

# TRAFFIC CONTROL GENERAL NOTES

## SCOPE

THESE NOTES AND SPECIFICATIONS SUPPLEMENT THE STATE OF OHIO'S CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE SUPPLEMENTAL SPECIFICATIONS NOTED ON THE TITLE SHEET. THE WORK TO BE PERFORMED BY THE CONTRACTOR IN CONNECTION WITH FURNISHING LABOR, SUPPLIES, EQUIPMENT, MATERIALS, AND PERFORMING ALL OPERATIONS NECESSARY FOR THE ACCEPTABLE INSTALLATION OF THE TRAFFIC CONTROL DEVICES, IN STRICT ACCORDANCE WITH THESE PLANS, NOTES AND SPECIFICATIONS. THESE NOTES, SCHEDULES, AND DRAWINGS ARE INTENDED TO PROVIDE ALL MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL A COMPLETE TRAFFIC CONTROL SYSTEM.

### ITEM 625 PULL BOX (24") SQUARE, AS PER PLAN

INSTALLATION OF THE PULL BOXES SHALL INCLUDE ALL THE EXCAVATION, BACKFILLING, GRADING, GRAVEL DRAINAGE FILL AND COMPACTION OF FILL MATERIALS AS SHOWN. THIS ITEM SHALL BE PAID FOR AT THE CONTRACT BID PRICE PER EACH ITEM 625 PULLBOX (24") AS PER PLAN, INSTALLED IN PLACE COMPLETED, ACCEPTED AND READY FOR SERVICE. THE PULL BOX COVER SHALL INCLUDE TWO (2) STAINLESS STEEL HEX-HEAD BOLTS. THE PRICE PAID SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM AS SPECIFIED.

### ITEM 625 - PULLBOX, MISC.: 13" X 24" (OR 17" X 30" X 26" DEEP), AS PER PLAN

THIS ITEM SHALL BE USED FOR ANY PULLBOX LOCATED WITHIN THE SIDEWALK

SIZE: BOX - 13" X 24" X 26" DEEP (NOMINAL). BOX TO TAPER OUTWARD FROM TOP TO THE OPEN BOTTOM. INSIDE BOTTOM DIMENSIONS 20" W X 29.5" L MINIMUM.  
COVER - 13-3/4" X 23-1/4" X 2" OVERALL HEIGHT. WT: 50 LBS.  
BOLTS - HEX-HEAD STAINLESS STEEL

LOAD CAPACITY: 15,000 LBS. ON A 10" X 10" AREA TESTED IN ACCORDANCE WITH WESTERN UNDERGROUND COMMITTEE GUIDE 3.6 COVER DEFLECTION TO BE LESS THAN 1/2" AT DESIGN LOAD AND SHOW NO SIGNS OF DAMAGE AFTER TEN CYCLES AT DESIGN LOAD.

#### MATERIAL AND CONSTRUCTION:

BOX - THE BODY SHALL BE MADE OF FIBERGLASS REINFORCED POLYMER (FRP) WITH ISOPHTHALIT POLYESTER USING THE SPRAY-UP AND ROLL CONSTRUCTION METHOD. THE MATERIAL SHALL HAVE STABILIZERS TO RESIST UV DEGRADATION IN ACCORDANCE WITH ASTM D-790 AND ASTM D-11501-71 SECTION 6, PROCEDURE B.

THE TOP RING OF THE BOX SHALL BE MADE OF POLYMER CONCRETE USING A POLYESTER BINDER WITH AGGREGATE FILLERS AND CHOPPED FIBERGLASS WITH A MINIMUM TENSILE STRENGTH OF 1900 PSI. THE RING SHALL HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL. THE THREADED INSERTS (2) FOR THE COVER BOLTS SHALL BE STAINLESS STEEL.

COVER - THE COVER SHALL BE MADE WITH A THICK MOLDING COMPOUND (TMC) USING THE COMPRESSION MOLDING METHOD. THE TMC SHALL CONSIST OF A MINIMUM 10% FIBERGLASS IN A CALCIUM CARBONATE AND POLYESTER RESIN MATRIX. THE COVER SHALL BE MARKED "TRAFFIC" AND HAVE A NON-SKID SURFACE AND THE SAME UV RESISTANCE AS THE FRP MATERIAL. TWO RECESSED HEX-HEAD STAINLESS STEEL BOLTS AND WASHERS SHALL BE USED TO SECURE THE COVER TO THE BOX.

#### CONDUIT

OPENINGS: OPENINGS IN THE SIDE OF THE PULLBOX WHICH ARE REQUIRED TO INSERT CONDUIT (INTO THE PULLBOX) SHALL BE DRILLED IN THE FIELD, ONCE THESE LOCATIONS HAVE BEEN DETERMINED. THE OPENING SHALL NOT EXCEED THE CONDUIT OUTSIDE DIAMETER BY MORE THAN FIVE (5) PERCENT. ALL OPENINGS IN THE PULLBOX SHALL BE THOROUGHLY GROUDED WITH CEMENT MORTAR AFTER PLACING THE CONDUIT. THE OPENINGS SHALL NOT BE MADE AT THE THICKENED EDGES OF THE PULLBOX.

### UNDERDRAINS FOR PULL BOXES, AS PER PLAN

AN UNDERDRAIN SHALL BE INSTALLED FOR EACH PULLBOX TO THE CLOSEST INLET OR UNDERDRAIN. THE LENGTH OF OUTLET SHALL NOT EXCEED 20' FEET. AN ESTIMATED QUANTITY OF 350 LINEAR FEET OF ITEM 603, 4" CONDUIT, TYPE E, 707.15 IS INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

### ITEM 625, PULLBOX REMOVED, AS PER PLAN

EXISTING PULLBOXES SHALL BE REMOVED AT THE LOCATIONS SHOWN IN THE PLANS. THIS ITEM SHALL BE USED FOR PULLBOXES REMOVED AT THE INTERSECTIONS OF S.R. 283 & S.R. 306 AND S.R. 283 & ANDREWS ROAD.

### SIDEWALK REMOVAL AND REPLACEMENT

ANY EXISTING SIDEWALK SLAB DISTURBED BY TRENCHING SHALL BE REPLACED. EACH SLAB SHALL BE REMOVED AND PAID FOR IN ACCORDANCE WITH ITEM 202 WALK REMOVED. ALL TRENCHING OPERATIONS SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF THE NEW SIDEWALK SHOWN IN THE PLANS. THE CONCRETE SIDEWALK SLAB REPLACEMENT SHALL BE PAID FOR AS STATED IN ITEM 608 CONCRETE WALK. ALL SIDEWALK QUANTITIES ARE ACCOUNTED FOR IN THE ROADWAY PLANS.

### ITEM 632 VEHICULAR SIGNAL HEAD, 3-SECTION AND 5-SECTION 12" LENS, 1-WAY AS PER PLAN

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

- SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF UV STABILIZED POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS;
- PLASTIC LENSES SHALL BE USED;
- PIPE, SPACERS, AND FITTINGS CONSTRUCTED OF GALVANIZED STEEL OR ALUMINUM;
- PROPER EXTERIOR COLORS SHALL BE OBTAINED BY THE USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- VEHICULAR SIGNAL HEADS SHALL HAVE A FEDERAL YELLOW FINISH.
- SIGNAL HEADS SHALL BE RIGIDLY MOUNTED ON THE MAST ARMS, WITH THE CENTERLINE OF THE RED LENS MATCHING TO CENTERLINE OF MAST ARM.

THE CITY SHALL FIELD LOCATE ALL SIGNAL HEADS FOR THE CONTRACTOR.

### 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 PUSHBUTTONS. THE VEHICLE SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS 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 SIGNAL HEADS, CABLE, PULL BOXES, POLES, CONTROLLER AND CABINET. THE CONTRACTOR SHALL STORE MATERIALS ON SITE AND SHALL ARRANGE WITH THE CITY OF MENTOR PUBLIC WORKS DEPARTMENT FOR PICKUP OF THE POLES, PULLBOXES, CONTROLLER, CABINET AND SIGNAL HEADS. THE SIGNAL CABLE AND MESSENGER WIRE SHALL BE DISPOSED OF BY THE CONTRACTOR. ANY ITEMS NOT PICKED UP BY THE CITY BY THE COMPLETION DATE SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

### ITEM 632 PEDESTRIAN SIGNAL HEADS, TYPE D-2, AS PER PLAN

SECTION 732.05 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF ALUMINUM AND MEET ITE SPECIFICATIONS.
- PLASTIC LENSES SHALL BE USED.
- PIPE, SPACERS, AND FITTINGS SHALL BE CONSTRUCTED OF ALUMINUM AND MEET ITE SPECIFICATIONS.
- LAMPS SHALL BE RATED FROM 8000 BURNING HOURS AND SHALL BE A MINIMUM OF 116 WATTS.
- THE PEDESTRIAN SIGNALS SHALL HAVE A BLACK OUTSIDE COLOR.
- THE PEDESTRIAN SIGNALS SHALL BE CLAM SHELL MOUNTED.

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

- EACH AMPLIFIER SHALL BE NUMBERED TO CORRESPOND TO ITS LOOP NUMBER, DIRECTION/LANE (IE...WBLL, WBAL, WBLT...) AND PHASE. THE LOOP NUMBERS AND PHASES ARE SHOWN ON THE INTERSECTION SIGNAL PLANS.
- THE AMPLIFIER SHALL BE AUTOMATICALLY SELF TUNING, RELAY TYPE AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS.
- THE UNITS ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENTS WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN SECTION 732.07.
- EACH AMPLIFIER SHALL HAVE SYSTEM LOOP OUTPUT FEATURES FOR (I) VOLUME AND (II) OCCUPANCY. THE COUNT OUTPUT SHALL BE WIRED SO THAT COUNTS CAN BE OBTAINED BY UPLOADING THROUGH A LAPTOP MICROCOMPUTER OR A TELEPHONE MODEM DIALED UP BY A PERSONAL COMPUTER.

### 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:

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INSTALLATION IN 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 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 633 CONCRETE FOR CABINET FOUNDATION, AS PER PLAN

ONE SPARE 2" CONDUIT SHALL BE PROVIDED FROM THE CABINET TO THE NEAREST PULL BOX. THE PRICE PAID SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM AS SPECIFIED.

### ITEM 633 CONTROLLER, ACTUATED, BY PHASE, SOLID STATE DIGITAL MICROPROCESSOR, MODEL TRANSYT 3000, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING ACTUATED, SOLID STATE DIGITAL MICROPROCESSOR TYPE CONTROLLERS 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 WITH THE CITY'S CLOSED LOOP SYSTEM.

THE CONTROLLER AND CABINET SHALL CONFORM TO O.D.O.T. SPECIFICATION 633 AND SHALL HAVE THE FOLLOWING FEATURES:

- THE CABINET SHALL BE A P44 WITH A REAR DOOR FOR BACKPANEL ACCESS PER NEMA TS2 SPECIFICATIONS AND A 16 POSITION BACKPANEL.
- THE LOAD SWITCHES SHALL PROVIDE INPUT AND OUTPUT INDICATIONS.
- THE CONFLICT MONITOR SHALL BE CAPABLE OF 12 CHANNEL MONITORING, AS PER PLAN AND HAVE EXTENDED MONITORING, LCD DISPLAY, FAULT/EVENT STORAGE AND REPORTING.
- THE FOLLOWING SWITCHES SHALL BE ACCESSIBLE VIA THE POLICE PANEL DOOR:
  - SIGNAL SHUTDOWN
  - FLASH CONTROL
  - MANUAL CONTROL JACK, ACTIVATING MANUAL CONTROL WITH SEPARATE MANUAL PUSHBUTTON CORD.
- THE FOLLOWING SWITCHES SHALL BE MOUNTED ON THE SWITCH PANEL IN THE CABINET:
  - RUN-STOP NORMAL
  - CONTROLLER SHUTDOWN
  - DETECTOR TEST
- A FLORESCENT SERVICE LAMP WITH DOOR ACTIVATED ON/OFF SWITCH.
- THE CABINET EXTERIOR SHALL BE ALUMINUM COLORED AND THE INTERIOR SHALL BE WHITE.
- THE CONTRACTOR SHALL FURNISH FOR APPROVAL A CABINET PLAN SHOWING COMPONENT PLACEMENT.
- THE CONTRACTOR SHALL CONTACT THE CITY OF MENTOR FOR THE REQUIRED HOOK-UPS OF BOTH THE GRAPHICS CHANNELS AND THE SYSTEM LOOP CHANNEL ASSIGNMENTS.
- ONE SPARE CONDUIT TO THE CLOSEST PULLBOX.
- THE CITY OF MENTOR WILL PROVIDE ALL SYSTEM TIMINGS.

### TRAFFIC CONTROL STANDARD DRAWINGS

REFERENCE TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958 AND 961 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731, AND 733.