## ABBREVIATIONS:

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|---|---|
| A | AMPERES |
| AC | ALTERNATING CURRENT |
| AIC | AMPERE INTERRUPTING CAPACITY |
| AMP | AMPERES |
| AWG | AMERICAN WIRE GAUGE |
| CAT. | CATALOG |
| CAT | CATEGORY |
| CCTV | CLOSED CIRCUIT TELEVISION |
| CIP | CAST IN PLACE |
| COMM | COMMUNICATION(S) |
| EA | EACH |
| FDN | FOUNDATION |
| FMC | LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT |
| FTP | FIBER TERMINATION PANEL |
| GND | GROUND |
| ITS | INTELLIGENT TRANSPORTATION SYSTEM |
| ITSF–XX | ITS FIBER OPTIC CABLE WITH XX STRANDS |
| ITSS | INTELLIGENT TRANSPORTATION SYSTEM STATION |
| LED | LIGHT EMITTING DIODE |
| MAX | MAXIMUM |
| MIN | MINIMUM |
| NEC | NATIONAL ELECTRICAL CODE |
| NEMA | NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION |
| O.D. | OUTER DIAMETER |
| PCRMC | PVC COATED RIGID METALLIC CONDUIT |
| POE | POWER OVER ETHERNET |
| PTZ | PAN–TILT–ZOOM |
| PVC | POLYVINYL CHLORIDE |
| PWR | POWER |
| REQD | REQUIRED |
| RMC | RIGID METALLIC CONDUIT |
| RNMC–XX | RIGID NONMETALLIC CONDUIT, SCHEDULE XX |
| SCC | SYSTEMS CONTROL CABINET |
| S.S. | STAINLESS STEEL |
| STD | STANDARD |
| TDS | TRAFFIC DETECTION STATION |
| TVSS | TRANSIENT VOLTAGE SURGE SUPPRESSION |
| TYP | TYPICAL |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| V | VOLTS |
| VMS | VARIABLE MESSAGE SIGN |
| VSLS | VARIABLE SPEED LIMIT SIGN |
| W | WATT(S) |
| W/ | WITH |
| WAP | WIRELESS ACCESS POINT |
| WTS | WIRELESS TRAFFIC SENSOR |

## EQUIPMENT:

(A) ITSS DISCONNECT: DISCONNECT SHALL BE CONSTRUCTED OF A MOLDED CASE CIRCUIT BREAKER HOUSED IN A NEMA 3R RATED ENCLOSURE WITH HINGED COVER. SIZE AND TYPE OF BREAKER SHALL BE AS SPECIFIED ON ITS–30.

(B) ITSS TRANSFORMER: 480V, 1–PHASE, 120/240V SECONDARY, PAD MOUNT, 37.5KVA, DRY TYPE TRANSFORMER IN NEMA 3R RAINPROOF ENCLOSURE WITH WEATHER SHIELD AND SHALL BE MANUFACTURED BY SQUARE D CAT. #EE37S3H 37"H X 20"W X 20"D. (WHERE REQUIRED IN THE PLANS)

(C) ITSS PANELBOARD: 120/240V, 1–PHASE, 3 WIRE, SERVIECABLE MAIN BREAKER, NEMA 3R RATED, WITH HINGED COVER AND SHALL BE MANUFACTURED BY SQUARE D, CAT. # QO12040M200RB 26.04"H X 14.75"W X 4.52"D. USE 200A OR 100A MAIN BREAKER AS SHOWN ON PLANS. (SEE ITS–30 FOR MORE INFORMATION)

(D) SCC DISCONNECT: 240V, 1–PHASE, 100A, 2–POLE, 3 WIRE NON–FUSIBLE SINGLE THROW, NEMA 3R RATED AND SHALL BE MANUFACTURED BY SQUARE D, CAT. # DU323RB WITH EXTERNAL LEVER. 17.5"H X 8.5"W X 6.5"D

(E) SCC: NEMA 3R CABINET CONSTRUCTED OF .125" THICK ALUMINUM WITH INTERNAL 19" EQUIPMENT RACK HOUSING ELECTRONICS AND POWER DISTRIBUTION EQUIPMENT FOR VMS AND VSLS AND ADDITIONAL ITS EQUIPMENT. 67"H X 32.5"D X 24"W.

(F) WAP: COMMUNICATES WITH WIRELESS TRAFFIC SENSORS DEPLOYED IN ROADWAY WHICH ARE PART OF THE WIRELESS TRAFFIC DETECTION STATION 6.25"H X 6.25"W X 3"D.

(G) CCTV CAMERA: A PTZ CAMERA HOUSED IN AN ENVIRONMENTALLY SEALED OUTDOOR RATED ENCLOSURE WITH HEATER.

(H) REMOTE POWER UNIT: A NON–METALLIC NEMA 3R ENCLOSURE WHICH HOUSES CCTV CAMERA ELECTRONICS SUCH AS TRANSFORMERS, TERMINAL BLOCKS AND QUICK DISCONNECTS.

(I) VMS: FULL COLOR HIGH INTENSITY LED VARIABLE MESSAGE SIGN. SEE SPECIFICATIONS FOR DETAILS.

(J) VSLS: WHITE–ON–BLACK HIGH INTENSITY LED VARIABLE SPEED LIMIT SIGN. SEE SPECIFICATIONS FOR DETAILS.

(K) WIRELESS TRAFFIC SENSOR: PART OF THE TDS, EACH SENSOR IS 1.9"H X 2.9"W X 2.9"D AND THREE (3) SENSORS SHALL BE PLACED ALONG THE CENTERLINE OF EACH LANE SPACED 20' APART.

(L) METER CABINET: METER CABINET TYPE AS SHOWN ON THE CONTACT PLANS WITH DISCONNECT.

(M) SCC PANELBOARD: 120/240V, 1–PHASE DISTRIBUTION PANEL (INSIDE SCC) 100A MAIN LUG, BY SQUARE D CAT. # QO612L100DS 12.57"H X 8.88"W X 3.8"D.

(N) UPS PANELBOARD: 120V DISTRIBUTION PANEL (INSIDE SCC) 70A MAIN LUG, BY SQUARE D CAT. # QO24L70TS 9.3"H X 4.81"W X 3"D.

(O) UPS: CAPABLE OF SUPPORTING A 2000VA LOAD AT 120V FOR 30MIN.

(P) NETWORK EQUIPMENT: A ROUTER OR SWITCH CAPABLE OF SINGLE AND/OR MULTIMODE FIBER OPTIC CONNECTIONS AND SHALL HAVE A MINIMUM OF TWELVE (12) RJ45 COPPER CONNECTIONS. MAY BE PROVIDED BY OTHERS, SEE SPECIFICATIONS FOR MORE INFORMATION.

(Q) SIGN CONTROLLER: ONE (1) CONTROLLER PER VMS AND ONE (1) CONTROLLER PER VSLS AND SHALL BE CAPABLE OF COMMUNICATING WITH VMS OR VSLS VIA MULTIMODE FIBER OPTIC CABLE 3.5"H X 14.25"W X 9"D.

(R) RACK SHELF: SHALL BE USED TO HOUSE NON–RACK MOUNTABLE ELECTRONICS SUCH AS POWER–OVER–ETHERNET INJECTORS 5"H X 19"W X 18"D.

(S) POE INJECTOR: SHALL BE USED TO POWER THE WAP, EQUIPMENT ITEM (F), INSTALLED AS PART OF THE TDS 1.5"H X 2.6"W X 4.2"D.

(T) FIBER TERMINATION PANEL: RACK MOUNTABLE ENCLOSURE WHICH HOUSES FOUR (4) 6–PACKS OF FIBER CONNECTORS. SEE SPECIFICATIONS FOR DETAILS.

(U) WIRELESS REPEATER: PART OF THE TDS, EACH REPEATER IS 4.75"HX 3.54"WX 3.15"D.

(V) TVSS: SHALL BE USED TO PROTECT ITSS ELECTRONIC EQUIPMENT INSTALLED INSIDE OF THE SCC.

(W) SLIDING DRAWER: A SLIDING DRAWER SHALL BE INSTALLED IN THE SCC TO SUPPORT THE USE OF A LAPTOP FOR MAINTAINING THE ELECTRONIC EQUIPMENT.

(X) END NODE RADIO ANTENNA: A RADIO AND/OR ANTENNA SHALL BE INSTALLED ON SIGN STRUCTURES WHERE SHOWN ON THE PLANS AND AS DIRECTED IN THESE DETAILS.

(Y) ITS POWER EQUIPMENT CABINET: SHALL BE A NEMA 3R RATED ALUMINUM ENCLOSURE AND HOUSE EQUIPMENT AS SHOWN ON ITS–09 OR AS DIRECTED IN THE PLANS. SEE NOTE 4 ON STANDARD DRAWING E–34 FOR MORE INFORMATION.

## NOTES:

1. ELECTRICAL INSTALLATIONS SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC).
2. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS RELATING TO ELECTRICAL EQUIPMENT INSTALLATION PRIOR TO PERFORMING ACTUAL EQUIPMENT INSTALLATIONS OR REMOVALS. ANY DEVIATIONS NOTED AS PART OF THE FIELD VERIFICATION SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. STRUCTURAL, ARCHITECTURAL, AND CIVIL INFORMATION SHOWN WITHIN THE ITS STANDARD DRAWINGS ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL REFER TO THE APPROPRIATE SECTIONS OF THE CONTRACT DRAWINGS FOR ALL PROPER DIMENSIONING, ROADWAY ALIGNMENTS, AND STRUCTURAL ASPECTS.
4. CONDUITS SHALL BE INSTALLED WITH A NYLON PULL–CORD. ENDS OF CONDUITS SHALL BE PLUGGED AND SEALED WITH AN APPROVED RODENT BLOCKING MATERIAL.
5. THESE STANDARD DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SCALED SIZES OF EQUIPMENT ARE APPROXIMATE. DEPENDING ON MANUFACTURERS SELECTED NOT EVERY DETAIL OF OR EXACT LOCATION OF EQUIPMENT MAY BE SHOWN. FINAL PHYSICAL CONDITIONS SHALL BE VERIFIED IN THE FIELD. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ANY DEVIATIONS IN PROPOSED CABLE AND RACEWAY ROUTINGS.
6. ELECTRICAL EQUIPMENT FURNISHED AND INSTALLED SHALL BE NEW AND, TO THE EXTENT POSSIBLE, STANDARD PRODUCTS OF THE VARIOUS MANUFACTURERS, UNLESS NOTED OTHERWISE. WHEN MORE THAN ONE OF ANY SPECIFIC ITEM IS REQUIRED, ALL SHALL BE OF THE SAME TYPE AND MANUFACTURER, UNLESS NOTED OTHERWISE IN THE PLANS OR SPECIFICATIONS. ITEMS OF EQUIPMENT OR MATERIAL WHICH ARE NOT SPECIFICALLY DEFINED SHALL CONFORM TO THE GENERAL STANDARD OF QUALITY ESTABLISHED HEREIN.
7. MODIFY THE DEPTH AND ROUTING OF ALL UNDERGROUND CONDUITS AND DUCT BANKS WHERE NECESSARY TO AVOID INTERFERENCE WITH EXISTING DUCT BANKS, CONDUITS, AND UTILITIES. MAINTAIN 6 INCHES OF CLEARANCE BETWEEN ALL UNDERGROUND CONDUITS INSTALLED IN THIS CONTRACT WHEN CROSSING OTHER CONDUITS OR EXISTING UNDERGROUND UTILITIES.
8. EXPOSED OUTDOOR CONDUITS UNLESS NOTED OTHERWISE SHALL BE PCRMC AS MANUFACTURED BY OCAL, OR APPROVED EQUAL. MINIMUM SIZE DIAMETER SHALL BE 1" UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL UTILIZE THE CONDUIT MANUFACTURER RECOMMENDED SUPPORTS FOR ALL CONDUIT ROUTINGS.
9. UNLESS NOTED OTHERWISE, MAXIMUM SPACING BETWEEN CONDUIT SUPPORTS SHALL BE 6 FEET.
10. THE MINIMUM BEND RADIUS FOR ALL CONDUITS SHALL BE WITHIN THE MANUFACTURER'S RECOMMENDED TOLERANCES OR IN ACCORDANCE WITH THE NEC, WHICHEVER IS GREATER.
11. WHERE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IS NOT SHOWN ON THE CONTRACT DRAWINGS, PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
12. REFER TO THE STANDARD SPECIFICATIONS FOR DETAILS ON STANDARD ELECTRICAL MATERIALS SUCH AS CONDUITS, JUNCTION BOXES, AND MANHOLES.

| | BY | DATE |
|---|---|---|
| MADE | EMG | 09/2010 |
| TRACED | MDC | 09/2010 |
| CHECKED | EMG | 09/2010 |
| SUPERVISED | ALB | 09/2010 |

0 ½ 1 2 3 4
ORIGINAL SIZE IN INCHES

| APP. | NO. | DATE | REVISION |
|---|---|---|---|
| | 0 | 09/2010 | ORIGINAL DRAWING |

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE**

**ITSS GENERAL NOTES, LEGEND, AND ABBREVIATIONS – 1**

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STANDARD DRAWING ITS–01

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