THE AMPLIFIER SHALL BE AUTOMATICALLY SELF TUNING, RELAY TYPE AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS.

C) THE UNITS' ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENTS WITH SIGNAL CHANNEL AMPLIFIERS AS DESCRIBED IN SECTION 732.07.

D) EACH AMPLIFIER SHALL HAVE SYSTEM LOOP OUTPUT FEATURES FOR BOTH VOLUME AND OCCUPANCY. THE COUNT OUTPUT SHALL BE WIRED SO THAT COUNTS CAN BE OBTAINED THROUGH A LAPTOP MICROCOMPUTER OR A TELEPHONE MODEM DIALED UP BY A PERSONAL COMPUTER.

ITEM 632 – INTERCONNECT MISC: RELOCATE & RECONNECT INTERCONNECT CABLE

THIS ITEM SHALL INCLUDE ALL MATERIALS, LABOR, EQUIPMENT AND TOOLS NECESSARY TO RECONNECT EXISTING INTERCONNECT TO RELOCATED POWER POLES BETWEEN THE MUNSON ROAD INTERSECTION AND THE BELLFLOWER INTERSECTION. THERE SHALL BE NO SPLICE ALLOWED IN THE INTERCONNECT.

ITEM 632 – SIGNAL CABLE MISC.: PREEMPTION DETECTOR CABLE

PREEMPTION DETECTOR CABLE SHALL CONFORM TO O.D.O.T. SPECIFICATION 632. THE CABLE SHALL BE APPROVED FOR BOTH OVERHEAD AND UNDERGROUND USE. THE JACKET SHALL BE HOMOGENOUS IN CHARACTER AND SHALL BE SO COMPOUNDED THAT IT WILL CONFORM TO THE FOLLOWING REQUIREMENTS WHEN TESTED IN ACCORDANCE WITH THE PROCEDURE AS GIVEN IN A.S.T.M. DESIGNATION D–470,LATEST REVISION.

PAYMENT FOR SIGNAL CABLE MISC.: PREEMPTION DETECTOR CABLE, WILL BE MADE AT THE CONTRACT PRICE FOR EACH UNIT IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED

ITEM 632 – SIGNALIZATION MISC.: PREEMPT CONFIRMATION LIGHT

A CONFIRMATION LIGHT SHALL BE SUPPLIED FOR EACH INTERSECTION AND DIRECTION TO INDICATE THAT THE EMERGENCY VEHICLE HAS ACHIEVED CONTROL OF THE TRAFFIC SIGNAL.

THE CONFIRMATION LIGHT SHALL BE AN OUTDOOR ALUMINUM LIGHTING FIXTURE. IT SHALL BE SUPPLIED WITH A 75 WATT WHITE FLOOD LIGHT AND MOUNTING HARDWARE FOR ATTACHMENT TO THE SIDE OF THE TRAFFIC SIGNAL POLE, OR ONTO THE MAST ARM. THE CONFIRMATION LIGHT SHALL BE POWERED BY A LOAD SWITCH IN THE TRAFFIC SIGNAL CONTROLLER.

A SEPARATE CONFIRMATION LIGHT SHALL BE SUPPLIED FOR EACH APPROACH TO THE INTERSECTION.
PAYMENT FOR 633 CONTROLLER ITEM MISC.: PREEMPTION CONFIRMATION LIGHT, WILL BE MADE AT THE CONTRACT PRICE FOR EACH UNIT IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN ON THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 632 – SIGNALIZATION MISC.: PREEMPTION DETECTORS

DETECTORS SHALL CONSIST OF A LIGHT ACTIVATED, LIGHT WEIGHT, WEATHERPROOF AND DIRECTIONAL ASSEMBLY. EACH DETECTOR SHALL BE 360 DEGREE ADJUSTABLE. DETECTOR SHALL BE CAPABLE OF SENDING THE PROPER ELECTRICAL SIGNAL TO THE TRAFFIC SIGNAL CONTROLLER VIA THE PREEMPTION DETECTOR HOME–RUN CABLE. DETECTORS SHALL BE SUPPLIED WITH MAST ARM MOUNTING HARDWARE AS SHOWN IN THE PLANS. THE DETECTORS SHALL BE CAPABLE OF INTERNALLY RECORDING THE INTERSECTION NAME, DATE AND TIME OF ACTIVITY, VEHICLE CLASS CODE OF THE ACTIVATING VEHICLE AND THE ACTIVATING VEHICLES ID NUMBER.

PAYMENT FOR 633 CONTROLLER ITEM MISC.: PREEMPTION DETECTORS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH DETECTOR IN PLACE, COMPLETELY INSTALLED AT THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 632 DETECTOR LOOP, AS PER PLAN

THE SIGNAL CONTRACTOR SHALL CONTACT THE CITY OF MENTOR ENGINEERING DEPARTMENT BEFORE INSTALLATION OF VEHICLE DETECTION LOOPS FOR ASSISTANCE IN LOCATION MARKING. THE CITY OF MENTOR CONTACT PERSON FOR LOOP INSTALLATION IS:

MR. PAUL CIUPA
ASSISTANT TO THE CITY ENGINEER – TRAFFIC
(440) 255–1100

INSTALLATION IN NEW CONCRETE PAVEMENT:

LOOP DETECTORS INSTALLED IN CONCRETE PAVEMENT SHALL BE PREFORMED HEAVY DUTY RUBBER LOOP DETECTORS. THE PREFORMED LOOPS INSTALLED IN CONCRETE SHALL HAVE AN ADDITIONAL TURN OF WIRE OVER STANDARD LOOPS. THE LOOPS ARE TO BE TYE–WRAPPED TO THE REBAR OR DRAPED UNDER THE MESH. LOOPS SHOULD BE SECURED AT EVERY POINT THAT IT CROSSES REBAR OR EVERY FOOT MAXIMUM. LOOPS SHOULD NOT BE COVERED BY MORE THAN 6" OF CONCRETE. THE LOOPS SHALL BE CONSTRUCTED USING 3/8" SYNTHETIC CORD REINFORCED HYDRAULIC HOSE WITH A 250 PSI INTERNAL PRESSURE RATING. NO PAYMENT PRESSURE RATING. NO PAYMENT SHALL BE MADE FOR ANY LOOP NOT INSTALLED ACCORDING TO SPECIFICATIONS.

INSTALLATION IN ASPHALT PAVEMENT:

VEHICLE LOOP DETECTORS SHALL BE INSTALLED IN LEVELING COURSE (WHENEVER APPLICABLE) BEFORE FINAL OVERLAY.

ITEM 632 SIGNAL SUPPORT TYPE TC–81.20 BY DESIGN, AS PER PLAN

THE CONTRACTOR SHALL FIELD DRILL ALL HOLES INTO THE SIGNAL SUPPORT FOR VEHICLE SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSH BUTTONS. THE VEHICLE SIGNAL HEADS PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSH BUTTONS ARE TO BE LOCATED BY THE CITY OF MENTOR BEFORE THE CONTRACTOR FIELD DRILLS THE HOLES. NO PRE–DRILLED SIGNAL WIRING HOLES WILL BE ALLOWED. CITY OF MENTOR CONTACT PERSON:

MR. PAUL CIUPA
ASSISTANT TO THE CITY ENGINEER – TRAFFIC
(440) 255–1100

ITEM 632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

THIS WORK SHALL CONSIST OF THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL EQUIPMENT INCLUDING SCHOOL FLASHERS AND POLES, SIGNAL HEADS, SIGNAL AND POWER CABLE, INTERCONNECT CABLE, POLES, PULL BOXES, CONTROLLER, CABINET AND ALL FOUNDATIONS TO BE ABANDONED. THE CONTRACTOR SHALL STORE MATERIALS ON SITE AND ARRANGE WITH THE CITY OF MENTOR PUBLIC WORKS DEPARTMENT FOR THE CONTRACTOR'S DELIVERY OF THE POLES, PULLBOXES, CONTROLLER, CABINET, SIGNAL HEADS AND INTERCONNECT CABLE TO THE DESTINATION OF THE CITY'S CHOICE. SIGNAL CABLE, MESSENGER WIRE AND ANY ITEMS THE CITY DOES NOT WISH TO RETAIN SHALL BE DISPOSED OF BY THE CONTRACTOR.

ITEM 633, CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, MODEL PEEK 3000, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN ACTUATED, SOLID STATE DIGITAL MICROPROCESSOR TYPE CONTROLLER WITH SECONDARY COORDINATOR, MENU DRIVEN PROMPTS, INTERNAL TBC, TELEMETRY UNIT AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE CONTROLLER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS AND COMPATIBLE WITH THE CITY CLOSED LOOP SYSTEM.

THE CONTROLLER AND CABINET SHALL CONFORM TO ODOT SPECIFICATION 633 AND SHALL HAVE THE FOLLOWING FEATURES:

A) THE LOAD SWITCHES SHALL PROVIDE INPUT AND OUTPUT INDICATIONS.

B) THE CONFLICT MONITOR SHALL BE CAPABLE OF 12 CHANNEL OPERATION AS PER PLAN AND SHALL HAVE EXTENDED MONITORING, LCD DISPLAY, FAULT/EVENT STORAGE AND REPORTING.

C) THE FOLLOWING SWITCHES SHALL BE ACCESSIBLE VIA THE POLICE PANEL DOOR:
1) SIGNAL SHUTDOWN
2) FLASH CONTROL
3) MANUAL CONTROL JACK ACTIVATING MANUAL CONTROL WITH SEPARATE MANUAL PUSH BUTTON CORD.

D) THE FOLLOWING SWITCHES SHALL BE MOUNTED ON THE SWITCH PANEL IN THE CABINET:
1) RUN–STOP NORMAL
2) CONTROLLER SHUTDOWN
3) DETECTOR TEST
4) SYSTEM, TIME OF DAY, FREE

E) A FLUORESCENT SERVICE LAMP WITH DOOR ACTIVATED ON/OFF SWITCH.

F) THE CABINET EXTERIOR SHALL BE ALUMINUM COLORED AND THE INTERIOR SHALL BE WHITE.

G) THE CONTRACTOR SHALL FURNISH FOR APPROVAL A CABINET PLAN SHOWING COMPONENT PLACEMENT.

H) THE SUPPLIER SHALL CONTACT THE CITY OF MENTOR FOR SYSTEM DETECTOR HOOK UP AND GRAPHICS DETECTOR HOOK–UP.

I) BACK PANEL SHALL HAVE A MINIMUM OF 12 LOAD BAYS.

J) ONE SPARE 2" CONDUIT TO THE CLOSEST PULLBOX.

K) CONTROLLER CABINET SHALL HAVE A REAR ACCESS DOOR.

L) CONTROLLER CABINET SHALL HAVE A GENERATOR POWER PANEL. (MUNSON ROAD AND CENTER STREET)

THE HOUSING SHALL HAVE AN ADD–ON GENERATOR POWER PANEL, WITH ENCLOSURE. THIS ITEM SHALL ALLOW SIGNAL ELECTRICIANS TO OPERATE THE TRAFFIC SIGNAL DURING POWER OUTAGES, WITHOUT OPENING THE CABINET DOOR OR CONNECTING OR DISCONNECTING PERMANENT POWER CABLES. THE ENCLOSURE SHALL BE INSTALLED ON THE SIDE OF THE CONTROLLER CABINET CLOSEST TO THE POWER INPUT PANEL SUBJECT TO THE FOLLOWING MODIFICATION. THE GENERATOR POWER PANEL SHALL BE LOCATED ON THE SIDE OF THE CONTROLLER CABINET WHICH OFFERS THE BEST PROTECTION FROM ROAD SPRAY AND ACCIDENTAL CONTACT WITH PEDESTRIANS, BICYCLISTS AND VEHICLES. DESIGN AND LAYOUT OF THE CONTROLLER CABINET WILL DETERMINE EXACT PLACEMENT OF THE ENCLOSURE BUT IT SHOULD BE PLACED NEAR THE TOP OF GROUND MOUNTED CABINETS AND ABOUT 5 FEET FROM THE GROUND ON POLE MOUNTED CABINETS. THE ENCLOSURE SHALL BE SEALED WITH A HIGH QUALITY SILICON CAULK AND ALL HOLES DRILLED INTO THE SIDE OF THE HOLES DRILLED INTO THE SIDE OF THE CONTROLLER CABINET SHALL BE CAULKED AND SEALED AFTER THE ELECTRICAL EQUIPMENT IS INSTALLED. ALL ELECTRICAL CONNECTIONS, SOLDERED OR SCREW TYPE TERMINALS, INVOLVED IN THE PAY ITEM SHALL BE COVERED WITH A CLEAR SILICON CAULK, AFTER ENSURING A GOOD CONNECTION EXCEPT THE FIELD CONNECTIONS AND GROUND TERMINALS. THIS IS TO REDUCE THE RISK OF ELECTRICAL SHOCK.

THE GENERATOR POWER PANEL ENCLOSURE CAN BE FABRICATED TO MEET THE ATTACHED SPECIFICATIONS.

THE GENERATOR RECEPTACLE SHALL BE 30 AMP, LOCKING, FOUR WIRE GROUNDING AND MEET THE NEMA L14–30P 30A 125/250V SPECIFICATION.

THE LINE VOLTAGE GENERATOR SWITCH SHALL BE 30 AMP, 125/250V AC, TWO (2) POLE, THREE (3) POSITION. (ON, OFF, ON, HUBBLE 1388.)

THE LINE VOLTAGE INDICATOR LIGHT SHALL BE 125V AC LIGHT EMITTING DIODE WITH A RED LENS.

THE LINE VOLTAGE CIRCUIT BREAKER SHALL BE SINGLE POLE SINGLE THROW AND A MINIMUM OF 30 AMPS. THE AMPERAGE SHALL BE INCREASED TO ACCOMMODATE GREATER LOADS, IF NECESSARY. THE GAUGE OF THE POWER CABLE SHALL BE OF PROPER SIZE PER THE N.E.C.

ITEM – SPECIAL – FIBER OPTIC BLANKOUT SIGNS

TWO SIGNS SHALL DISPLAY THE MESSAGE "END SCHOOL ZONE"

FUNCTIONAL REQUIREMENTS

1) THE MESSAGE SHALL BE CLEARLY LEGIBLE ATTRACTING ATTENTION UNDER ANY LIGHTING CONDITIONS. AT FULL INTENSITY THE SIGN WILL BE HIGHLY VISIBLE ANYWHERE WITHIN AN APPROXIMATE 60 DEGREE CONE CENTERED AROUND THE OPTIC AXIS.

2) BOTH SIGNS SHALL MEASURE 30" IN THE HORIZONTAL DIRECTION AND 36" IN THE VERTICAL DIRECTION.

3) THE SIGN SHALL COMPLETELY BLANK OUT WHEN NOT ENERGIZED. NO PHANTOM WORDS SHALL BE SEEN UNDER ANY AMBIENT LIGHT CONDITION.

4) MESSAGES WILL BE DISPLAYED BY EITHER A SINGLE OR DOUBLE ROW OF GLASS FIBER BUNDLES.

5) BUNDLES SHALL BE ARRANGED SO THAT IN THE EVENT OF FAILURE OF ONE LIGHT SOURCE THE OTHER SHALL CONTINUE TO PROVIDE A DISCERNIBLE MESSAGE.

6) THE ENTIRE SIGN FACE WILL BE PROTECTED BY A 1/8" CLEAR POLYCARBONATE LENS MOUNTED IN THE DOOR FRAME.

7) THE SIGN FACE SHALL CONSIST OF:

a. WEATHERPROOF HOUSING AND DOOR
b. FIBER OPTIC MODULE
c. COLOR FILTERS FOR DESIRED COLORS
d. LIGHT SOURCES
e. TRANSFORMERS

8) THE COLOR OF ANY MESSAGE MAY BE CHANGED IN THE FIELD BY REPLACEMENT OF THE COLOR FILTERS WITHOUT REMOVING THE SIGN FROM THE CASE.

9) 42 WATT LAMPS SHALL BE USED AND OPERATED AT 10.8 VOLTS. THE LAMPS SHALL SUSTAIN AN AVERAGE 8,000 HOUR LIFE.

10) TRANSFORMERS SHALL BE USED TO REDUCE THE INCOMING 120 VOLTS AC TO 10.8 VOLTS AC. THE TRANSFORMERS SHALL CONTAIN CLASS A INSULATION AND WEATHERPROOFING, AND SHALL BE RATED AT 48.5 VOLT–AMPS.

11) THE SIGN SHALL BE CAPABLE OF CONTINUOUS OPERATION OVER A RANGE IN TEMPERATURE FROM –35 DEGREES F TO +165 DEGREES F (–37 DEGREES C TO +75 DEGREES C).

MECHANICAL REQUIREMENTS

1) TWO–WAY HOUSINGS SHALL BE CONSTRUCTED OF 0.063" ALUMINUM BODY AND A 0.063" ALUMINUM CHANNEL FRAMEWORK STRUCTURE INSIDE. HOUSING BODY AND INSIDE FRAMEWORK SHALL BE PERMANENTLY ATTACHED TO FORM A SINGLE UNIT.

2) ONE WAY HOUSINGS SHALL BE CONSTRUCTED OF 0.080" OR 0.125" EXTRUDED ALUMINUM 8" DEEP WITH A 0.063" FLAT ALUMINUM BACK WELDED INTO THE HOUSING.

3) ALL CORNERS AND SEAMS OF THE ONE OR TWO WAY HOUSINGS ARE HELI–ARC WELDED TO PROVIDE A WEATHERPROOF SEAL AROUND THE ENTIRE CASE.

4) CONTINUOUS STAINLESS STEEL HINGES 0.040" X 1–1/4" OPEN SHALL CONNECT THE HOUSING AND DOORS.

5) 0.125" EXTRUDED ALUMINUM DOORS SHALL HAVE ONE SIDE REMOVABLE TO GAIN ACCESS TO SIGN FACE. (NOT REQUIRED FOR ROUTINE MAINTENANCE)

6) DOOR GASKETS SHALL BE 3/16" X 1" NEOPRENE TO PROVIDE A WEATHERPROOF SEAL.

7) SIGN FACE SHALL BE FLAT ALUMINUM AND SHALL HAVE THE FIBER OPTIC ASSEMBLY MOUNTED TO IT.

8) SIGNS SHALL HAVE ONE OR MORE STAINLESS STEEL #3, 1/4 TURN LINK–LOCKS PER DOOR TO TIGHTLY SECURE THE DOOR INTO THE GASKET.

9) MOUNTING HUBS SHALL BE OF CAST ALUMINUM ALLOY WITH 1–1/2" STANDARD PIPE THREAD. THE HUB IS MOUNTED ON ITS GASKET TO SIGN HOUSING BY THREE 5/16" X 1" STAINLESS STEEL HEX HEAD BOLTS AND NUTS.

10) DRAINAGE SHALL BE PROVIDED BY FOUR DRAIN HOLES LOCATED AT ALL FOUR CORNERS OF THE HOUSING BOTTOM.

FIBER OPTIC MODULES

1) THE FIBER OPTIC MODULES AND ASSOCIATED COMPONENTS SHALL BE ASSEMBLED DIRECTLY TO THE SIGN FACE AND SHALL HAVE AN INSIDE BACK COVER TO PROVIDE PROTECTION TO THE MODULE. THE FIBER SHALL CONSIST OF FIBER OPTIC GLASS BUNDLES ARRANGED TO DEFINE THE REQUIRED MESSAGE. THE FIBER OPTIC BUNDLES SHALL BE GROUND SMOOTH AND OPTICALLY POLISHED AT THE INPUT AND OUTPUT ENDS FOR MAXIMUM LIGHT TRANSMISSION.

2) THE GLASS BUNDLES SHALL BE MOUNTED THROUGH THE SIGN FACE FROM THE INSIDE.

3) DOOR PANELS AND BUNDLE TERMINATION HOLDERS SHALL BE COLORED FLAT BLACK TO MINIMIZE LEGIBILITY WHEN DEACTIVATED AND MAXIMIZE LEGIBILITY WHEN ACTIVATED. NO COLOR SHALL APPEAR WHEN DEACTIVATED REGARDLESS OF AMBIENT LIGHT CONDITIONS.

4) MESSAGE COLOR IS PROVIDED BY A TEMPERED OPTICALLY CORRECT GLASS COLOR FILTER IN CONFORMANCE WITH ITE SPECIFICATIONS.

5) ELECTRICAL CONNECTION OF FIELD WIRES SHALL BE MADE VIA BARRIER TYPE TERMINAL STRIP.

6) ALL FASTENERS SHALL BE CORROSION RESISTANT STAINLESS STEEL. ALL COMPONENTS SHALL BE READILY ACCESSIBLE FOR MAINTENANCE WHEN THE DOOR IS OPEN.

7) WITH STANDARD HARDWARE AND LOCKS, NO TOOLS ARE NEEDED FOR LAMP REPLACEMENT.

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SUBMISSIONS / REVISIONS

CENTER STREET (STATE ROUTE 615) ROADWAY IMPROVEMENTS
GENERAL NOTES

CT Consultants, Inc.
Engineers • Architects • Planners
Willoughby • Mentor • Columbus • North Canton • Youngstown

DATE: AUGUST 03, 1999
DRAWN BY: T.E.B.
CHECKED BY: A.E.P.
APPROVED BY: I.M.H.
SCALE:
HOR: 1" = 20'
VERT: 1" = 5'
CONTRACT No.
98387
SHEET NO. 89 OF 103