FLEXIBLE NONMETALIC CONDUIT INSTALLATION

NOTES:
1. BEFORE BACK FILLING TRENCH, REMOVE ALL CUT DEBRIS FROM SITE.
3. ENSURE THE BACK FILL MATERIAL IS COARSE AGGREGATE SIZE No. 8 OR No. 9 BROKEN STONE OR WASHED GRAVEL.
4. COMPACT THE BACK FILL MATERIAL IN EQUAL LIFTS TO A MAXIMUM OF 12" EACH MODIFIED VIBRATORY PLATE COMPACTOR, (MINIMUM OF THREE PASSES PER LIFT).
5. INSTALL WARNING TAPE AFTER THE FIRST LIFT.
6. MOUND UP THE BITUMINOUS CONCRETE SURFACE ABOVE THE EXISTING PAVEMENT SURFACE AND AFTER THOROUGH COMPACTION, ENSURE FINISHED GRADE IS 1/8" ABOVE THE ADJACENT PAVEMENT SURFACE. COMPACT IN ACCORDANCE WITH SECTION 1003 (10 TON VIBRATORY ROLLER).
7. PREPARE THE TRENCH BOTTOM FOR HDPE CONDUITS TO ELIMINATE LUMPS, RIDGES, JAGGED EDGES AND HOLLOWS UTILIZING BEDDING MATERIAL.
8. AFTER MATERIAL IS BACK FILLED, FERTILIZE, SEED AND MULCH IN ACCORDANCE WITH DIVISION 800.
9. WHEN THERE IS A CONCRETE SHOULDER, SAW-CUT, REMOVE THE CONCRETE MATERIAL BACK TO THE CURB. UTILIZE A TRENCHING MACHINE TO MAKE THE TRENCH. ENSURE REPLACEMENT MATERIAL COMPLIES WITH NOTE 11.
10. WHEN THERE IS A CONCRETE SHOULDER WITH BITUMINOUS OVERLAY, REPLACE WITH 8" MINIMUM BITUMINOUS MATERIAL OR MATCH EXISTING SECTION. (SEE NOTE 6)
11. ENSURE QUICK-SETTING CONCRETE IS TYPE 1A, AND COMPLIES WITH SECTION 903.07. ENSURE THE THICKNESS OF QUICK-SETTING CONCRETE IS THE SAME AS EXISTING. REPLACE EXPANSION JOINTS AND DOWELS IN KIND AND INSTALL LONGITUDINAL JOINT TIES IN ACCORDANCE WITH STANDARD CONSTRUCTION DETAILS. CONTRACTOR IS TO SUPPLY THE RE WITH DETAILED DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION.
12. INSTALL ONE #14 AWG CONDUCTOR TYPE THHN/THWN IN MIDDLE CONDUIT PER TRENCH.
13. FOR WARNING TAPE DETAILS SEE SHEET ITS-701-03.
1. Backfill the trench within the same day.

TYPICAL CONDUIT TRANSITION

ELEVATION OF CONDUIT TRENCH AND FIBER OPTIC JUNCTION BOX

NOTES:

-1' -8"

DESCRIPTION

- TYPICAL CONDUIT TRANSITION
- BOTTOM OF CONDUIT
- 80'-0" RADIUS (TYP.)
- 3'-0" RADIUS (MIN.)
- 4'-0" (TYP.)
- GRADIENT CURBLINE OR EDGE OF SHOULDER
- ITS JUNCTION BOX (TYP.)
- 5'-0" TANGENT SECTION (TYP.)
- 100'-0" TRANSITION (TYP.)
- GRADUAL TRANSITION TO EDGE OF PAVEMENT WITH NO CONDUIT BENDS
- GRADUAL TRANSITION TO EDGE OF PAVEMENT WITH NO CONDUIT BENDS

STATE FEDERAL PROJECT NO. N.J.*

REVISION DESCRIPTION

BDC07D-03
DIRECTIONAL DRILL DETAIL (NO R.O.W. RESTRICTIONS)

1. ENSURE DIRECTIONAL DRILLING MACHINE DOES NOT EXTEND BEYOND THE EXISTING R.O.W. LINE.
2. IF OBSTRUCTIONS OCCUR DURING THE COURSE OF THE DRILLING, OBTAIN PERMISSION FOR EXCAVATIONS TO CLEAR THE OBSTRUCTION.
3. ENSURE BENDS IN CONDUITS DO NOT EXCEED 45° OVER A MINIMUM LENGTH OF 100 FT. TO ENSURE INTEGRITY OF FIBER.
4. PROVIDE WARNING TAPE TO BE ORANGE, 4 MIL. FLEXIBLE POLYETHYLENE FILM AND IS RESISTANT TO ACIDS, BASES, HYDROCARBONS AND WATER.

WARNING TAPE
BLACK LETTERS ON ORANGE BACKGROUND

WARNING TAPE, DECAL AND MARKER

FIBER OPTIC WARNING TAPE
BLACK LETTERS ON ORANGE DECAL

FIBER OPTIC WARNING TAPE DECAL AND MARKER

NOTE:
1. THE WHITE TAPE "DETELA" W11 NOT
2. IF DIRECTIONAL DRILL PIT IS NOT DEEP ENOUGH, COMPLETE INFILL USING BENTONITE
3. DRILL BORING IS "X" \\
4. OTHER NOTE TO BE INSTALLED TO ACCOMPLISH TASK

DIRECTIONAL DRILL / WARNING TAPE
BLACK LETTERS ON ORANGE DECAL

WARNING TAPE
BLACK LETTERS ON ORANGE DECAL

WARNING TAPE
BLACK LETTERS ON ORANGE DECAL

NOTE:
1. THE WHITE TAPE "DETELA" W11 NOT
2. IF DIRECTIONAL DRILL PIT IS NOT DEEP ENOUGH, COMPLETE INFILL USING BENTONITE
3. DRILL BORING IS "X" \\
4. OTHER NOTE TO BE INSTALLED TO ACCOMPLISH TASK
NOTES:

1. PROVIDE CONDUIT EXPANSION FITTINGS AT EXISTING STRUCTURE EXPANSION JOINTS.

2. ALTERNATE MOUNTING ON UNDERSIDE OF PARAPET MAY BE UTILIZED WHEN IT IS NECESSARY TO CORE DRILL THROUGH WING WALL. SEAL ALL WING WALL PENETRATIONS WITH EPOXY AROUND CONDUIT.

3. SURVEY EACH STRUCTURE AND SUBMIT SHOP DRAWING FOR CONDUIT ATTACHMENT DETAILS ALONG WITH MANUFACTURER’S RECOMMENDED EXPANSION FITTINGS.

4. IF THERE IS AN EXISTING BRIDGE APPROACH SLAB IN THE SHOULDER AT THE LOCATION OF THE PROPOSED CONDUIT, INSTALL THE CONDUIT BENEATH THE APPROACH SLAB AFTER CORING THROUGH THE BACK WALL. ENSURE THE EXISTING APPROACH SLAB IS NOT DISTURBED.

5. ENSURE THE CONCRETE SET BOLT MATERIAL CONFORMS TO ASTM B-633 AND IS MADE OF ZINC PLATED STEEL. ENSURE THE SET BOLT CHARACTERISTICS CONFORM TO GSA SPECIFICATION FF S-325, GROUP VII, TYPE 2.

6. UTILIZE ALTERNATE MOUNTING AT LOCATIONS WHERE MINIMUM CLEARANCE REQUIREMENTS ARE NOT COMPROMISE.
NOTES:
1. SURVEY EACH STRUCTURE AND SUBMIT SHOP DRAWINGS FOR CONDUIT ATTACHMENT DETAILS AND EXPANSION JOINT DETAILS AND LOCATIONS ALONG EACH STRUCTURE TO THE ENGINEER FOR APPROVAL PRIOR TO THE FABRICATION OF THE CONDUIT SUPPORTS.
2. ENSURE ALL STEEL SHAPES CONFORM TO ASTM A36, BOLTS ARE HIGH STRENGTH, HEX HEAD, CONFORMING TO ASTM A325 AND SUPPLIED WITH ONE NUT AND WASHER. HOT-DIP GALVANIZE STEEL PLATES IN ACCORDANCE WITH ASTM A123. THREADED HANGER RODS, NUTS, WASHERS AND SPACER TUBES IN ACCORDANCE WITH ASTM A153.
3. ENSURE HANGER ATTACHMENTS, ARE CONCEALED BY THE FASCIA GIRDER AND THE PROPOSED CONDUIT AND SUPPORTS ARE POSITIONED SUCH THAT THE MINIMUM VERTICAL UNDER CLEARANCE IS NOT LESS THAN THE EXISTING CONDITION.
4. ENSURE STEEL PLATES AND HANGERS ARE CAPABLE OF SUPPORTING 1000 LBS. LOAD AND THE MAXIMUM HANGER SPACING IS 8FT. UNLESS OTHERWISE NOTED OR APPROVED BY THE RE.
5. NO WELDING IS PERMITTED.
6. PRIOR TO BOLTING PLATES OR ANGLES TO THE EXISTING GIRDER WEB, ENSURE THE CONNECTING AREA OF THE WEB IS THOROUGHLY CLEANED AND SPOT PAINTED AS PER STRUCTURAL REQUIREMENTS.
7. ENSURE CONDUIT LENGTHS ARE SELECTED SO THAT COUPLINGS DO NOT COINCIDE WITH HANGER LOCATIONS.
8. PROVIDE CONDUIT EXPANSION JOINTS NEAR EACH ABUTMENT AS SHOWN AND AT ALL PIER AND HINGE EXPANSION JOINTS.
9. PROVIDE A MINIMUM OF TWO EXPANSION JOINTS AT ALL BRIDGES WITH TYPES 1, 2 AND 3 ATTACHMENTS. EXPANSION JOINT SPACING SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS.
10. ENSURE THE FINISH COAT PAINT COLOR MATCHES COLOR AT THE EXISTING STRUCTURE.
11. IF THERE IS AN EXISTING BRIDGE APPROACH SLAB AND/OR TRANSITION SLAB IN THE SHOULDER AT THE LOCATION OF THE PROPOSED CONDUIT, INSTALL THE CONDUIT BENEATH THE APPROACH SLAB AND/OR TRANSITION SLAB AFTER CORING THROUGH THE ABUTMENT BACKWALL. ENSURE THE EXISTING APPROACH SLAB AND/OR TRANSITION SLAB IS NOT DISTURBED.
12. SUBMIT DETAIL OF SEAL BETWEEN PIPE SLEEVE AND CONDUIT TO THE RE FOR APPROVAL.
NOTES:

1. POSITION CONDUIT, HANGER RODS AND PLATES SO THAT ALL PORTIONS REMAIN ABOVE BOTTOM OF LOWER GIRDER FLANGE ALONG ENTIRE LENGTH OF BRIDGE.

2. PRIOR TO CORING INTO BEAMS, FIELD VERIFY THE EXACT LOCATION OF THE REINFORCEMENT AND PRESTRESSING STRANDS WITH A TACHOMETER AND EXERCISE EXTREME CAUTION DURING DRILLING AND INSTALLATION OF FASTENERS AT PRESTRESSED CONCRETE BEAMS, PARTICULARLY WITH RESPECT TO THE DEPTH OF INSTALLATION.

PLATE 9" X 9" X 3/4"

7/8" DIA. HOLE FOR 3/4" DIA. A325 BOLT (TYP.)

5/16" DIA. HOLE (TYP.)

6-1/4" DIA. HILTI KWIK BOLT II SYSTEM WITH 1 1/8" EMBEDMENT, MINIMUM PULLOUT CAPACITY = 500 lbs.

PLATE 9" X 9" X 3/4" (TYP.)

SPACER TUBE (TYP.)

SAWCUT EDGES 1/2" DEEP AND REMOVE EXISTING CONCRETE ENCASEMENT (TYP.)

FIELD DRILL 2 - 7/8" DIA. HOLES FOR 3/4" DIA. A325 BOLTS 1/2" MIN. CLR. (TYP. ALL SIDES)

2 - 3/4" DIA. A325 BOLTS (TYP.) 1 1/8" EMBEDMENT LENGTH IN PRESTRESSED CONCRETE BEAM (TYP.) (SEE NOTE 2)

{ FASCIA BEAM

1/2" CLR TO STRAND (TYP.)

1/2" X 3" GALVANIZED STEEL PLATE

SPACER TUBE (TYP.)

{ INTERIOR BEAM

EXISTING MILD STEEL REINFORCING (TYP. EACH GIRDER) (SEE NOTE 2)

{ FIRST INTERIOR STEEL GIRDER

W8 X 40 (LEVEL)

1/2" X 3" GALVANIZED STEEL PLATE

3/4" DIA. THREADED STEEL HANGER RODS, NUTS AND WASHERS, STAINLESS STEEL (TYP.)

{ FIRST INTERIOR CONCRETE ENCASED STEEL GIRDER

W8 X 40

7/8" X 1 1/4" LONG SLOTTED HOLE IN WEB OF W8 X 40 WITH 7/8" DIA. HOLE IN L 4" X 4" X 3/8" EXISTING PRESTRESSED CONCRETE BEAM (TYP.)

3/4" DIA. THREADED STEEL HANGER RODS, NUTS, & WASHERS, GALVANIZED

EXISTING STRAND PATTERN (TYP. EACH BEAM)

CONCRETE PARAPET

2 - L 4" x 4" x 3/8" FIELD DRILL 2 - 7/8" DIA. HOLES FOR 3/4" DIA. A325 BOLTS

CONCRETE DECK

CONCRETE DECK

CONCRETE DECK

{ RMC

{ RMC

{ RMC

1/4" (TYP.)

5"

6 1/2"

1 1/4" (TYP.)

1 1/2"

3"

3"

1 1/2"

1 1/2"

3/4"

1 1/2"

FASCIA BAY

1/2" CLR.

( TYP.)

1'-6" MAX.

1/2" CLR.

(TYP.)

FASCIA

1/2"

1 1/2"

3/4"

1 1/2"

3/4"

1 1/2"

3/4"

1 1/2"

3/4"

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3/4"

1 1/2"

3/4"

1 1/2"

3/4"

1 1/2"

3/4"
JUNCTION BOX ITS TYPE A

**NOTES:**

1. Ensure all hardware is stainless steel.

2. Ensure all hardware is washers.

3. Use silicon caulking for all flange joints.

4. As a minimum, design the box assembly for Tier 22 loading as specified in ANSI/SCTE 77 2002 "Specification for Underground Enclosure Integrity".

5. Provide certification by a professional engineer licensed in the State of New Jersey and include test results showing that the junction box and cover design meet the specified loading requirement.

6. Ensure the color of the cover and the part of the box that is visible when it is installed is "Concrete Grey".

7. Design the junction box with a minimum safety factor of 2.0 for wheel loads and 2.0 for soil loads. So that cover deflection at design loads does not exceed 0.5 inches of net cover deflection width and side wall deflection does not exceed 0.25 inches per foot of cover width and side wall deflection.

8. Perform testing according to current Western Underground Committee Guide No. 3.6 Non-Concrete Enclosures.

9. Ensure the cover surface is skid resistant with a coefficient of friction of at least 0.5.

10. Permanently mold identification of the cover on the top surface with "N.J.D.O.T. FIBER".

11. Ensure the material utilized in the manufacture of junction boxes and covers are resistant to chemicals commonly found in the soil or in the operating environment, and they are also resistant to sunlight, UV and any climatic conditions in accordance with ASTM G53, -40°F to +140°F. Determine chemical resistance properties using ASTM D543 and ASTM D570 for water absorption.

12. Ensure the materials are resistant to direct flame and heat in accordance with ASTM D635.

13. Set the top of the polymer concrete cover flush with the top of the junction box at grade.

14. Provide a concrete lock-in feature around the top of the box.

15. Limit the gap from the edge of the cover to the inside edge of the box to a maximum of 1/8" + 1/16".

16. As an alternate, a single section or two section junction box may be supplied.

17. Vibrate and compact soil thoroughly around JB up to grade per Section 203.03.02D.

18. Terminate all non-metallic conduits with bell end construction in junction box. Set the bell end flush with the inside wall of the junction box.

19. Ensure conduits enter into the junction box perpendicular to walls or as approved by the RE. Maintain a 2" separation between adjacent walls, conduits and cable rack locations.

20. Install a concrete collar around the top of the junction box of class "C" concrete 4" thick.

21. Field drill all conduit entrances into the junction box with a hole saw, or punch out using a hydraulic hole punch, unless otherwise directed by the RE.

22. Sand all conduit openings after the conduits are installed and seal all conduit entrances with an epoxy or silicon caulking.

23. Provide protective cover with the bolt assembly.

24. Compact 3/4" gravel or broken stone required.

25. Sandblasting required to prepare the flange and holes in accordance with the N.J.D.O.T. FIBER logo requirements.
1. Ensure the roadway junction box complies with AASHTO HS20-44 or tandem 24 kip axles at 4 foot centers, whichever governs, for live loading.

2. Provide sufficient steel reinforcement per ASTM-A615 (Grade 60) (FS) = 24,000 psi to meet the loading requirements.

3. Concrete design stresses:
   a. Specified design compressive strength (F'C) = 4,000 psi
   b. Class design strength = 4,600 psi (in accordance with Section 914 of the specifications)

4. Cover the steel reinforcement with a minimum of 1" of concrete.

5. After the installation of conduit, completely brick and grout all open recesses.

6. Ensure the ring and cover made of gray iron and comply with AASHTO M105, ASTM A-48, Class 30B, with a min. tensile strength of 30,000 psi.

7. Set the top of the ring and cover at roadway grade.

8. Terminate all non-metallic conduits with bell end construction in junction box and set flush with the inside wall.

9. Ensure conduits enter into the junction box perpendicular to walls or as approved by the RE. Maintain a 2" separation between adjacent walls, conduits and cable racks.

10. Provide 4 cable rack supports as indicated.

11. Provide certification by a professional engineer licensed in the State of New Jersey for design calculations showing the junction box meets all loading requirements.
1. Ensure cabinet and cabinet door is sheet aluminum 1/8" thick, 5052-H32 alloy, unpainted.

2. Supply with each cabinet (2) anchor bolts 3/4" - 10NC X 15" LG. STL. with galvanized 3" coupling (2) stainless steel 1 1/2 " O.D. X 1/8 " THK. FLAT WASHERS AND (2) 3/4 " - 10NC X 3" LG. STAINLESS STEEL CAP SCR.

3. Secure cabinet door with a Sub-Treasury lock No. 0357S and keypad alike for key No. 5 available from the American Hardware Co. New Britain, Conn., or a Tumbler lock No. 15481 ARS and keypad alike for No. 2 available from Corbin Lock Co. New Britain, Conn.

4. Secure cabinet lock to the door with #10 - 24 X 1 1/8 " ROUND HEAD (STN. STL.) MACHINE SCREWS.

5. 120V EXPOSED WIRING IS NOT PERMITTED. ENCASE WIRING TO ENCLOSURES AND OUTLETS IN LIQUID TIGHT FLEXIBLE CONDUIT AND FITTINGS INSIDE THE CABINET.

6. Ensure all equipment is UL & NEMA listed for outdoor installation inside NEMA 3R cabinet.

7. LABEL ALL ELECTRICAL RECEPTACLES EXCEPT GFCI AS "ELECTRONIC EQUIPMENT ONLY". LABEL GFCI RECEPTACLE SHALL BE LABELED AS "CONVENIENCE RECEPTACLE".

8. FOR BREAKER RATINGS, SEE TABLE A.

9. PROVIDE SURGE SUPPRESSION TO THE DATA LINES.

10. METER, RAINTIGHT DISCONNECT SWITCH AND SERVICE CONDUIT ARE NOT REQUIRED IF ELECTRIC SERVICE IS CONNECTED TO ANOTHER LOAD CENTER AND NOT TO UTILITY COMPANY POWER SOURCE.
NOTES:

1. PROVIDE SEALED, SELF LUBRICATED BEARINGS, OIL TIGHT BRONZE BEARINGS OR SINTERED BRONZE BUSHINGS WITH ALL PULLEYS FOR THE CAMERA LOWERING DEVICE AND PORTABLE LOWERING TOOL.

2. ENSURE THE LOWERING CABLE HAS A MINIMUM OF 1/8" DIAMETER STAINLESS STEEL AIRCRAFT CABLE WITH A MINIMUM BREAKING STRENGTH OF 1740 POUNDS WITH (7) STRANDS OF 19 WIRE EACH.

3. PROTECT ALL ELECTRICAL AND VIDEO COAXIAL CONNECTIONS BETWEEN THE FIXED AND LOWERABLE PORTION OF THE CONTACT BLOCK FROM EXPOSURE TO THE WEATHER WITH A WATERPROOF SEAL TO PREVENT DEGRADATION OF THE ELECTRICAL CONTACTS.

4. DESIGN THE ELECTRICAL CONNECTIONS BETWEEN THE FIXED AND MOVABLE LOWERING DEVICE COMPONENTS TO CONDUCT HIGH FREQUENCY DATA BITS AND ONE (1) VOLT PEAK-TO-PEAK VIDEO SIGNALS AS WELL AS THE POWER REQUIREMENTS FOR OPERATION OF DOME ENVIRONMENTAL CONTROLS.

5. PROVIDE INTERFACE AND LOCKING COMPONENTS MADE OF STAINLESS STEEL.

6. ENSURE THE SUSPENSION CONTACT UNIT HAS LOAD CAPACITY OF 200 LBS. WITH A MINIMUM OF 4 TO 1 SAFETY FACTOR.

7. SUPPLY AN ADAPTOR FOR A STANDARD 1/2" ELECTRIC DRILL.

8. SUBMIT WINCH ASSEMBLY AND GFI RECEPTACLE BOX MOUNTING DETAILS TO THE RE FOR APPROVAL.

1. INSTALL ALL WIRING INSIDE THE POLE AND PROVIDE STRAIN RELIEF FOR ALL CAMERA CABLES.

2. SUPPORT ELECTRICAL AND COMMUNICATION CABLES WITH SEPARATE GRIPS.

REVERSIBLE 1/2" HEAVY DUTY DRILL WITH TORQUE LIMITED CLUTCH EQUIPPED WINCH MOUNTING PLATE WINCH ASSEMBLY ACCESS DOOR AREA CONCRETE FOUNDATION, CONDUITS ARE NOT SHOWN ONE STAINLESS STEEL NUT, BOLT & FLAT WASHER MARSHALL MAST ARM TENON CABLE GUIDE PULLEY (TYP.) DOME CAMERA AND LOWERING DEVICE 1000 LB. CAPACITY WINCH WITH BREAK (SEE NOTE 7) THERM WINCHES 2" STEEL SHEAVE 9/16" TYP. WINCH ASSEMBLY (ENCLOSED WORM GEAR HOUSING - SELF LUBRICATING) RAIN-TIGHT ENCLOSURE WITH GFI RECEPTACLE FOR HEAVY DUTY DRILL ADJUSTABLE SUPPORT YOKE FABRICATED STEEL FRAME BRONZE POWDER COAT FINISH CGB FITTING(S) HAND HOLE (TYP.) ALUMINUM ROD 3/4" DIAMETER SELECT ANGLE TO KEEP VERTICAL WHEN CLAMPED TO POLE 8" BENDING RADIUS 8 GAUGE STAINLESS STEEL AIR TERMINAL CLAMP 3.82" DIAMETER AIR TERMINAL CLAMP 1'-3" 2'-2" 3.82" DIAMETER AIR TERMINAL CLAMP 5/8" DIAMETER TOLERANCES ARE ± 1/32" UNLESS OTHERWISE SPECIFIED
NOTE:

40' 55' 75'

FOUNDATION TYPE

POLE HEIGHT

ANCHOR BOLT CIRCLE DIAMETER

ANCHOR BOLT SPECIFICATION

NUMBER (2 MIN.), LOCATION & SIZE OF CONDUIT AS SHOWN ON PLAN SHEETS

#4 BARS @ 9' CENTER TO CENTER

2' MAX.

BOLT CIRCLE

SEE TABLE

3' COV.

USE 20-#7 BARS

3 3/16 " TYP.

FOUNDATION CSS

3/4 " -10NC THD.

FREE FIT

MAT'L - STEEL, GALVANIZED AS PER ASTM A-153

MAT'L - STAINLESS STEEL

MAT'L - STEEL PER ASTM A-576

MAT'L- STAINLESS STEEL PER ASTM A-193 GRADE B-8

ANCHOR BOLT CAP SCREW

FLAT & LOCK WASHER

COUPLING

ELEVATION

PLAN

APPROX. 21 CU. FT.

CONCRETE CLASS 'B'

NOTES:

ANCHOR BOLT (TYP.) SEE DETAIL

SERVICE CONDUIT

GROUND ROD

SEE NOTE 1

FINISHED GRADE

ANCHOR BOLTS

1" CHAMFER (TYP.)

HEIGHT OF ANCHOR BOLTS AS RECOMMENDED BY MANUFACTURER WITH LEVELING NUT TYPE INSTALLATION

#4 BARS

YIELD STRENGTH (fy) (A615, GRADE 60) .................................................... 60 KSI

TENSILE STRENGTH (ts) ............................................................................... 24 KSI

CONCRETE DESIGN STRESS:

REINFORCEMENT STEEL DESIGN STRESS:

GENERAL DESIGN SPECIFICATIONS:

ANCHOR BOLTS -(4) 1 3/4 " X 90" WITH (16) HEX NUTS, (4) LOCK WASHERS AND (8) FLAT WASHERS

SEE NOTE 1

DIMENSIONS MAY VARY TO ACCOMMODATE THE METER CABINET SUPPLIED

SPECIFIED COMPRESSIVE STRENGTH (f'c)  (CLASS B).......................... 3,000 PSI

EXTREME FIBER COMPRESSIVE STRESS (fc)........................................... 1,200 PSI

APPROX. 142 CU.FT. OF CONCRETE CLASS B

"BOLT CIRCLE TABLE"

SEE NOTE 2

1. 5/8 " DIA. X 12 FT. LONG GROUND ROD.

2. FOR NUMBER & SIZE OF CONDUITS, SEE PLANS.

1. HOT DIPPED GALVANIZE ANCHOR BOLTS AFTER THREADING PER ASTM A153 FOR THE FULL LENGTH OF THE BOLT.
COAXIAL CABLES FROM READER ANTENNA (UP TO EIGHT)

ELECTRIC SERVICE FROM MAIN TERMINAL BLOCK

20 AMP CIRCUIT BREAKER

SUPPRESSORS

COMMUNICATIONS PANEL

COMMUNICATION PANEL

CABINET WALL

POWER PANEL

RACK

RAIL

COMMUNICATIONS PANEL

RIGHT ANGLE CONNECTORS

SUPPRESSORS & N CONNECTORS

COMMUNICATIONS PANEL

4” MIN.

1'-7” MIN.

1'-10” MIN.

RJ-48S CONNECTOR TO CSU/DSU

RJ-48S CONNECTOR TO TRANSMIT READER

RG58 CABLES (TYP.) CONNECTION TO GROUND ROD

SUPPRESSORS & N CONNECTORS

COMMUNICATIONS PANEL

FANS, HEATER

CONVENIENCE DUPLEX RECEPTACLE

10 AMP

10 AMP

10 AMP

WIRELESS CONNECTION TO TRANSCOM
NOT TO SCALE

REFERENCE

704-18

SCALE:

ITSD-TRAVEL TIME SYSTEM

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TTS DETECTOR, TYPE A

SHEET 1 OF 2

NOTES:

1. READER ANTENNA, CONDUIT, AND JUNCTION BOX APPROXIMATE LOCATIONS ARE SHOWN ON THE PLAN SHEETS. THE ACTUAL LOCATION IN THE FIELD TO BE VERIFIED BY THE CONTRACTOR.

2. ENSURE ALL FASTENERS INCLUDING BOLTS, U-BOLTS, NUTS AND WASHERS ARE STAINLESS STEEL AND CONFORMS TO CURRENT ASTM SPECIFICATION A320, GRADE B8, CLASS 2 (ANSI TYPE 304) WITH NO. 4 FINISH AND STRAIN HARDENED.

3. SUBMIT DETAIL PLANS FOR MOUNTING ASSEMBLIES FOR REVIEW AND APPROVAL BY THE RE.

4. CONDUIT ROUTING ON THE STRUCTURE, AND BETWEEN STRUCTURE OR POLE AND UTILITY POLE LOCATION MAY BE MODIFIED AS REQUIRED BY THE FIELD CONDITIONS SUBJECT TO THE APPROVAL OF THE RE.

5. GROUND ALL SIGN STRUCTURES WHICH HAVE EQUIPMENT INSTALLED IN ACCORDANCE WITH THE NEC REGARDLESS OF EXISTING GROUNDING.

6. NO WELDING OR CUTTING OF EXISTING SIGN STRUCTURE WILL BE PERMITTED.

7. MAINTAIN THE MINIMUM BENDING RADIUS RECOMMENDED BY THE COAXIAL CABLE MANUFACTURER WHILE INSTALLING CABLE.

8. ENSURE CONDUIT PENETRATIONS FOR THE READER CABINETS ARE EXCLUSIVELY MADE THROUGH THE BOTTOM SURFACE OF THE CABINET TO PREVENT WATER AND MOISTURE FROM PENETRATING INTO ELECTRONIC EQUIPMENT.

9. WELDING IS NOT PERMITTED TO INSTALL THE TRANSMIT EQUIPMENT ON THE SIGN STRUCTURE.
1. All steel plates per ASTM A36.
2. All steel tubes per ASTM A36 or equal.
3. All steel flat bar per ASTM A36.
4. All steel angles per ASTM A36.
5. All anchor bolts per ASTM A307 & galvanized per ASTM A153.
6. All anchor bolt nuts per ASTM A563 Grade 1H or ASTM 194 Grade 2H.
7. All weld filler material per ER70S-3, AWS 5.18.
8. All bolts per ASTM A325 & galvanized per ASTM A153.
10. Concrete foundation per ACI 301 & ACI 318 concrete Fc = 3,000 PSI min.
11. Rebar Fy = 60,000 PSI min.
12. All welding per AWS D1.1.
13. Entire structure to be galvanized per ASTM A153 after fabrication.

Details:
- 3" Dia. Rigid Non-Metallic Conduit
- Steel tower
- Non-shrink grout (Fc = 5,000 PSI)
- #7 rebar vertical with 9" CC spacing, 4" of cover
- #4 rebar horizontal with all sides
- 3/4" Dia. Anchor Bolt with nuts & washers
  - 16 pieces, length 1' - 10 3/4" (typ. 4 pieces nuts for each bolt)
- 2" x 2" x 1/4" Embedded Plate (typ.)
- 6" x 6" x 1" Steel Plate
- Approx. 54 cu. ft. of min. 3,000 PSI concrete

Details (B):
- Hinge Point
  - Triangular plate 3/8" thick
  - 2 pieces welded to 12" x 18 3/8" steel plate in truss

Details (A):
- RPU Enclosure
  - 3" Dia. Rigid Non-Metallic Conduit
- Steel tower
- Foundation details
- Steel plate
- Steel tube
- 1 1/2" x 3/16" flat stock top 20'
- 1 1/2" x 1/4" bottom 10'
- 4 main angle steel L 3" x 3" x 3/16" top 20'
- 4 main angle steel L 3" x 3" x 5/16" bottom 10'
- 2" x 2" x 1/4" steel tube horizontal lacing, 8 pieces welded to tower and 4" x 4" x 1/4" steel tube fixed pole 4" x 4" x 1/4" steel tube

MULTIPLE HIGHWAY SENSOR SYSTEM

ROADWAY DEVICES
1. Fabricate cabinet of 1/8" thk. aluminum (grade 50-52-H32). The cabinet to be mounted with the anchor bolt configurations shown, if required use 1/4" thk. aluminum base adapter plates and constructed to meet the minimum conduit entrance area.

2. Fit each door with a gasket to insure dust tight & weatherproof protection under all weather conditions.

3. Manual control weatherproof momentary contact switch connected to 6'-0" reinforced cord stored in recess behind small door in large door.

4. Install three adjustable shelves.

5. Secure small door with a sub-treasury lock #0357S and keyed alike for #10 as manufactured by the American Hardware Co. New Britain, Conn.

6. Secure large door with a CCL lock #15481RS with a match #2 key to be supplied to New Jersey Department of Transportation. For door and lock details, see drawing P-21 sheet 2 of 2, of the Electrical Bureau specification EBM-TSC-ITB.

7. With the exception of large door lock details, all cabinet dimensions are approximate.

8. Secure the large door at the top and bottom of the cabinet by a locking bar.

9. Install aluminum vent with screen under front lip above door.

10. Thermostat to be installed in top of cabinet.

11. Ensure the main door handle rotates inward.

12. Mount cabinet on 1'-6" skirt.

13. Mount the electric service meter and disconnect per ITS-704-10.

14. For foundation details see foundation, type P on sheet T-1607.
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITSD-
ROADWAY DEVICES
TRAFFIC VOLUME SYSTEM

REFERENCE
704-25

SCALE:
NOT TO SCALE

ITS DETAILS
NEW JERSEY DEPARTMENT OF TRANSPORTATION

NOTE:
IDENTIFICATION OF TRAFFIC MONITORING LOOPS

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<th>LOOP</th>
<th>SIZE</th>
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NORTHBOUND

SOUTHBOUND

SHOULDER

GROUT

LEAD IN WIRES

SECTION A-A

SECTION B-B

1.  TWIST LEAD WIRES AT 7 TURNS PER FOOT.
2.  DRILL A HOLE IN SHOULDER TO INSTALL RMC CONDUIT.
3.  CONSTRUCT 1 1/2 " RMC CONDUIT BETWEEN JUNCTION BOX AND SHOULDER SURFACE.
4.  INSTALL JUNCTION BOX INSTALLED AT ROAD EDGE FOR CONNECTIONS TO FEEDER CABLE.
5.  PERFORM ALL CONNECTIONS BETWEEN LEAD WIRES AND LOOP DETECTOR LEADS IN THE JUNCTION BOX ONLY.

1. IDENTIFY LOOPS CLEARLY MARKED BY DURABLE IDENTIFICATION TAGS ON EACH LOOP LEAD PAIR. AFFIX LETTERS TO LOOPS AS FOLLOWS:
   LOOP A SHALL BE THE LEADING LOOP (FIRST LOOP IN THE DIRECTION OF TRAVEL) OF THE RIGHTMOST LANE (VARIOUSLY CALLED SLOW, SHOULDER, OR TRAVEL LANE), IN THE NORTHBOUND OR EASTBOUND DIRECTION. LOOP B SHALL BE THE TRAILING (SECOND) LOOP IN THE SAME LANE.
   LOOP PAIRS IN THE SOUTHBOUND OR WESTBOUND LANES WILL BE SIMILARLY DESIGNATED BY LANE STARTING IN THE RIGHTMOST SOUTHBOUND OR WESTBOUND LANE, USING THE NEXT PAIR OF LETTERS, THEN ACROSS THE LANES TO THE DIVIDER OR MEDIAN.

1.  ENSURE INDUCTIVE LOOP CONSISTS OF NO. 14 GAUGE WIRE, 4 TURNS SINGLE PASS WET SAW CUT WITH CONCRETE BLADE SLOT. BLOW DRY BEFORE SEALANT POURED. ENSURE SAW CUT WIDTH IS 5'-6" WIDER THAN THE CABLE DIAMETER.

6'-0" X 6'-0"

6'-0" X 6'-0"

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6'-0" X 6'-0"

6'-0" X 6'-0"

18" X 36" JUNCTION BOX

1 1/2 " RMC

4 PAIR, 1/C #14

3" RMC

10-2/C #14

18" X 36" JUNCTION BOX

3 - 3" RMC

12-2/C #14

ELECTRIC SERVICE
METER CABINET AND CONTROLLER CABINET

STATE PROJECT NO.

REVISION DESCRIPTION

CHECKED

DATE

FEDERAL PROJECT NO.

N.J.

BDC07D-03