REFERENCE

*State of New Jersey*

*Department of Transportation*

# STANDARD ELECTRICAL DETAILS

## 2007

BDC07I-03

# INDEX FOR STANDARD ELECTRICAL DETAILS

| DRAWING NUMBER | D E S C R I P T I O N | DRAWING NUMBER | D E S C R I P T I O N | DRAWING NUMBER | D E S C R I P T I O N |
|---|---|---|---|---|---|
| T-0107 | TRAFFIC SIGNAL STANDARD "T" | L-0107 | LIGHTING STANDARD WITH LIGHTING MAST ARMS | ITS-701-01 | GENERAL SYSTEMS, TYPICAL FLEXIBLE NONMETALLIC CONDUIT INSTALLATION |
| T-0207 | TRAFFIC SIGNAL ALUMINUM TRANSFORMER BASE TB-20 | L-0207 | METER CABINET 2M 240/480 VOLT AND 2M-MC 240/480 VOLT | ITS-701-02 | GENERAL SYSTEMS, TYPICAL UNDERGROUND CONDUIT, TRANSITION |
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| | AND ELEVATOR PLUMBIZER | L-0507 | JUNCTION BOX FOUNDATION "JBF", 18" x 36" JUNCTION BOX "JB" PRECAST | ITS-701-05 | GENERAL SYSTEMS, TYPICAL CONDUIT HANGER ATTACHMENTS- DETAILS 2 OF 3 |
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| | | L-0707 | METER CABINET, 1M, 120/240 VOLT AND TYPE 1M-MC, 120/240 VOLT | | |
| T-0707 | PEDESTRIAN SIGNAL STANDARD, SLIP FITTER, PUSH BUTTON & ANCHOR BOLT | | | ITS-704-08 | GENERAL SYSTEMS, JUNCTION BOX ITS, TYPE "B" |
| | | L-0907 | METER CABINET DETAILS "L" ELECTRICAL INSTALLATION | | |
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| T-0907 | TRAFFIC SIGNAL MAST ARM 15', 20' & 25' WITH CLAMP DETAIL FOR "K" STANDARD | | | ITS-704-10 | GENERAL SYSTEM, CONTROLLER ITS |
| | | L-1107 | BRIDGE DETAILS | | |
| T-1007 | TRAFFIC SIGNAL STANDARD "K" TRANSFORMER BASE & TRAFFIC SIGNAL EXTENSION "KE" | | | ITS-704-11 | CAMERA SURVEILLANCE SYSTEM, CAMERA STANDARD TYPE A AND B |
| | | L-1307 | CAPPING DETAILS FOR JBF & 18" x 36" JUNCTION BOX | | |
| T-1107 | TRAFFIC SIGNAL STANDARD, STEEL AND MAST ARM DETAILS | | | ITS-704-12 | CAMERA SURVEILLANCE SYSTEM, CAMERA STANDARD TYPE C |
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| T-1307 | TRAFFIC SIGNAL STANDARD, SC AND MAST ARM ASSEMBLY DETAILS | | | ITS-704-14 | CAMERA SURVEILLANCE SYSTEM, CONTROLLER CAMERA |
| | | L-1707 | SCHEMATIC WIRING DIAGRAM | | |
| T-1407 | "RED SIGNAL AHEAD" SIGN | | | ITS-704-15 | CAMERA SURVEILLANCE SYSTEM, FOUNDATIONS |
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| T-1607 | TYPICAL DETAILS FOR FOUNDATION MCF, P & P-MC | | | ITS-704-16 | TRAVEL TIME SYSTEM, CONTROLLER TTS- SHEET 1 OF 2 |
| | | L-1907 | DETAIL OF TYPICAL UNDERDECK LIGHTING INSTALLATION | | |
| T-1707 | TYPICAL DETAILS FOR FOUNDATION SFT, SFK & SPF | | | ITS-704-17 | TRAVEL TIME SYSTEM, CONTROLLER TTS- SHEET 2 OF 2 |
| | | L-2007 | TOWER LIGHTING (SHEET 1 OF 2) | | |
| T-1807 | TYPICAL TRAFFIC SIGNAL INSTALLATION | | | ITS-704-18 | TRAVEL TIME SYSTEM, TTS DETECTOR, TYPE A- SHEET 1 OF 2 |
| | | L-2007 | TOWER LIGHTING (SHEET 2 OF 2) | | |
| T-1907 | METER CABINET "T" AND "TL" ELECTRICAL INSTALLATION | | | ITS-704-19 | TRAVEL TIME SYSTEM, TTS DETECTOR, TYPE A- SHEET 2 OF 2 |
| | | L-2107 | LIGHTING ALUMINUM TRANSFORMER BASE PART No. TB-17 (BREAKAWAY) | | |
| T-2007 | LOOP DETECTOR TRENCH & LOOP DETECTOR | | | ITS-704-20 | ROADWAY WEATHER INFORMATION SYSTEM, WEATHER STATION SHEET 1 OF 2 |
| T-2107 | OPTICALLY PROGRAMMED AND MIDMAST MOUNTING DETAILS | | | ITS-704-21 | ROADWAY WEATHER INFORMATION SYSTEM, WEATHER STATION SHEET 2 OF 2 |
| T-2207 | SIGN FOUNDATIONS "SSF" & "SSF-A" | | | ITS-704-22 | ROADWAY WEATHER INFORMATION SYSTEM, ROADWAY DEVICES |
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| T-3407 | TRAFFIC SIGNAL STANDARD STEEL AND ARM DETAILS FOR ELECTRICAL SIGNS | | | ITS-704-24 | WIM SYSTEM / TVS SYSTEM, CONTROLLER WIM / TVS |
| T-3507 | METER CABINET FABRICATED TYPE 40" AND 50" | | | ITS-704-25 | TRAFFIC VOLUME SYSTEM, ROADWAY DEVICES |
| T-3807 | 17" x 30" COMPOSITION JUNCTION BOX | | | ITS-704-26 | COMMUNICATION HUB SHEET 1 OF 4 |
| T-4307 | STEEL TRAFFIC SIGNAL STANDARD FOUNDATION DETAILS | | | ITS-704-27 | COMMUNICATION HUB SHEET 2 OF 4 |
| T-4507 | OVERHEAD MAST ARM ADJUSTABLE SWING SIGN BRACKETS | | | ITS-704-28 | COMMUNICATION HUB SHEET 3 OF 4 |
| | | | | ITS-704-29 | COMMUNICATION HUB SHEET 4 OF 4 |

LEGEND:

| | |
|---|---|
| T | TRAFFIC SIGNAL DETAILS, SECTION 702 |
| L | HIGHWAY LIGHTING DETAILS, SECTION 703 |
| ITS | INTELLIGENT TRANSPORTATION SYSTEMS DETAILS, SECTION 704 |

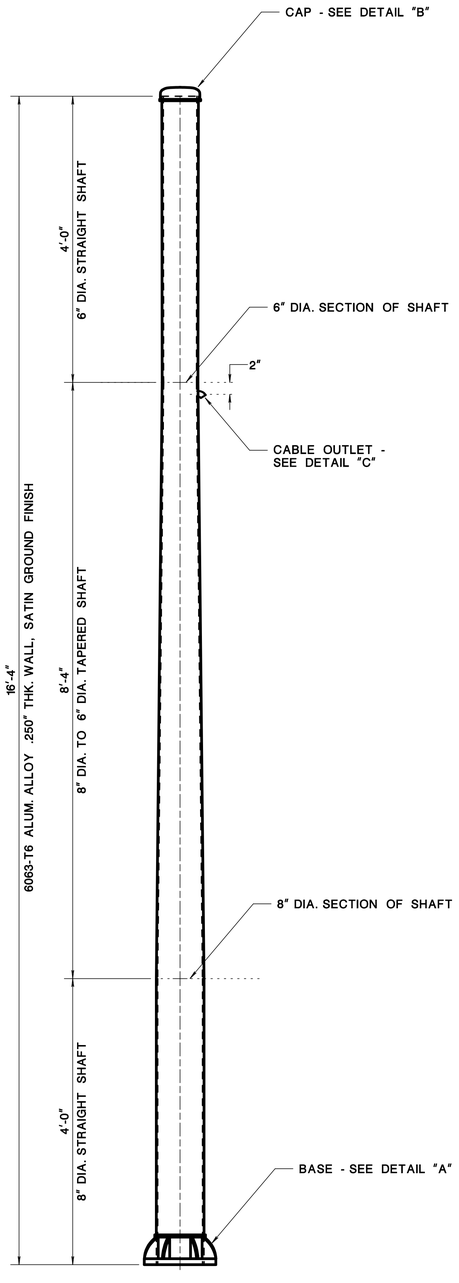
NOTE:

DETAILS FOR GENERAL ITEMS, SECTION 701 ARE COVERED UNDER EITHER T, L OR ITS.

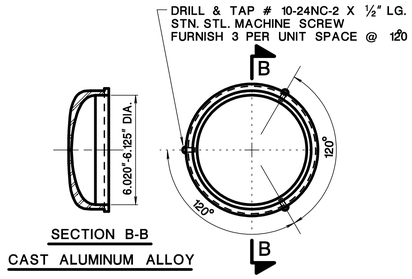
REFERENCE

BDC027-03

REFERENCE




TRAFFIC SIGNAL STANDARD "T"

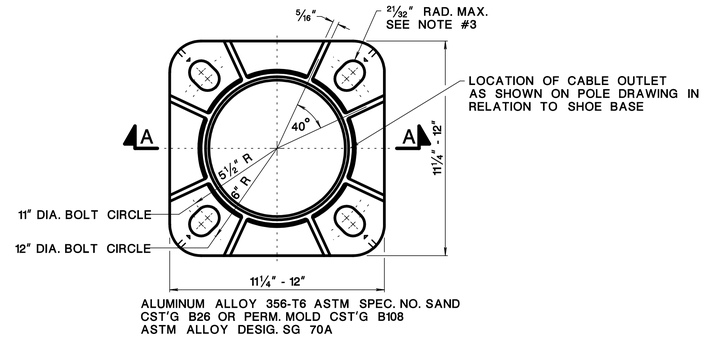



SECTION B-B

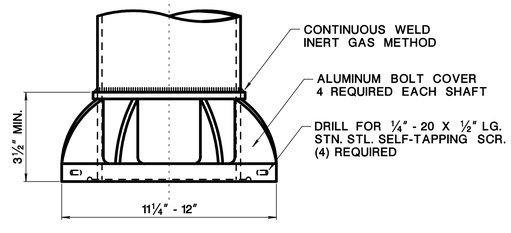
CAST ALUMINUM ALLOY

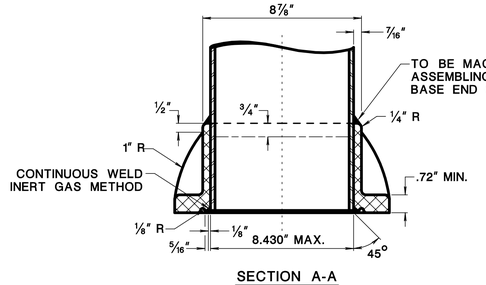
CAST ALUMINUM CAP

DETAIL "B"




ALUMINUM ALLOY 356-T6 ASTM SPEC. NO. SAND
CST'G B26 OR PERM. MOLD CST'G B108
ASTM ALLOY DESIG. SG 70A

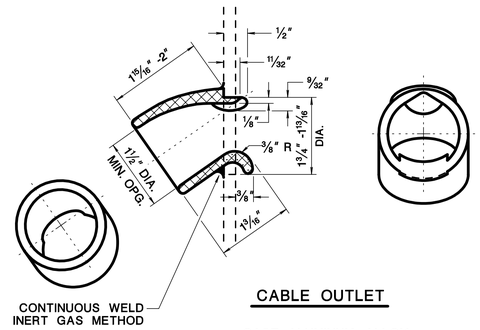



SECTION A-A

ALUMINUM SHOE BASE

DETAIL "A"




CABLE OUTLET

CAST ALUMINUM ALLOY

DETAIL "C"

## FURNISH WITH EACH STANDARD

4 - 1" DIA. X 3½" LONG HEX HEAD BOLTS, 8 THREADS PER INCH
CLASS 2 - FREE FIT STAINLESS STEEL ASTM A193 GRADE B8
8 - 1" DIA. PLAIN WASHERS, STAINLESS STEEL (4 - 2" O.D., 4 - 2½" O.D.)
4 - 1" DIA. LOCK WASHERS, STAINLESS STEEL
4 - 1" DIA. HEX NUTS, STAINLESS STEEL
4 - BOLT COVERS ALUMINUM ALLOY WITH STAINLESS STEEL SCREWS
1 - POLE CAP

## NOTES:

1. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.
2. ALL TOLERANCES OF CASTINGS SHALL BE ± 1/32".
3. HOLE SHALL BE OF SUFFICIENT DIAMETER TO ACCEPT 1" DIAMETER BOLT.
4. INSTALL NUTS AND WASHERS OUTSIDE "T" BASE
5. DO NOT INSTALL STANDARD WITHOUT ARM.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

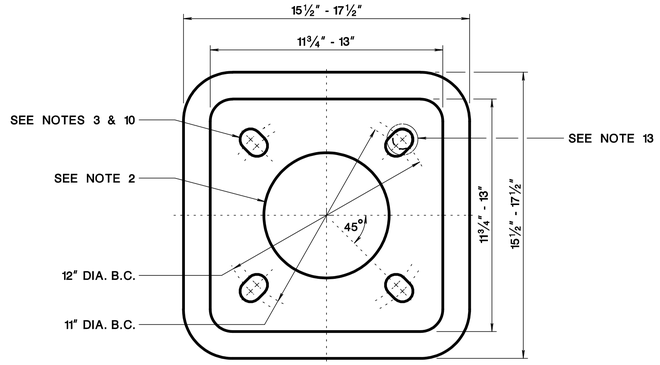
N.T.S.

TRAFFIC SIGNAL STANDARD "T"

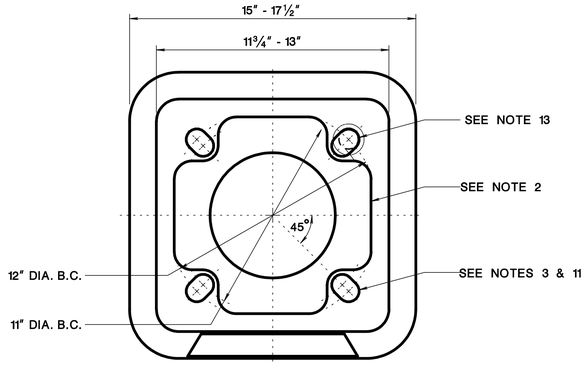
T-0107

BDC07D-03

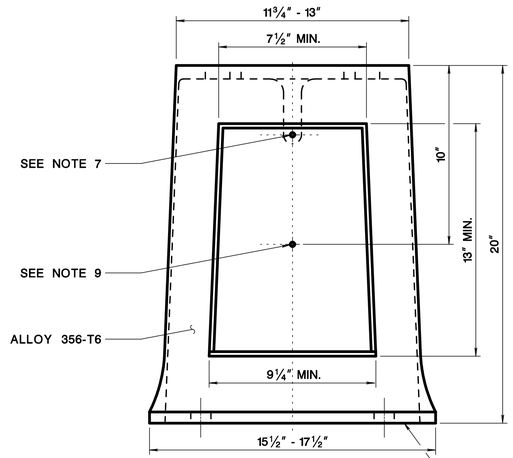
REFERENCE



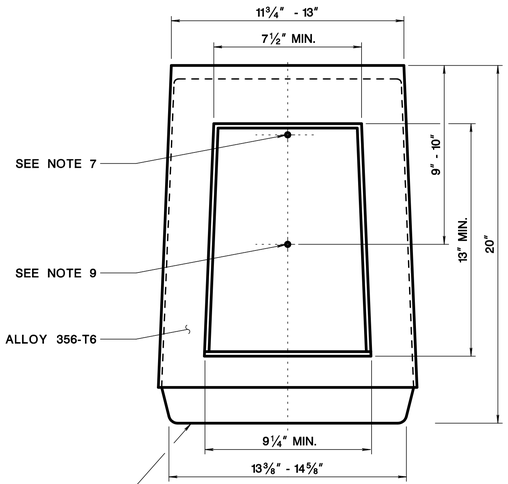

TOP VIEW




TOP VIEW

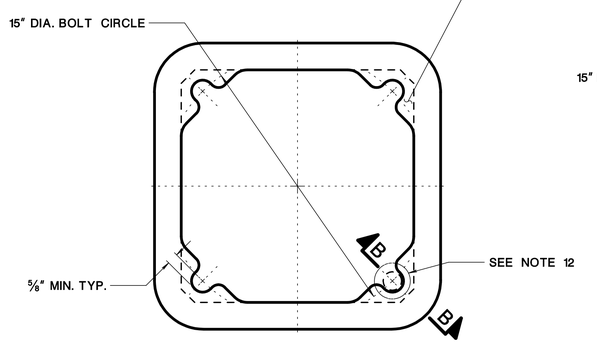



ELEVATION

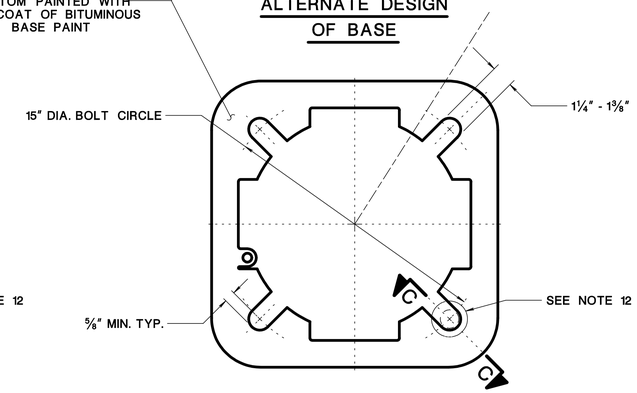



ELEVATION
ALTERNATE DESIGN
OF BASE

BOTTOM PAINTED WITH ONE COAT OF BITUMINOUS BASE PAINT



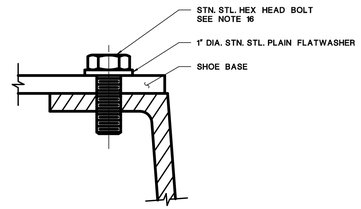

PLAN VIEW OF BASE



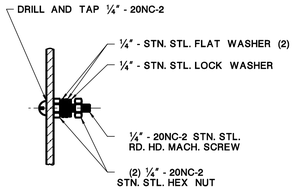

PLAN VIEW OF BASE

## NOTES

1. DESIGN BASE TO MEET THE STRENGTH REQUIREMENTS NECESSARY TO SUPPORT THE MAXIMUM OVERTURNING MOMENT THAT A TYPE "C" STANDARD MEETING THE REQUIREMENTS OF DETAIL T-08 WILL SUPPORT.
2. OPENINGS HAVE A MINIMUM DIAMETER OF 6". THE GEOMETRY DETERMINED BY MANUFACTURER.
3. SLOT OF SUFFICIENT SIZE TO ACCEPT 1" DIA. BOLTS ON A 11" THRU 12" DIA. BOLT CIRCLE.
4. FURNISH DETAIL DRAWINGS OF TRANSFORMER BASE FOR APPROVAL.
5. FURNISH CERTIFIED MILL TEST REPORTS THAT ALLOYS AND TEMPER SHOWN MEET REQUIREMENTS AS INDICATED ON DRAWING.
6. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.
7. PROVIDE PLASTIC DOOR TYPE - ABS PLASTIC MODIFIED FOR UV RESISTANCE. STEEL GRAY COLOR ⅛" MINIMUM THICK. ATTACH DOOR TO BASE WITH AN APPROVED VANDAL RESISTANT LOCKING DEVICE USING A ¼" OR ¾" STN. STL. GRADE B8 SOCKET HD. CAP SCREW. AS AN ALTERNATE A FIBERGLASS DOOR WITH UV INHIBITORS MAY BE UTILIZED.
8. SUPPLY FLAT WASHERS FOR THE BASE AS PER MANUFACTURERS REQUIREMENTS.
9. DRILL AND TAP HOLE FOR ¼" - 20NC-2 STN. STL. GROUND STUD OPPOSITE DOOR (SEE DETAIL "A" OR ALTERNATE DETAIL "D")
10. THE MAXIMUM LENGTH OF THE SLOT WILL BE DESIGNED THAT WHEN A 11¼" SQUARE SHOE BASE IS MOUNTED ON TOP OF THE TRANSFORMER BASE, THE SLOTS MUST COMPLETELY COVERED BY SHOE BASE.
11. THE MAXIMUM THICKNESS OF BASE ALLOWED MUST GUARANTEE 1¼" MINIMUM INSERTION INTO PUMPROD COUPLING OF 3" LG. ANCHOR BOLT WITH LOCK WASHER AND FLAT WASHER INSTALLED ASSUMING ¼" SHIM.
12. DESIGN THE BASE THAT THERE IS A ⅛" MINIMUM CLEARANCE FROM THE 2½" FLAT WASHER TO THE INNER SIDES OF THE BASE.
13. DESIGN THE BASE THAT THERE IS A ¼" MINIMUM CLEARANCE FROM THE 1" FLAT WASHER TO THE OUTER SIDES OF THE BASE.
14. SUPPLY ALL OTHER HARDWARE NECESSARY TO INSTALL BASE.
15. THIS BASE IS ONLY TO BE UTILIZED FOR TRAFFIC SIGNAL INSTALLATIONS.
16. DIAGRAM IS A METHOD OF INSTALLATION.



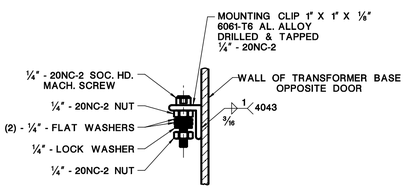

BOLTING DETAIL




DETAIL "A"

GROUND STUD DETAIL

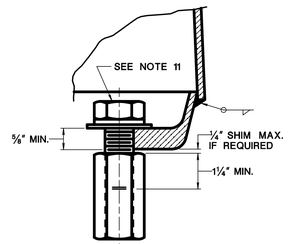
OPPOSITE DOOR OPENING



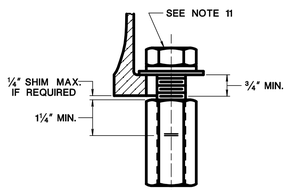

ALTERNATE DETAIL "D"

GROUND STUD DETAIL

OPPOSITE DOOR OPENING




SECTION C-C




SECTION B-B

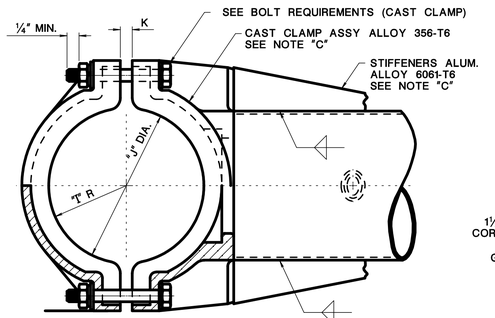
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

TRAFFIC SIGNAL ALUMINUM TRANSFORMER
BASE TB-20

T-0207

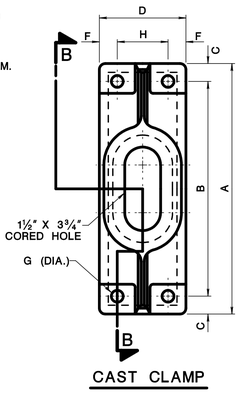
BDC070-03




SECTION B-B

BOTTOM CLAMP DETAIL

ALUM. ALLOY 356-T6
MIN. DRAFT WHERE REQUIRED

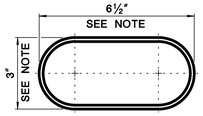



CAST CLAMP

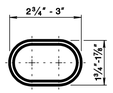
BOLT REQUIREMENTS

8 - ⅝"ϕ STN. STL. HEX HD. BOLTS,
ASTM A193, GRADE B8
16 - ⅝"ϕ STN. STL. FLAT WASHERS
8 - ⅝"ϕ STN. STL. LOCK WASHERS
8 - ⅝"ϕ STN. STL. HEX NUTS

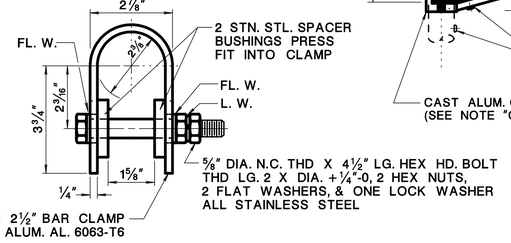
NOTE
15', 20', & 25' MAST ARMS
MIN. 5" X .125 WALL TUBE
ELLIPSIZED TO APPROX.
3" X 6½" SECTION




SECTION A-A
(TYPICAL BOTH MEMBERS)

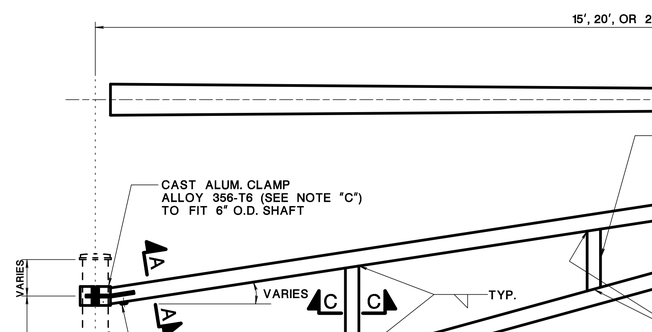



SECTION C-C
(TYPICAL ALL STRUTS)

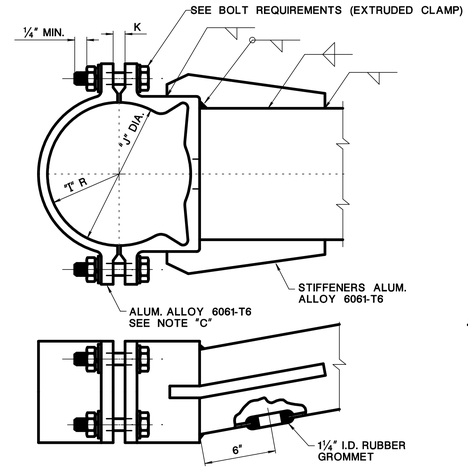


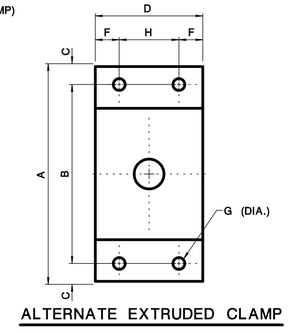

MOUNTING STRAP DETAIL

(FOR ALTERNATE MOUNTING STRAP
SEE DETAIL ON THIS SHEET)




TRAFFIC SIGNAL MAST ARM FOR "T" & "C" STANDARDS



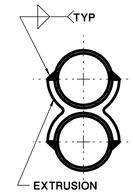




ALTERNATE EXTRUDED CLAMP

BOLT REQUIREMENTS

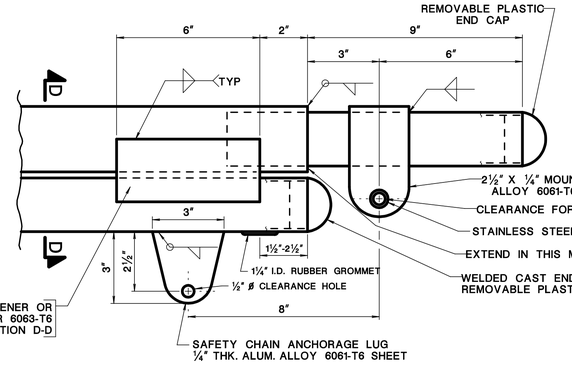
8 -⅝" ϕ STN. STL. HEX HD. BOLTS,
ASTM A193, GRADE B8
16 - ⅝"ϕ STN. STL. FLAT WASHERS
8 - ⅝"ϕ STN. STL. LOCK WASHERS
8 - ⅝"ϕ STN. STL. HEX NUTS

| DIMENSION CHART - CAST & EXTRUDED CLAMP | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LETTER | A | B | C | D | E | F | G | H | I | J | K |
| MIN. " | 9¼ | 7⅞ | ⅝ | 4½ | - | ¾ | 11/16 | 2⅛ | 3 | 6⅛ | ½ |
| MAX. " | 10½ | 8⅝ | ⅞ | 5 | - | 1⅛ | 11/16 | 3 | 3 1/32 | 6⅛ | ½ |




SECTION D-D

2¼" X ¼" X 6" ALUM. STIFFENER OR
EXTRUSION ALLOY 6061-T6 OR 6063-T6
SEE SECTION D-D



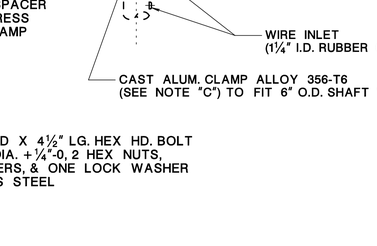

END DETAIL



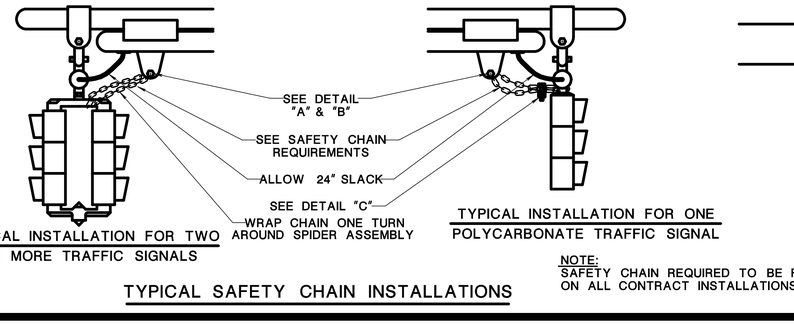

STAINLESS STEEL
SPACER BUSHING




STN. STL. BUSHING FOR
ALTERNATE MOUNTING STRAP

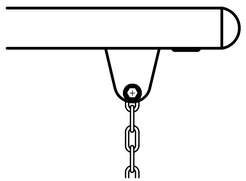



ALTERNATE MOUNTING STRAP

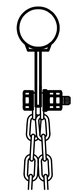



TYPICAL INSTALLATION FOR TWO
OR MORE TRAFFIC SIGNALS

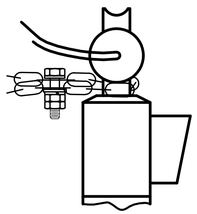
TYPICAL INSTALLATION FOR ONE
POLYCARBONATE TRAFFIC SIGNAL



DETAIL "A"



DETAIL "B"



DETAIL "C"

SAFETY CHAIN REQUIREMENTS FOR
TWO OR MORE TRAFFIC SIGNALS

FURNISH:
42" OF ¼" HOT DIPPED GALVANIZED
COILPROOF STRAIGHT LINK CHAIN
1 - ⅝"ø X 2½" LG. STAINLESS STEEL
HEX HEAD BOLT FULLY THREADED
2 - ⅝" ø STAINLESS STEEL HEX NUTS
2 - ⅝" ø STAINLESS STEEL FLAT WASHERS
1 - ⅝"ø STAINLESS STEEL LOCK WASHER

SAFETY CHAIN REQUIREMENTS FOR
ONE TRAFFIC SIGNAL

FURNISH:
42" OF ¼" HOT DIPPED GALVANIZED
COILPROOF STRAIGHT LINK CHAIN
2 - ⅝" øX 2½" LG. STAINLESS STEEL
HEX HEAD BOLT FULLY THREADED
4 - ⅝" ø STAINLESS STEEL HEX NUTS
4 - ⅝" ø STAINLESS STEEL FLAT WASHERS
2 - ⅝" ø STAINLESS STEEL LOCK WASHER

TYPICAL SAFETY CHAIN INSTALLATIONS

NOTE:
SAFETY CHAIN REQUIRED TO BE FURNISHED & INSTALLED
ON ALL CONTRACT INSTALLATIONS BY THE CONTRACTOR

## NOTES

"A" THE 25' MAST ARM SHALL BE DESIGNED TO ADEQUATELY SUPPORT 3-3 SECTION 8" OR 2-3 SECTION 12" TRAFFIC INDICATIONS AND ASSOCIATED MOUNTING HARDWARE. THE 15' AND 20' MAST ARMS SHALL SUPPORT 4-3 SECTION 12" INDICATION AND ASSOCIATED MOUNTING HARDWARE. WIND VELOCITY 80 M.P.H.- GUST FACTOR 1.3

"B" MAST ARM WILL BE INSTALLED ON NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD ALUMINUM TRAFFIC SIGNAL POLE CONFORMING TO DRAWING NO. T-01 WITH TRANSFORMER BASE DRAWING NO. T-02.

"C" AN EXTRUDED CLAMP MAY BE SUPPLIED AS AN ALTERNATE TO THE CAST BAND INDICATED. GENERAL CONFIGURATION MUST BE SIMILAR AND STIFFENERS MUST BE INSTALLED AS INDICATED. CLAMP MUST FIT A 6" POLE AND BOLT ARRANGEMENT MUST BE IDENTICAL. STRENGTH OF ASSEMBLED ARM MUST EQUAL OR EXCEED CAST CLAMP CONSTRUCTION. EXTRUSION ALLOY 6061-T6.

"D" DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.

"E" ALL STAINLESS STEEL BOLTS SHALL CONFORM TO ASTM A193 GRADE B8.

"F" ALL TOLERANCES OF CASTINGS ±1/32".

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

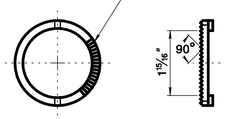
N.T.S.

TRAFFIC SIGNAL MAST ARM ALUMINUM 15', 20' & 25' WITH CLAMP DETAILS FOR "T" & "C" STANDARDS, & SAFETY CHAIN INSTALLATION

T-0307

REFERENCE

BDC070-03

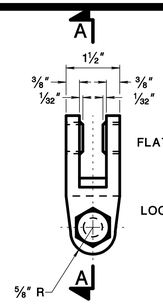


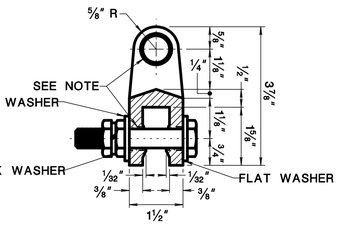

NOTE:

SERRATED POSITIONING RING TO BE PROVIDED WHEN TRAFFIC SIGNAL IS DIRECTLY ATTACHED TO WIRE OUTLET FITTING.

## DETAIL OF HEAD POSITIONING RING

MATERIAL: DELRIN




## SECTION A-A

## UNIVERSAL JOINT

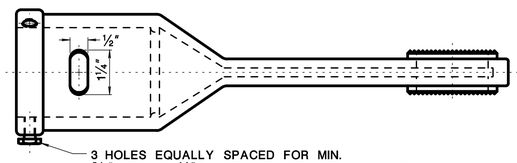
MATERIAL - BRONZE, 85-5-5-5

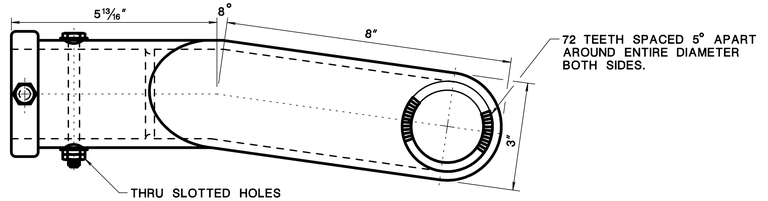
NOTE:

DRILL CASTING FOR C304 STN. STL. 1/16" THK. WALL BUSHINGS, FURNISH & PRESS FIT INTO CASTING.

FURNISH WITH EACH UNIVERSAL JOINT:

(1) ⅝" - 11 NC X 3" L.G. STN. STL. HEX BOLT
(2) ⅝" - 11 NC STN. STL. HEX NUTS
(2) ⅝"Ø STN. STL. FLAT WASHER
(1) ⅝"Ø STN. STL. LOCK WASHER



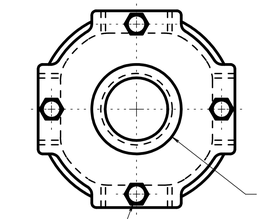



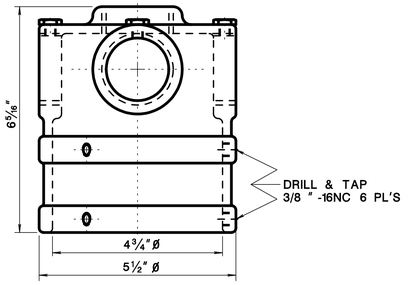

NOTE:

AN 8° OFFSET REQUIRED WHEN BACKING PLATE IS USED. PLUMBIZER TO FIT A 2"ϕ MAST ARM END.

## ELEVATOR PLUMBIZER

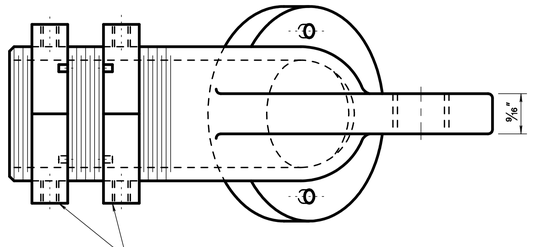
MATERIAL - ALUMINUM ALLOY 356

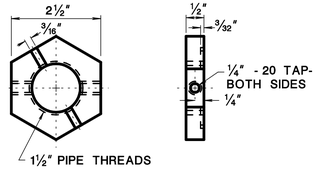



## POST TOP ADAPTER

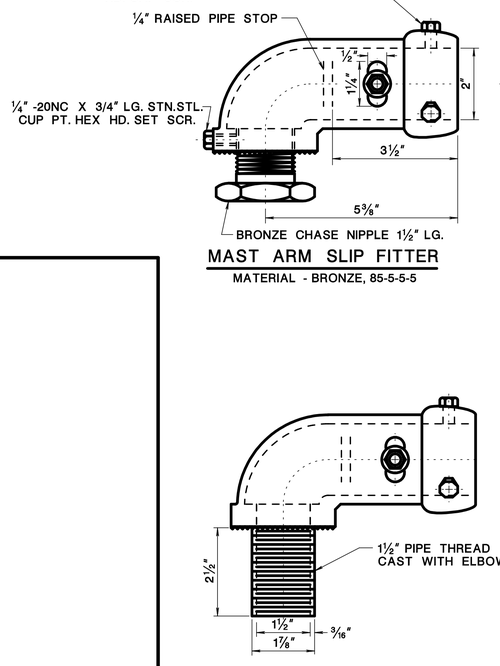
MATERIAL-ALUMINUM ALLOY 356
(FOR OPTICALLY PROGRAMMED INDICATIONS ONLY)



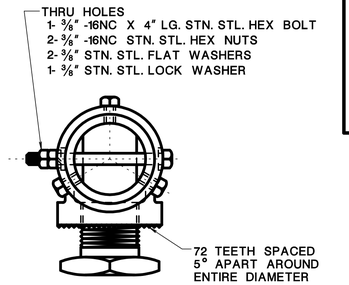

## HEX LOCK NUT

MATERIAL: BRONZE, 85-5-5-5




## MAST ARM SLIP FITTER

MATERIAL - BRONZE, 85-5-5-5



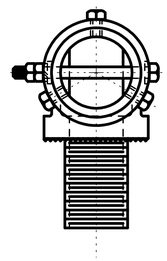

NOTES:

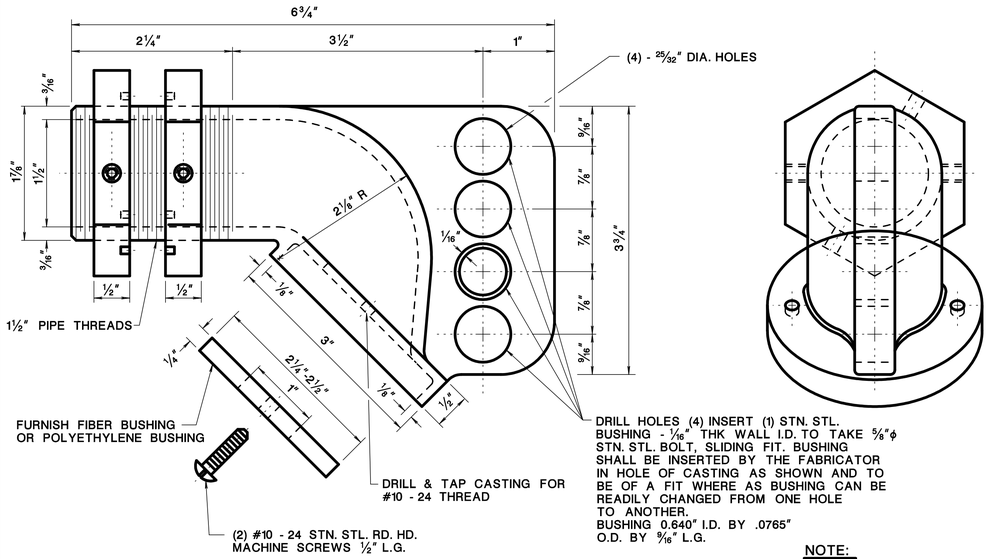
1. THE SLIP FITTER SHALL BE UTILIZED IN MOUNTING OPTICALLY PROGRAMMED TRAFFIC SIGNALS
2. WHEN USED FOR MOUNTING SIGNALS BACK TO BACK DRILL THRU NIPPLE AND USE A 1" LG. CAP SCREW.
3. SLIP FITTER TO FIT A 2"ϕ MAST ARM END.




## ALTERNATE MAST ARM SLIP FITTER

SAME AS ABOVE EXCEPT WHERE NOTED








## WIRE OUTLET

MATERIAL: BRONZE, 85-5-5-5

NOTE:

ON INSTALLATION PLACE THEBUSHING IN THE APPROPRIATE MOUNTING HOLE AS REQUIRED TO OBTAIN VERTICAL POSITIONING AND MAXIMUM VISIBILITY OF THE SIGNAL ASSEMBLY TO THE APPROACH ROADWAY AND AS DIRECTED BY THE DEPARTMENT.

NOTES:

1. ALL TOLERANCES OF CASTINGS ±1/32".
2. ALL STINALESS STEEL BOLTS ON THIS SHEET PER ASTM A193, GRADE B8.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

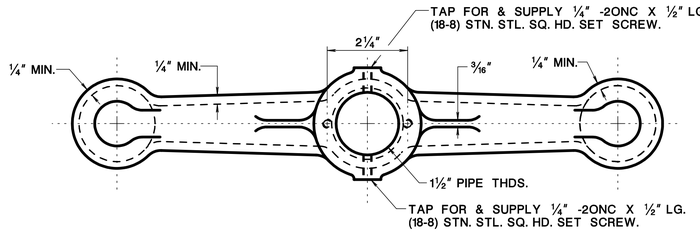
N.T.S.

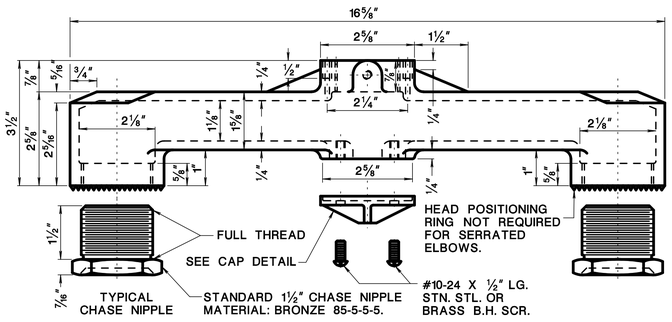
UNIVERSAL JOINT, WIRE OUTLET , MAST ARM SLIP FITTER, POST TOP ADAPTER AND ELEVATOR PLUMBIZER

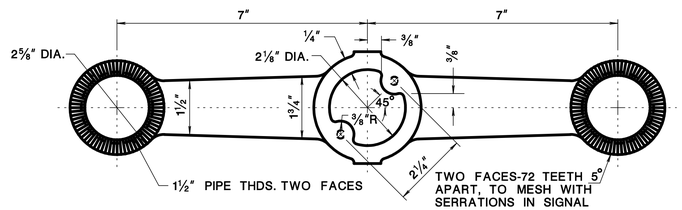
T-0407

REFERENCE

BDC07D-03



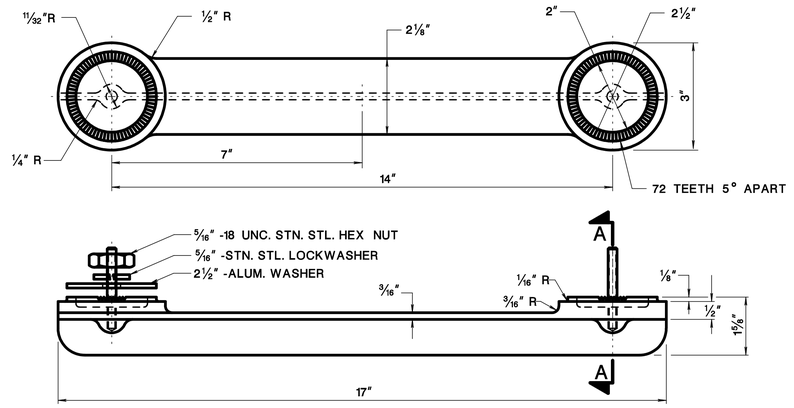




## HOLLOW SPIDER FOR 2-WAY

MATL. ALUM ALLOY 356

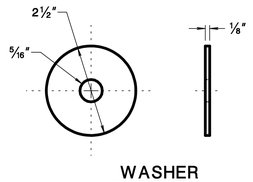
**NOTE:**

1. EACH HOLLOW SPIDER FOR 2-WAY ASSEMBLY:
   (1)-2-WAY SPIDER
   (2)-STANDARD 1½" CHASE NIPPLE, BRONZE 85-5-5-5
   (1)-CAP
   (2)-10-24 X ½" LG. STN. STL. OR BRASS BH. SCREWS
   (2)-HEAD POSITIONING RINGS, IF NON-SERRATED HUBS
   (1)-T-BAR ASSEMBLY (SEE T-BAR NOTE 2)



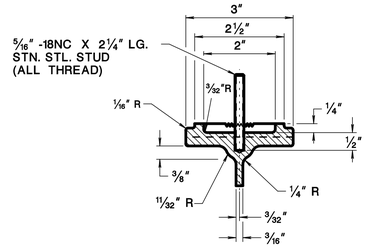

## T-BAR

MATL. ALUM ALLOY 356




## WASHER

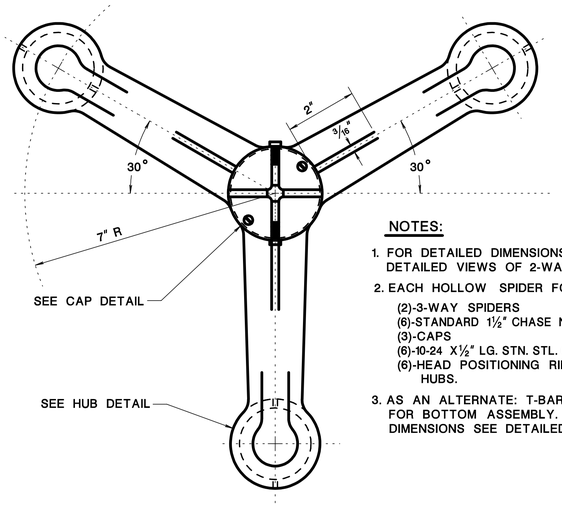
MATL. ALUMINUM




## SECTION A-A

**NOTES:**

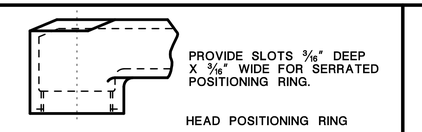
1. EACH T-BAR ASSEMBLY:
   (1)-T-BAR
   (2)-WASHERS
   (2)-⅝" DIA. STN. STL. LOCKWASHERS
   (2)-⅝" -18NC STN. STL. HEX NUTS
2. FOR USE WITH 2-WAY HOLLOW SPIDER ASSEMBLIES WHERE SIGNAL FACES ARE SAME SIZE AND CONFIGURATION.



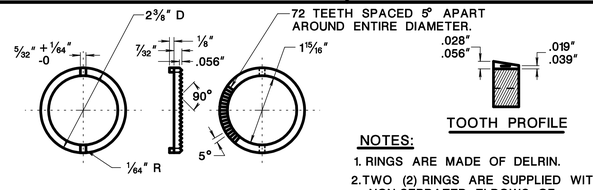

**NOTES:**

1. FOR DETAILED DIMENSIONS OF 3-WAY SPIDER SEE DETAILED VIEWS OF 2-WAY ASSEMBLY.
2. EACH HOLLOW SPIDER FOR 3-WAY ASSEMBLY:
   (2)-3-WAY SPIDERS
   (6)-STANDARD 1½" CHASE NIPPLES, BRONZE 85-5-5-5
   (3)-CAPS
   (6)-10-24 X½" LG. STN. STL. OR BRASS BH. SCREWS
   (6)-HEAD POSITIONING RINGS, IF NON-SERRATED HUBS.
3. AS AN ALTERNATE: T-BAR MAY BE UTILIZED FOR BOTTOM ASSEMBLY. FOR DETAILED DIMENSIONS SEE DETAILED VIEWS OF T-BAR.

## HOLLOW SPIDER FOR 3-WAY



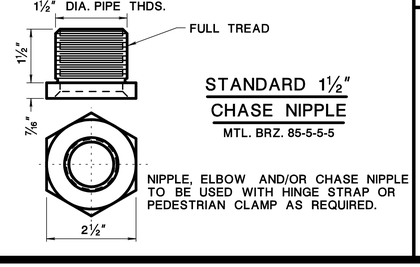

## HOLLOW SPIDER HUB NON-SERRATED HUB (TYPICAL)




**NOTES:**

1. RINGS ARE MADE OF DELRIN.
2. TWO (2) RINGS ARE SUPPLIED WITH NON-SERRATED ELBOWS OF SPIDER ASSEMBLIES.

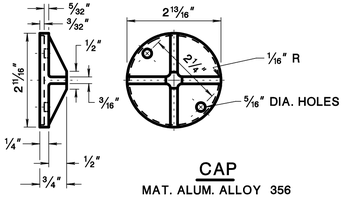
## DETAIL OF HEAD POSITIONING RING




## STANDARD 1½" CHASE NIPPLE

MTL. BRZ. 85-5-5-5

NIPPLE, ELBOW AND/OR CHASE NIPPLE TO BE USED WITH HINGE STRAP OR PEDESTRIAN CLAMP AS REQUIRED.




## CAP

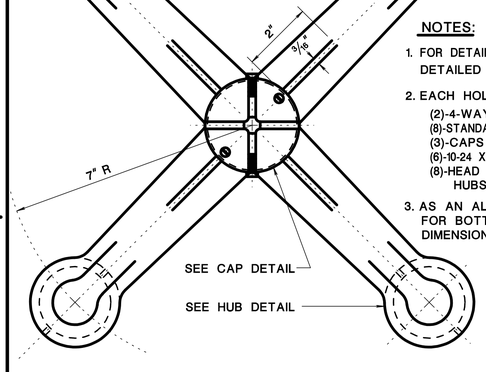
MAT. ALUM. ALLOY 356

## PAINT

THE SURFACE OF THE ALUMINUM CASTING MUST BE CLEANED, DEGREASED AND SHOP PAINTED WITH ONE COAT OF ZINC CHROMATE-IRON-OXIDE PAINT CONFORMING TO THE CURRENT REQUIREMENTS OF SPECIFICATION M-142 OF AASHTO. WHEN THIS PAINT HAS THOROUGHLY DRIED, IT SHALL THEN BE SHOP PAINTED WITH A COAT OF YELLOW ENAMEL PAINT READY MIXED CONFORMING TO THE REQUIREMENTS OF FEDERAL SPECIFICATIONS 595A FOR ENAMEL; GLOSS, SYNTHETIC (FOR EXTERIOR AND INTERIOR SURFACES) CLASS A, AIR DRYING THE TINT OF WHICH SHALL MATCH GLOSS-YELLOW STANDARD COLOR NO. 13538, AS SHOWN IN THE FEDERAL SPECIFICATION 595A COLOR; (FOR READY MIXED PAINT).

**NOTES:**

1. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.
2. ALL TOLERANCES OF CASTINGS SHALL BE ±1/32".
3. ALL STAINLESS STEEL BOLTS ON THIS SHEET PER ASTM A193 GRADE B8.




**NOTES:**

1. FOR DETAILED DIMENSIONS OF 4-WAY SPIDER SEE DETAILED VIEWS OF 2-WAY ASSEMBLY.
2. EACH HOLLOW SPIDER FOR 4-WAY ASSEMBLY:
   (2)-4-WAY SPIDERS
   (8)-STANDARD 1½" CHASE NIPPLES, BRONZE 85-5-5-5
   (3)-CAPS
   (6)-10-24 X½" LG. STN. STL. OR BRASS BH. SCREWS
   (8)-HEAD POSITIONING RINGS, IF NON-SERRATED HUBS.
3. AS AN ALTERNATE: T-BAR MAY BE UTILIZED FOR BOTTOM ASSEMBLY. FOR DETAILED DIMENSIONS SEE DETAILED VIEWS OF T-BAR.

## HOLLOW SPIDER FOR 4-WAY

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

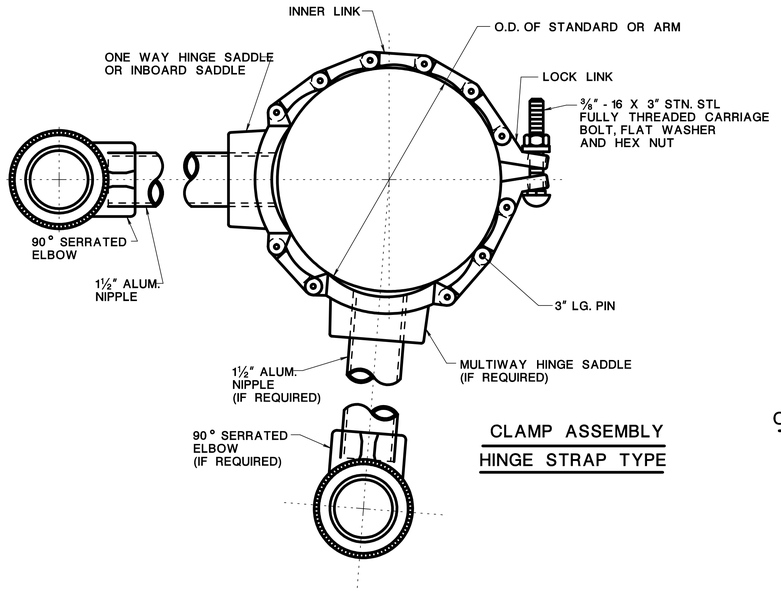
N.T.S.

DETAILS OF SIGNAL SPIDER AND T-BAR

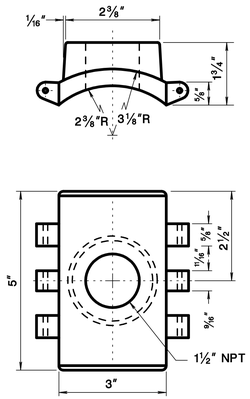
T-0507

REFERENCE

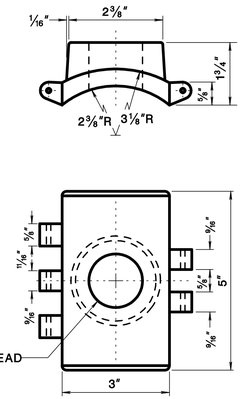
BDC07D-03



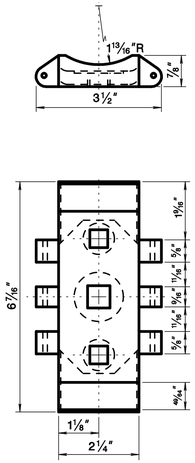

CLAMP ASSEMBLY
HINGE STRAP TYPE



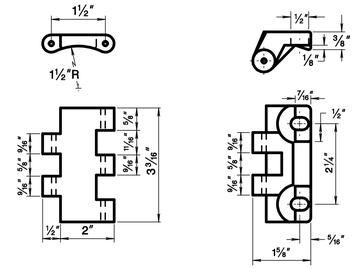

ONE-WAY HINGE SADDLE
MTL: ALUM. CASTING




MULTI-WAY HINGE SADDLE
MTL: ALUM. CASTING

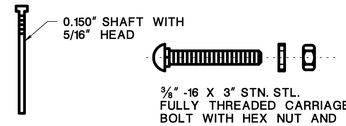



INBOARD SADDLE
MTL: ALUM. CASTING




INNER LINK
MTL: ALUM. CASTING

LOCK LINK
MTL: ALUM. CASTING



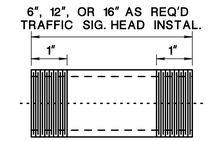

3" ALUM. ALLOY PIN
PROVIDED WITH SADDLES
AND LINKS

NOTE:
ALL HINGE STRAPS INNER LINK AND LOCK LINK PARTS SHALL BE TUMBLED FOR 18 HOURS MINIMUM USING ¾" CERAMIC MEDIA TO PROVIDE A UNIFORM AND SMOOTH SURFACE.

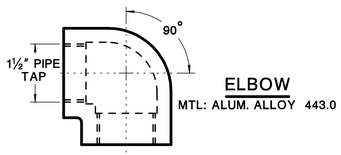
## HINGE STRAP LIST OF MATERIALS

| DESCRIPTION | MATERIAL | NO. REQ'D |
|---|---|---|
| HINGE SADDLE | B26-82 CAST ALUM. | 2 |
| INNER LINK | B26-82 CAST ALUM. | 23*(32) |
| LOCK LINK | B26-82 CAST ALUM. | 4 |
| STD. 1½" NIPPLE | ALUM. ALLOY | 2 |
| 90° SERRATED ELBOW | ALUM. ALLOY 443.0 | 2 |
| 3" ALUMINUM PIN | ALUM. ALLOY 443.0 | 30*(38) |
| BOLT ⅜" - 16 X 3" | STN. STL. | 4 |
| FLAT WASHER | STN. STL. | 4 |
| LOCK WASHER | STN. STL. | 4 |
| NUT, HEX ⅜" - 16 | STN. STL. | 4 |
| MULTI-WAY HINGE SADDLE | CAST ALUM. | AS REQ'D |
| INBOARD SADDLE | CAST ALUM. | AS REQ'D |
| 1½" CHASE NIPPLE | BRZ. 85-5-5-5 | 2 |

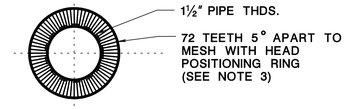
*( ) NUMBER REQUIRED WHEN INSTALLED ON "K" POLE

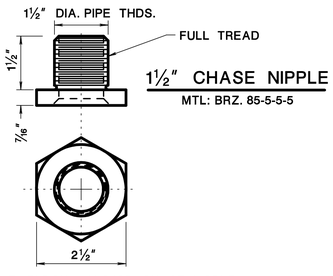



STD. 1½" NIPPLE
MTL: ALUM ALLOY 6061-T6 ASTM B-241




ELBOW
MTL: ALUM. ALLOY 443.0



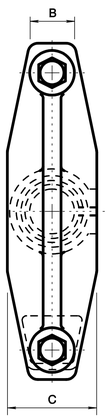



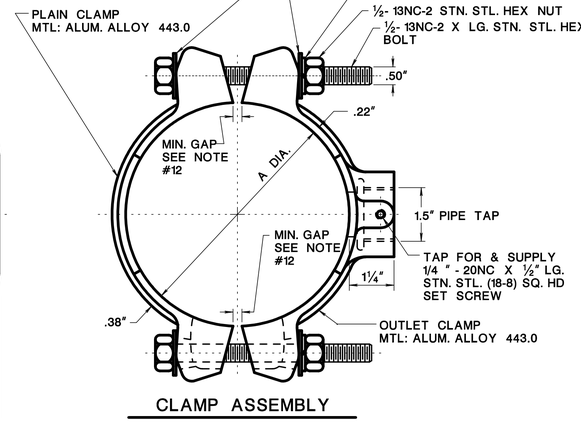

1½" CHASE NIPPLE
MTL: BRZ. 85-5-5-5

NIPPLE, ELBOW AND/OR CHASE NIPPLE TO BE USED WITH HINGE STRAP OR PEDESTRIAN CLAMP AS REQUIRED.

## NOTES:

1. PEDESTRIAN CLAMP TYPE CAST ALUMINUM, CLAMP SHOWN MUST MEET THE FOLLOWING TESTS: 6" DIA. CLAMP TEST.
   COMPLETE CLAMP SHALL BE SET ON 6" DIA. STANDARD.
   COMPLETE CLAMP WITH 6.5" DIA. SET SHALL BE SET ON 8" DIA. STANDARD.
   COMPLETE CLAMP AFTER BEING SET FROM 8" DIA. STANDARD SHALL BE RESET ON 6" DIA. STANDARD.
   CLAMPS SHALL NOT SHOW ANY FRACTURES AFTER THE SETTING AND RESETTING PROCEDURE.
   THIS TEST TO BE CONDUCTED IN THE PRESENCE OF A REPRESENTATIVE OF THE NEW JERSEY DEPARTMENT OF TRANSPORTATION. MANUFACTURER MUST SUBMIT DRAWING OF CLAMP TO BE FURNISHED FOR APPROVAL OF THE NEW JERSEY DEPARTMENT OF TRANSPORTATION.
2. CAST ALUM. CLAMPS OF LARGER DIA. WILL BE TESTED IN A SIMILAR MANNER.
3. PROVIDE SLOTS OR SERRATIONS IN FACE OF ELBOW OR SLOTS & SERRATED POSITIONING RING. SLOTS TO BE 5/32" DP X3/16" W. SERRATIONS TO MATCH HOUSING AND ALLOW 5 ADJUSTMENT.
4. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA.DESIGN WIND SPEED IS 80 MPH.DESIGN FOR FATIGUE IS WAVED.
5. INSTALL 1¼" I.D. RUBBER GROMMET IN TRAFFIC SIGNAL STANDARD.
6. ALL STN. STL. BOLTS PER ASTM A193 GRADE B8 OR ASTM F593 ALLOY 304.
7. ALL ALUM. SAND CASTINGS ARE ASTM B26 ALLOY.
8. ALL ALUM. NIPPLES ARE 6061-T6, ASTM B-241 ALLOY; MIL. SPEC. QQA 200/80F.
9. HINGE STRAP IS ADAPTABLE TO ANY POLE DIA. BY ADDING OR REMOVING INNER LINKS.
10. HINGE STRAP CAN BE INSTALLED ON ROUND, SQUARE, OCTAGONAL OR ANY SHAPE STANDARD DESIRED.
11. ALL TOLERANCES OF CASTINGS ARE ±1/32".
12. WHEN PEDESTRIAN CLAMP IS INSTALLED ON A 6" DIA. STANDARD, CLAMP WILL BE DESIGNED TO PROVIDE A MINIMUM GAP OF ¼".




CLAMP ASSEMBLY
PEDESTRIAN CLAMP TYPE

## PEDESTRIAN CLAMP LIST OF MATERIALS

| DESCRIPTION | MATERIAL | NO. REQ'D |
|---|---|---|
| PLAIN CLAMP | ALUM. ALLOY 443.0 | 2 |
| OUTLET CLAMP | ALUM. ALLOY 443.0 | 2 |
| BOLT, HEX HD. ½" - 13NC-2 X LG. | STN. STL. | 4 |
| LOCK WASHER ½" | STN. STL. | 4 |
| FLAT WASHER ½" | STN. STL. | 8 |
| HEX NUT ½" - 13NC-2 | STN. STL. | 4 |
| SET SCREW, SQ. HD. ¼" -20 X½" LG. | STN. STL. | 2 |
| 1½" CHASE NIPPLE | BRZ. 85-5-5-5 | 2 |
| 90° SERRATED ELBOW | ALUM. ALLOY 443.0 | 2 |
| STD. 1½" NIPPLE X LG. | ALUM. 6061-T6 | 2 |

NOTE:
TIGHTEN HARDWARE AS PER TORQUE RATING AS RECOMMENDED BY THE MANUFACTURER.

## PEDESTRIAN CLAMP DIMENSIONS

| A | B | C | BOLT LGTH. |
|---|---|---|---|
| 6"-8" | 1.25" | 2.5" | 6.0" |
| 8"-10" | 1.25" | 2.5" | 7.5" |
| 10"-12" | 1.50" | 2.875" | 9.0" |

NEW JERSEY DEPARTMENT OF TRANSPORTATION

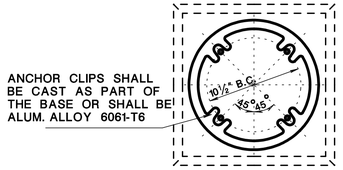
ELECTRICAL DETAILS
N.T.S.

CLAMP MOUNTING DETAILS

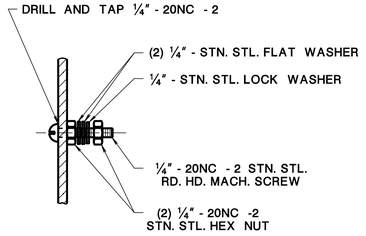
T-0607

REFERENCE

BDC07D-03



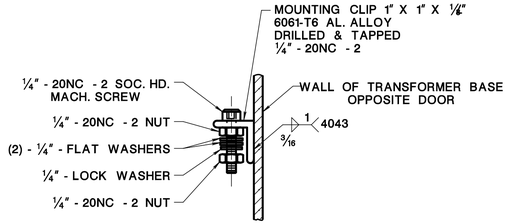

SECTION A-A




DETAIL "A"

GROUND STUD DETAIL

OPPOSITE DOOR OPENING




ALTERNATE DETAIL "B"

GROUND STUD DETAIL

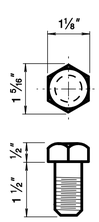
OPPOSITE DOOR OPENING




FURNISH WITH EACH STANDARD

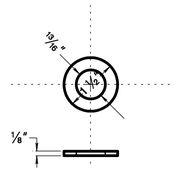
4 -¾" STD. HEX. HEAD BOLT
4 -¾" STD. PLAIN WASHER
} SEE ANCHOR BOLT DETAIL FOR TYPE

PEDESTRIAN SIGNAL STANDARD



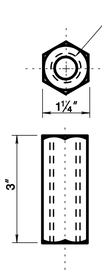

3/4" STD. HEX HD. BOLT

STAINLESS STEEL ASTM A-193 GRADE B8
U.S. STANDARD THREADS 10 PER INCH
4- REQ'D. PER PEDESTAL



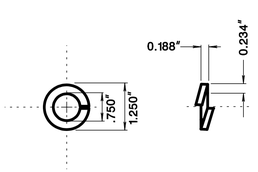

3/4" SAE STD. PLAIN WASHER

STAINLESS STEEL
4- REQ'D. PER PEDESTAL



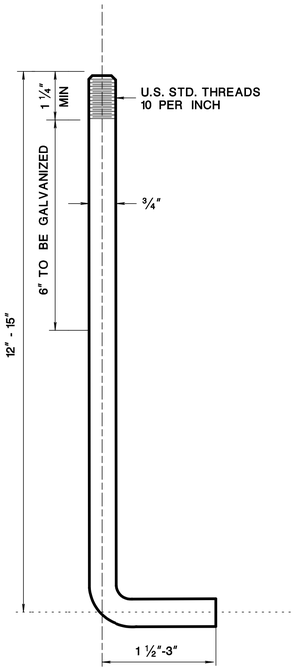

HEX STEEL ROD COUPLING

GALVANIZED PER ASTM A-153
¾" U.S. STD.THREADS (SEE NOTE ABOVE)
1¼" HEX STOCK 4-REQ'D.PER PEDESTAL




3/4" STD. LOCK WASHER

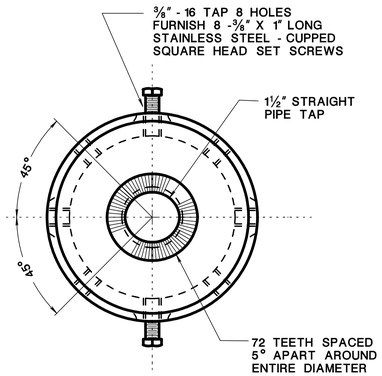
STAINLESS STEEL
4- REQ'D. PER PEDESTAL

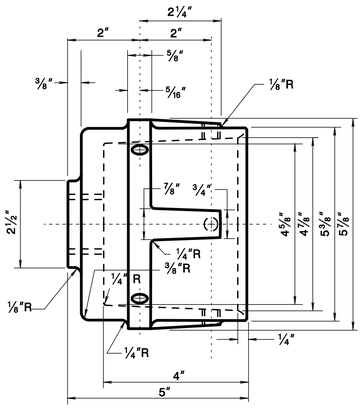



3/4" DIA. ANCHOR BOLT

STEEL PER ASTM A-576
4- REQ'D. PER PEDESTAL
TOP 6" SHALL BE GALVANIZED PER ASTM A-153

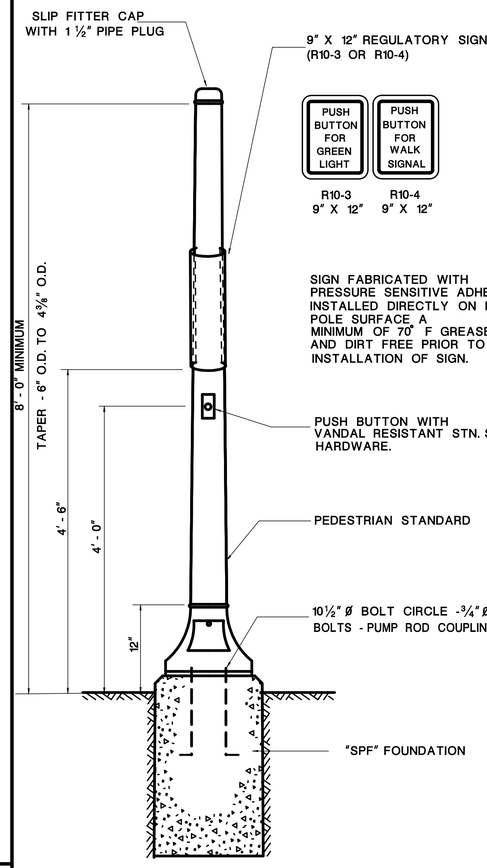
ANCHOR BOLT DETAIL




SLIP FITTER DETAIL

MATERIAL: ALUMINUM ALLOY 356




TYPICAL PEDESTRIAN SIGNAL STANDARD

PUSH BUTTON INSTALLED

NOTES:

1. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.
2. ALL TOLERANCES OF CASTINGS ±1/32"

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

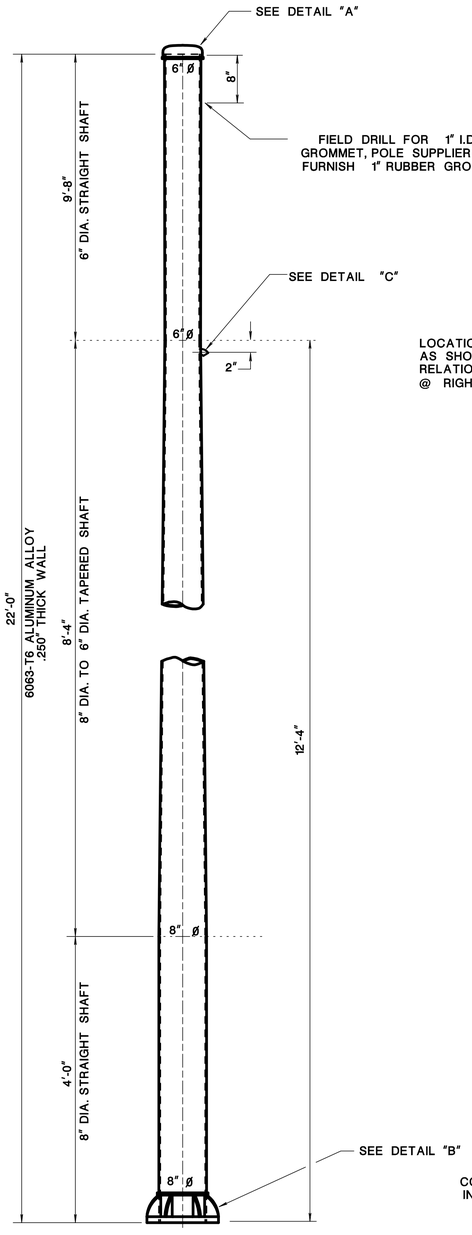
N.T.S.

PEDESTRIAN SIGNAL STANDARD, SLIP FITTER, PUSH BUTTON & ANCHOR BOLT

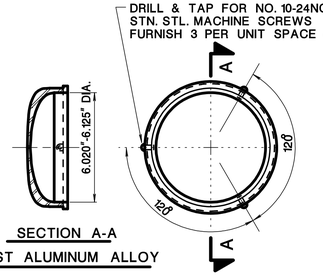
T-0707

BDC07D-03

REFERENCE

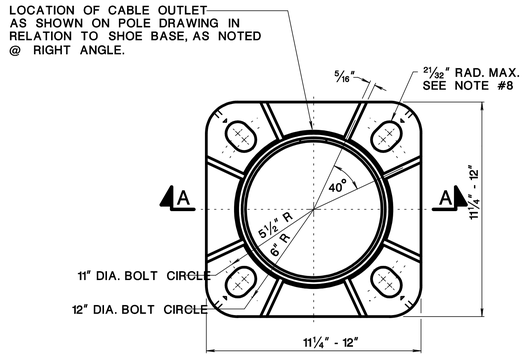


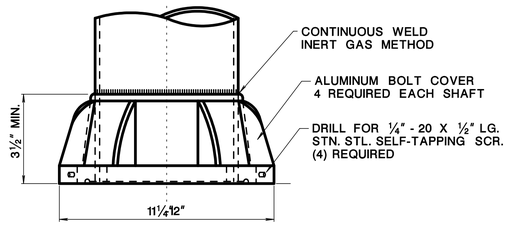

TRAFFIC SIGNAL STANDARD 'C'

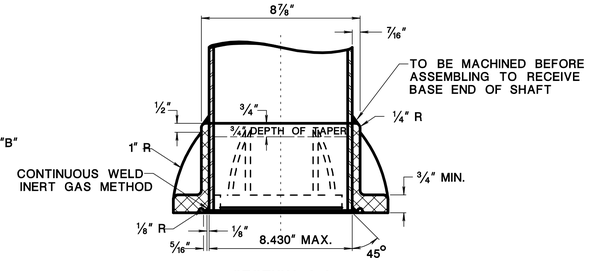



DETAIL "A"

CAST ALUMINUM CAP



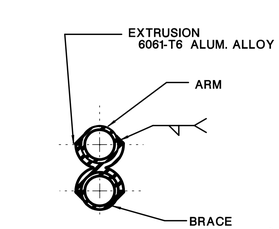



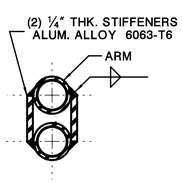

SECTION A-A

DETAIL "B"

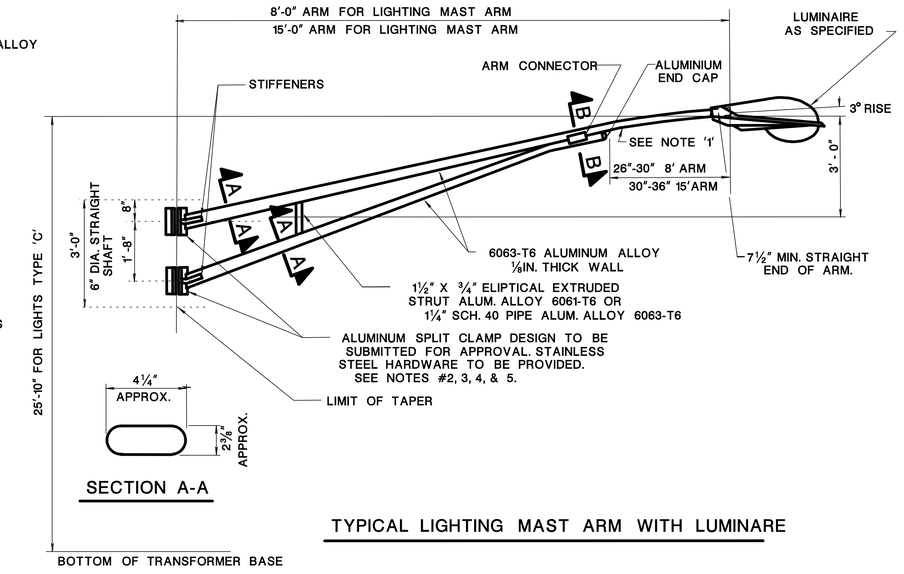
ALUMINUM SHOE BASE




SECTION B-B




ALT. SECTION B-B

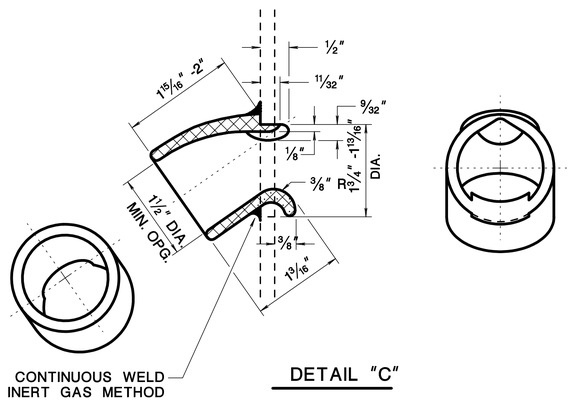



SECTION A-A

TYPICAL LIGHTING MAST ARM WITH LUMINARE

## FURNISH WITH EACH STANDARD

4 - 1" DIA. X 3 ½" LONG HEX HEAD BOLTS, 8 THREADS PER INCH CLASS 2, FREE FIT. STAINLESS STEEL ASTM A-193 GRADE B8.
8 - 1" DIA. PLAIN WASHERS, STAINLESS STEEL, (4) 2" O.D., (4) 2 ½" O.D.
4 - 1" DIA. LOCK WASHERS, STAINLESS STEEL.
4 - 1" DIA. HEX NUTS, STAINLESS STEEL.
4 - BOLT COVERS ALUMINUM ALLOY 43 WITH STAINLESS STEEL SCREWS.
1 - CAP.




DETAIL "C"

CABLE OUTLET

CAST ALUMINUM ALLOY

## GENERAL NOTES

1. ALTERNATE ARRANGEMENT OF TAPERED ELLIPTICAL TRUSS TYPE BRACKET ARM MEMBERS PERMISSIBLE SUBJECT TO APPROVAL. WIRE WILL ENTER UPPER MEMBER 8" FROM TOP OF STANDARD. PROVIDE ALUMINUM SPLIT CLAMPS.
2. FURNISH CERTIFICATIONS THAT ALUMINUM ALLOY AND TEMPER MEET REQUIREMENTS AS SET FORTH BELOW OR AS OTHERWISE INDICATED ON DRAWING.
3. ALUMINUM CASTINGS, PERMANENT OR SAND MOLD FOR CLAMPS, SHOE BASE AND TRANSFORMER BASE TRADE DESIGNATION 356-T6.
4. ALUMINUM EXTRUSION FOR CLAMPS OR MAST ARM STRUT:
   CURRENT ASTM SPECIFICATION
   B221 ALLOY 6061-T6, 6005-T5 OR 6063-T6.
5. HARDWARE SUPPLIED: (8) ½"- 13NC HARDWARE ASTM A193, GRADE B-8 STAINLESS STEEL COMPLETE WITH (8) STAINLESS STEEL HEX NUTS, (16) STAINLESS STEEL FLAT WASHERS AND (8) STAINLESS STEEL LOCK WASHERS.
6. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.
7. ALL TOLERANCES IN CASTINGS SHALL BE ±1/32".
8. HOLE IS SUFFICIENT DIAMETER TO ACCEPT 1" DIAMETER BOLT.
9. DO NOT INSTALL STANDARD WITHOUT ARM

NEW JERSEY DEPARTMENT OF TRANSPORTATION

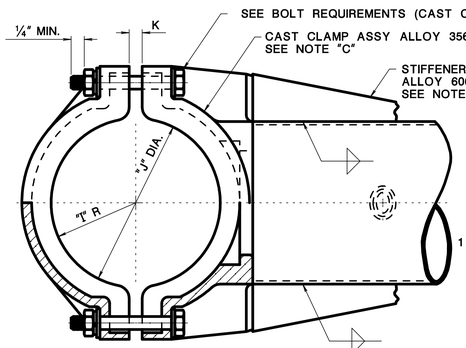
ELECTRICAL DETAILS

N.T.S.

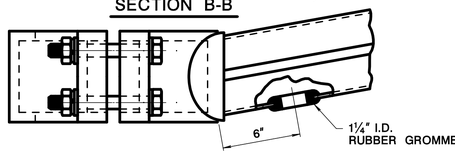
TRAFFIC SIGNAL STANDARD "C"

T-0807

BDC07D-03

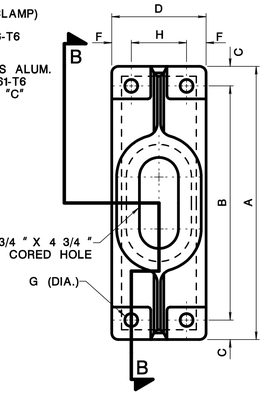



SECTION B-B




BOTTOM CLAMP DETAIL

ALUM. ALLOY 356-T6
MIN. DRAFT WHERE REQUIRED

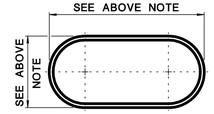



CAST CLAMP

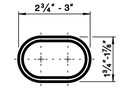
BOLT REQUIREMENTS

8 - ¾" Ø STN. STL. HEX HD. BOLTS, ASTM A193, GRADE B8
16 - ¾" Ø STN. STL. FLAT WASHERS
8 - ¾" Ø STN. STL. LOCK WASHERS
8 - ¾" Ø STN. STL. HEX NUTS

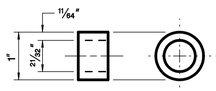
NOTE
1. 20' & 25' MAST ARMS MIN. 6" X .188" WALL TUBE ELLIPSIZED TO APPROX. 3" X 8" SECTION
2. 15' MAST ARM MIN. 5" X .188" WALL TUBE ELLIPSIZED TO APPROX. 3" X 6½" SECTION



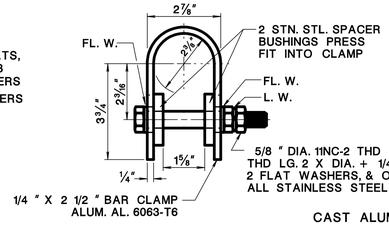

SECTION A-A
(TYPICAL BOTH MEMBERS)




SECTION C-C
(TYPICAL ALL STRUTS)

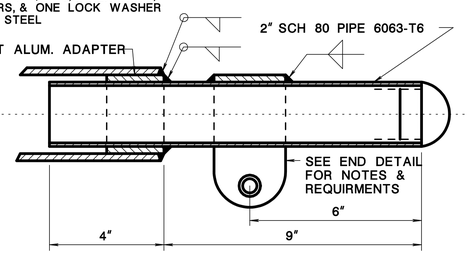



STN. STL. BUSHING FOR
ALTERNATE MOUNTING STRAP

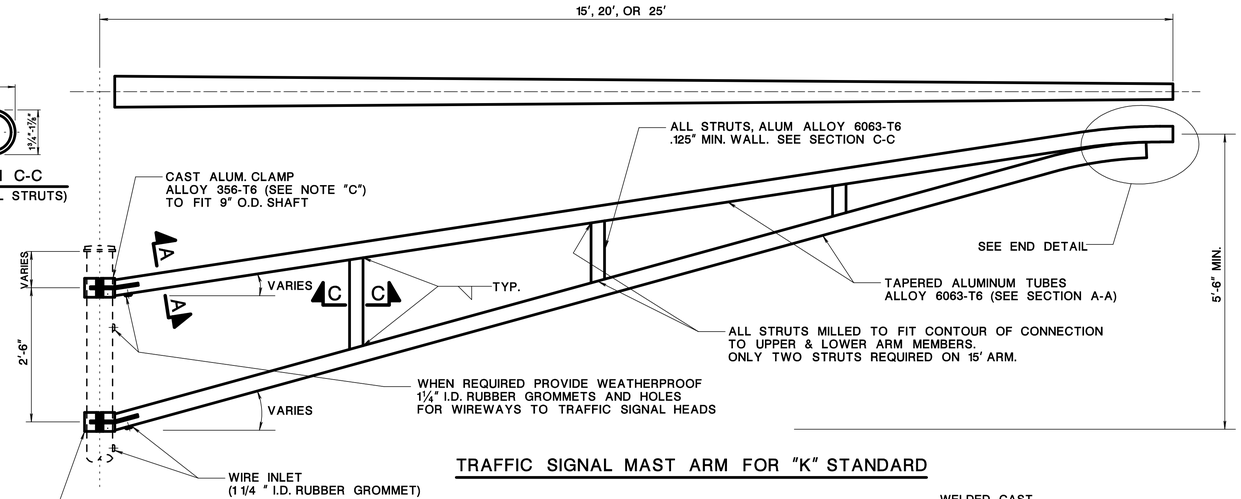



MOUNTING STRAP DETAIL

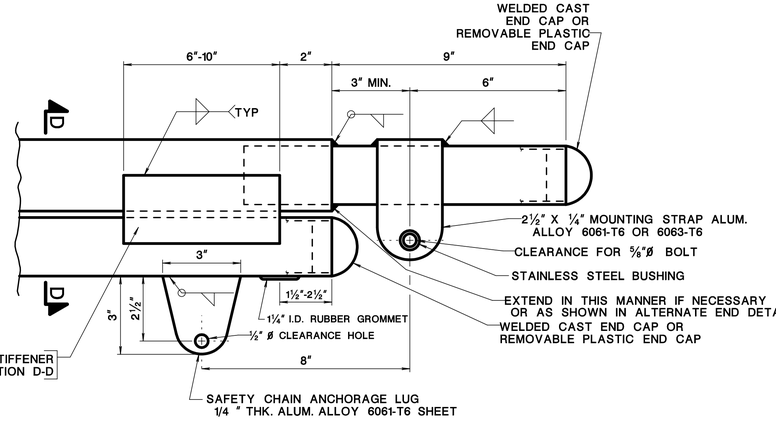
(FOR ALTERNATE MOUNTING STRAP SEE DETAIL ON THIS SHEET)



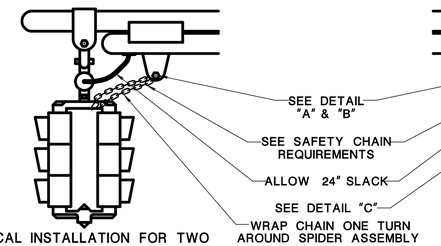

ALTERNATE END DETAIL




TRAFFIC SIGNAL MAST ARM FOR "K" STANDARD




END DETAIL





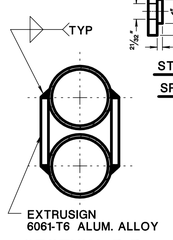


ALTERNATE EXTRUDED CLAMP

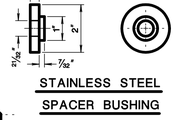
BOLT REQUIREMENTS

12 - ⅝" Ø STN. STL. HEX HD. BOLTS, ASTM A193, GRADE B8
24 - ⅝" Ø STN. STL. FLAT WASHERS
12 - ⅝" Ø STN. STL. LOCK WASHERS
12 - ⅝" Ø STN. STL. HEX NUTS

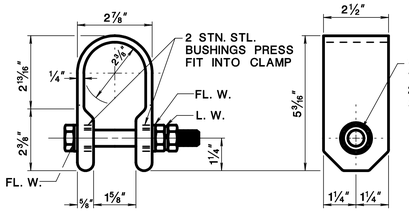
| DIMENSION CHART - CAST & EXTRUDED CLAMP | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LETTER | A | B | C | D | E | F | G | H | J | K |
| MIN. " | 12⅞ | 10⅞ | 15/16 | 5 | 1½ | 15/16 | 11/16 | 3 | 4½ | 9 | ½ |
| MAX. " | 14⅜ | 12⅜ | 1 | 7 | 1 15/16 | 1½ | 25/32 | 3⅞ | 4 17/32 | 9 1/16 | 2¼ |




SECTION D-D




STAINLESS STEEL
SPACER BUSHING




ALTERNATE MOUNTING STRAP

NOTES

"A" DESIGN THE 25' MAST ARM TO ADEQUATELY SUPPORT 4-4 SECTION 8" WITH 1-3 SECTION MID MOUNT, OR 4-3 SECTION 12" WITH 1-3 SECTION MID MOUNT, 12" TRAFFIC INDICATIONS AND ASSOCIATED MOUNTING HARDWARE. THE 15' AND 20' MAST ARMS SHALL SUPPORT 4-3 SECTION 12" INDICATIONS WHICH ARE FIXED MOUNTED. WIND VELOCITY 80 M.P.H.- GUST FACTOR 1.3

"B" MAST ARM WILL BE INSTALLED ON NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD ALUMINUM TRAFFIC SIGNAL STANDARD CONFORMING TO DRAWING NO. T-10 WITH TRANSFORMER BASE DRAWING NO. T-10.

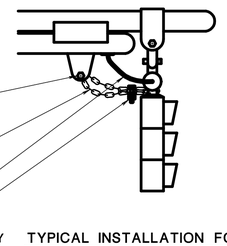
"C" AN EXTRUDED CLAMP MAY BE SUPPLIED AS AN ALTERNATE TO THE CAST BAND INDICATED. GENERAL CONFIGURATION MUST BE SIMILAR AND STIFFENERS MUST BE INSTALLED AS INDICATED. CLAMP MUST FIT A 9" POLE AND BOLT ARRANGEMENT MUST BE IDENTICAL. STRENGTH OF ASSEMBLED ARM MUST EQUAL OR EXCEED CAST CLAMP CONSTRUCTION. EXTRUSION ALLOY 6061-T6.

"D" DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.

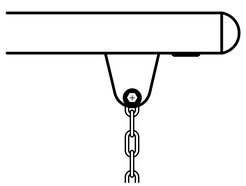
"E" ALL STAINLESS STEEL BOLTS CONFORM TO ASTM A193 GRADE B8.



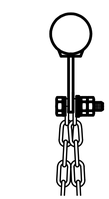

TYPICAL INSTALLATION FOR TWO OR MORE TRAFFIC SIGNAL HEADS



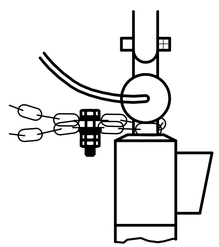
TYPICAL INSTALLATION FOR ONE TRAFFIC SIGNAL HEAD



DETAIL "A"



DETAIL "B"



DETAIL "C"

TYPICAL SAFETY CHAIN INSTALLATIONS

NOTE:
SAFETY CHAIN FURNISHED & INSTALLED ON ALL CONTRACT INSTALLATIONS BY THE CONTRACTOR

SAFETY CHAIN REQUIREMENTS FOR TWO OR MORE TRAFFIC SIGNALS

FURNISH:
42" OF ¼" HOT DIPPED GALVANIZED COILPROOF STRAIGHT LINK CHAIN
1 - ⅝"Ø X 2½" LG. STAINLESS STEEL HEX HEAD BOLT FULLY THREADED
2 - ⅝" Ø STAINLESS STEEL HEX NUTS
2 - ⅝" Ø STAINLESS STEEL FLAT WASHERS
1 - ⅝"Ø STAINLESS STEEL LOCK WASHER

SAFETY CHAIN REQUIREMENTS FOR ONE TRAFFIC SIGNAL

FURNISH:
42" OF ¼" HOT DIPPED GALVANIZED COILPROOF STRAIGHT LINK CHAIN
2 - ⅝" ØX 2½" LG. STAINLESS STEEL HEX HEAD BOLT FULLY THREADED
4 - ⅝" Ø STAINLESS STEEL HEX NUTS
4 - ⅝" Ø STAINLESS STEEL FLAT WASHERS
2 - ⅝" Ø STAINLESS STEEL LOCK WASHER

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

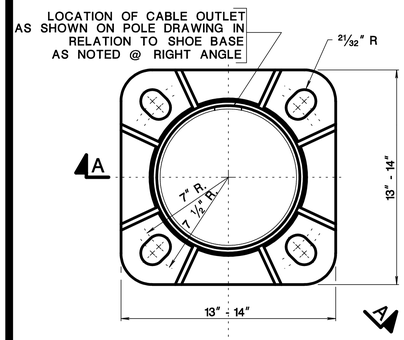
TRAFFIC SIGNAL MAST ARM 15', 20' & 25'
WITH CLAMP DETAIL FOR "K"

T-0907

REFERENCE

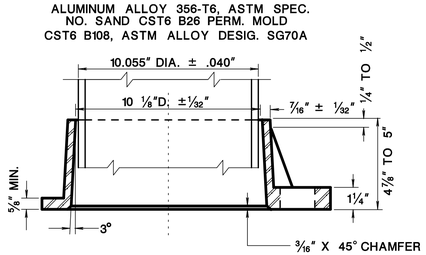
BDC07D-03

REFERENCE

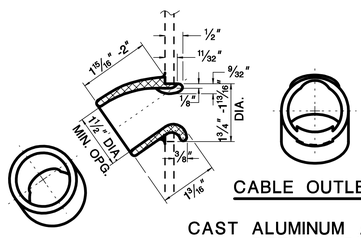



DETAIL 'A'

ALUMINUM SHOE BASE



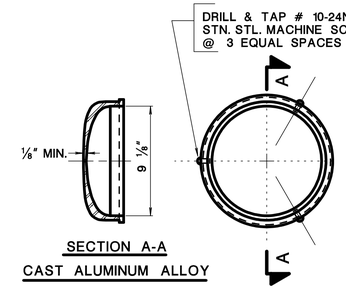

SECTION A-A




CABLE OUTLET

CAST ALUMINUM ALLOY

DETAIL 'B'

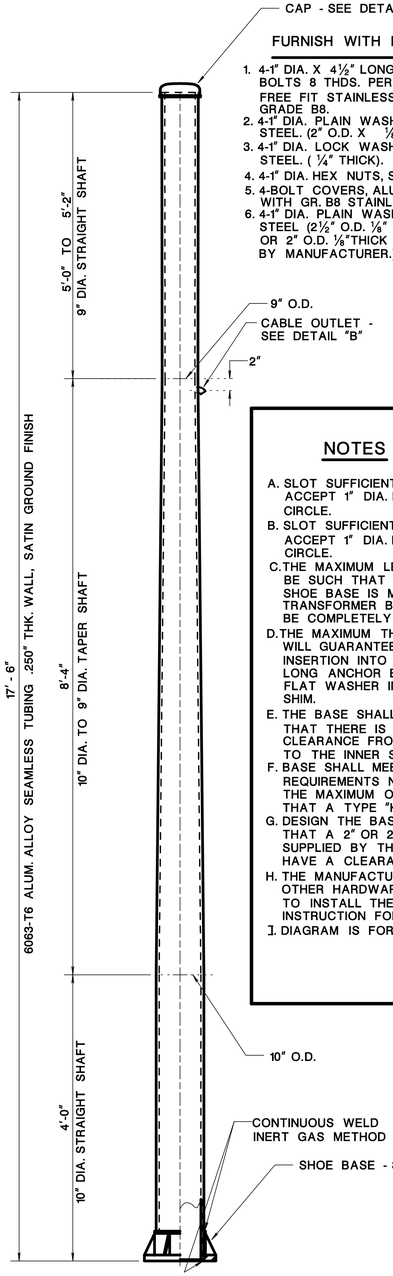



SECTION A-A

CAST ALUMINUM ALLOY

CAST ALUMINUM CAP

DETAIL 'C'



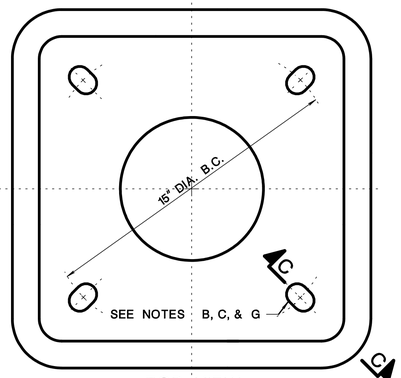

TRAFFIC SIGNAL STANDARD "K"

NOTE:

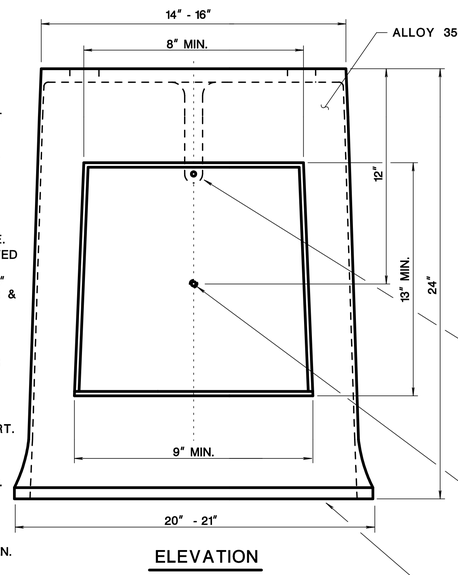
DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.

## NOTES

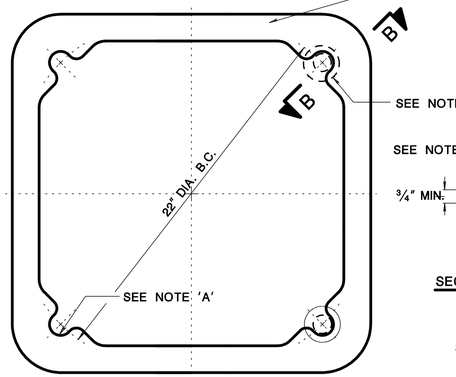
A. SLOT SUFFICIENT SIZE TO ACCEPT 1" DIA. BOLTS ON A 22" DIA. BOLT CIRCLE.
B. SLOT SUFFICIENT SIZE TO ACCEPT 1" DIA. BOLTS ON A 15" DIA. BOLT CIRCLE.
C. THE MAXIMUM LENGTH OF SLOT SHALL BE SUCH THAT WHEN A 13½" SQUARE SHOE BASE IS MOUNTED ON TOP OF THE TRANSFORMER BASE, THE SLOTS SHALL BE COMPLETELY COVERED BY SHOE BASE.
D. THE MAXIMUM THICKNESS OF BASE ALLOWED WILL GUARANTEE A 1 1/4" MINIMUM INSERTION INTO PUMPROD COUPLING OF 3" LONG ANCHOR BOLT WITH LOCK WASHER & FLAT WASHER INSTALLED, ASSUMING 1/4" SHIM.
E. THE BASE SHALL BE DESIGNED SUCH THAT THERE IS A 1/8" MINIMUM CLEARANCE FROM THE 2½" FLAT WASHER TO THE INNER SIDES.
F. BASE SHALL MEET THE STRENGTH REQUIREMENTS NECESSARY TO SUPPORT THE MAXIMUM OVERTURNING MOMENT THAT A TYPE "K" STANDARD WILL SUPPORT.
G. DESIGN THE BASE SUCH THAT A 2" OR 2½" FLATWASHER AS SUPPLIED BY THE MANUFACTURER SHALL HAVE A CLEARANCE TO THE INNER SIDES.
H. THE MANUFACTURER SUPPLIES ALL OTHER HARDWARE WHICH IS NECCESSARY TO INSTALL THE BASE AS WELL AS INSTRUCTION FOR INSTALLATION.
I. DIAGRAM IS FOR METHOD OF INSTALLATION.




TOP VIEW

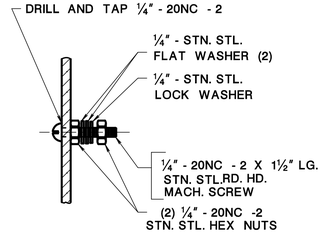



ELEVATION




BOTTOM VIEW

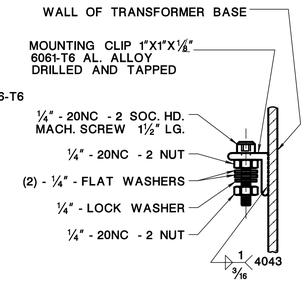
TRANSFORMER BASE - 'K'




DETAIL "D"

GROUND STUD DETAIL

OPPOSITE DOOR OPENING




DETAIL "E"

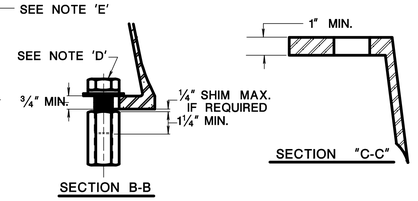
ALTERNATE GROUND STUD DETAIL

OPPOSITE DOOR OPENING

PROVIDE PLASTIC DOOR TYPE - ABS MODIFIED FOR UV RESISTANCE. STEEL GRAY COLOR,3/8" THICK MIN. ATTACH DOOR TO BASE WITH AN APPROVED, VANDAL RESISTANT LOCKING DEVICE, USING STAINLESS STEEL HARDWARE.

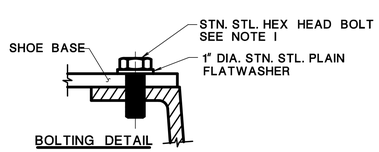
DRILL AND TAP HOLE FOR 1/4" X 1½" - 20 NC - 2 STAINLESS STEEL GROUND STUD OPPOSITE DOOR. (SEE DETAIL D OR ALTERNATE DETAIL E)

BOTTOM PAINTED WITH ONE COAT BITUMINOUS BASE PAINT.

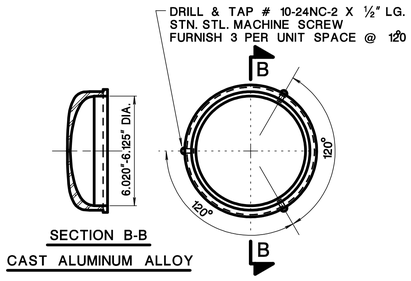



SECTION B-B

SECTION "C-C"




BOLTING DETAIL

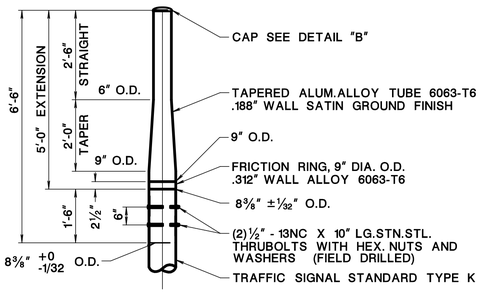



SECTION B-B

CAST ALUMINUM ALLOY

CAST ALUMINUM CAP

DETAIL "B"




TRAFFIC SIGNAL EXTENSION "KE"

NOTE:

1. FURNISH WITH EACH STANDARD:
   (1) FRICTION RING, 9" DIA. O.D..3½" WALL ALLOY 6063-T6
   (1) CAP
   (2) 1/2" - 13NC X 10" LG. STN. STL. THROUBOLTS WITH STN. STL. HEX NUTS AND STN. STL WASHERS

2. FURNISHED CERTIFICATIONS THAT ALUMINUM ALLOY AND TEMPER SHOWN MEET REQUIREMENTS AS SET FORTH BELOW OR AS OTHERWISE INDICATED ON DRAWING.

3. DO NOT INSTALL STANDARD WITHOUT ARM.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

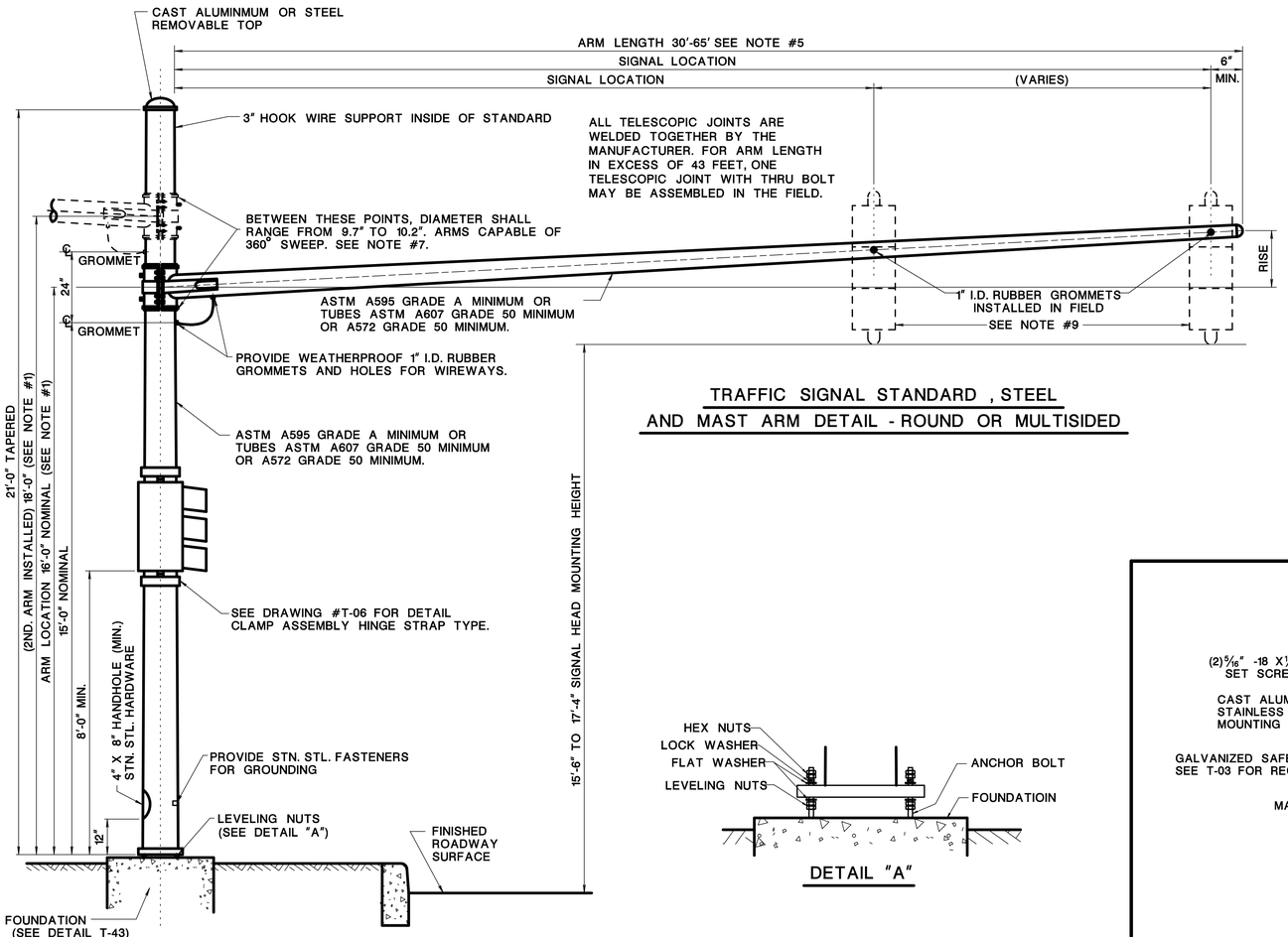
ELECTRICAL DETAILS

N.T.S.

TRAFFIC SIGNAL STANDARD "K"
TRANSFORMER BASE
& TRAFFIC SIGNAL EXTENSION "KE"

T-1007

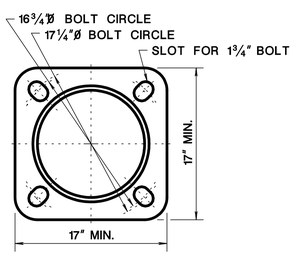
BDC007D-03



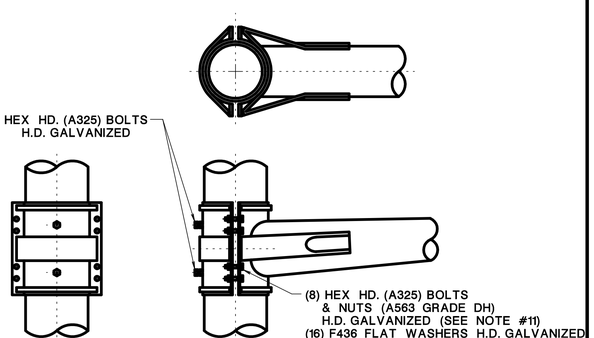

## TRAFFIC SIGNAL STANDARD , STEEL AND MAST ARM DETAIL - ROUND OR MULTISIDED



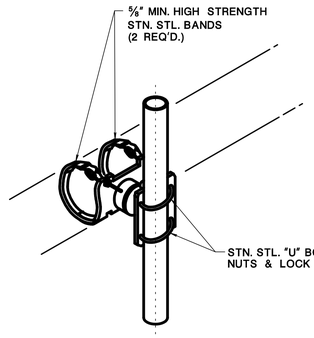

DETAIL "A"




BASE DETAIL

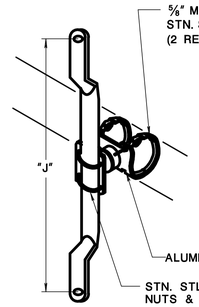



MAST ARM CONNECTION DETAIL




NOTE:

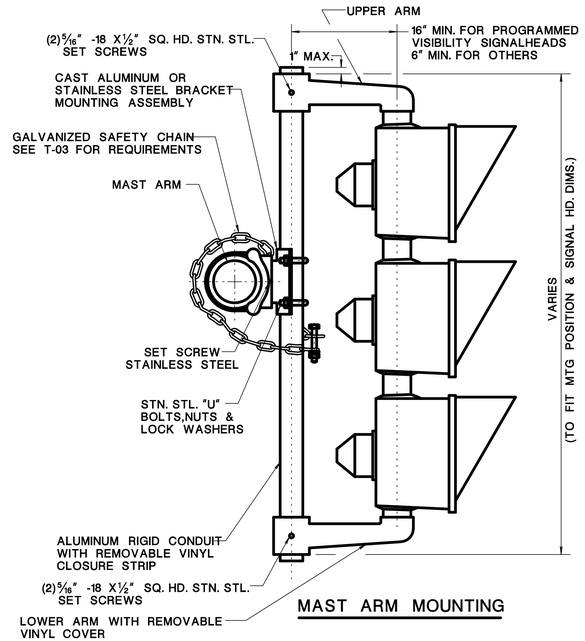
A. ALL HARDWARE IS STN. STL. EXCEPT AS NOTED.




1. SIGN BRACKET SHALL PERMIT ROTATIONAL ADJUSTMENT ABOUT BRACKET AXIS, VERTICAL AND ROTATIONAL ADJUSTMENT ABOUT MAST ARM, AND ROTATIONAL ADJUSTMENT RIGHT & LEFT IN VERTICAL PLANE.
2. THE SIGN BRACKET SHALL BE DESIGNED TO SUPPORT A 350 LB. SIGN WITH A PROJECTED AREA OF 19 SQ. FT.
3. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
4. TWO BRACKETS SHALL BE FURNISHED FOR EACH SIGN.

| SIGN SIZE | DIM. "J" |
|---|---|
| 12" X 60" | 10" |
| 24" X 30" | 18" |

ALUMINUM SIGN BRACKET DETAIL




MAST ARM MOUNTING

## NOTES:

1. STANDARD AND MAST ARMS ARE HOT DIPPED GALVANIZED STEEL. FINISH IN ACCORDANCE WITH SPECIFICATIONS ASTM A123.
2. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED FOR STEEL MAST ARMS 50 FEET AND SMALLER.
3. MAST ARMS WILL SUPPORT THE FOLLOWING (MAXIMUM LOADING):
   -FIXED SIGNALS BACK-TO-BACK AT THE END OF ARM, TOTAL WT. = 100 LBS., PROJ. AREA = 8.4 S.F.
   -FIXED SIGNALS BACK-TO-BACK AT A MINIMUM DISTANCE OF 1/3 THE ARM LENGTH FROM THE END, TOTAL WT. = 100 LBS. PROJ. AREA = 8.4 S.F.
   -FIXED SIGN (MAX. DEPTH = 2.0 FT.) MIDWAY BETWEEN SIGNALS, WT. = 70 LBS., PROJ. AREA = 12 S.F.
4. STANDARD WILL SUPPORT TWO MAST ARMS, ONE 45 FT. AND ONE 30 FT. IN LENGTH (MAX.) WITH THE ABOVE LOADING ON EACH ARM AND A MINIMUM ARM SEPARATION ANGLE OF 45 , OR ONE ARM WITH A MAXIMUM LENGTH OF 65' WITH THE ABOVE LOADING.
5. SIZE OF MAST ARM SUPPLIED NOTED ON PLAN SHEET OR BID PROPOSAL.
6. STANDARD AND MAST ARMS MUST BE ROUND OR MULTISIDED. (MINIMUM 8 SIDED).
7. CLAMP FOR ALL MAST ARMS CAPABLE OF ACCOMMODATING VARIOUS POLE DIAMETERS (9.7" TO 10.2") WITHOUT AFFECTING LOAD CHARACTERISTICS OF ASSEMBLED UNIT. ALL CLAMPS DESIGNED FOR ATTACHMENT TO ROUND OR MULTISIDED POLES. CLAMP CAPABLE OF ROTATIONAL ADJUSTMENT RIGHT AND LEFT FROM VERTICAL PLANE AND 360° ROTATIONAL ADJUSTMENT ABOUT MAST ARMS.
8. THE ARM LOCATION DETERMINED IN THE FIELD TO PROVIDE A ROADWAY CLEARANCE OF 15'-6" MIN. TO 17'-4" MAX. TO ALL INDICATIONS. THE DEPARTMANT WILL DETERMINE WHICH ARM MOUNTED AT THE TOP POSITION TO PROVIDE THE PROPER CLEARANCE.
9. ALL INDICATIONS SET PLUMB AND AT THE SAME ELEVATION.
10. SUPPLY CERTIFICATION BY A LICENSED PROFESSIONAL ENGINEER WHICH INCLUDES DESIGN CALCULATIONS THAT THE STANDARD AND MAST ARM DESIGN MEETS ALL SPECIFIED LOADING REQUIREMENTS.
11. ALL HEX NUTS, A563 GRADE DH, INSTALLED BY "TURN OF THE NUT METHOD", SEAT NUT, THEN TORQUE MINIMUM ½TURN.
12. SUPPLY ANCHOR BOLTS, LOCK WASHERS, FLAT WASHERS, NUTS, AND LEVELING NUTS WITH EACH POLE. LEVELING NUTS ARE ASTM A307.
13. DO NOT INSTALL STANDARD WITHOUT ARM.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

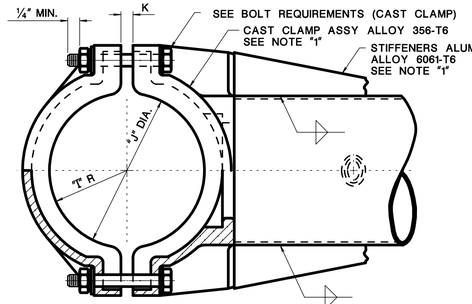
ELECTRICAL DETAILS
N.T.S.

TRAFFIC SIGNAL POLE STANDARD, STEEL AND MAST ARM DETAILS

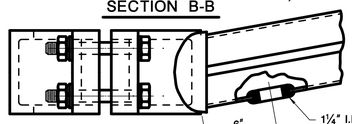
T-1107

REFERENCE

BDC07D-03

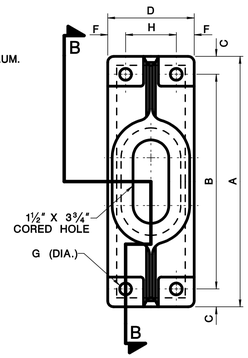



SECTION B-B




BOTTOM CLAMP DETAIL

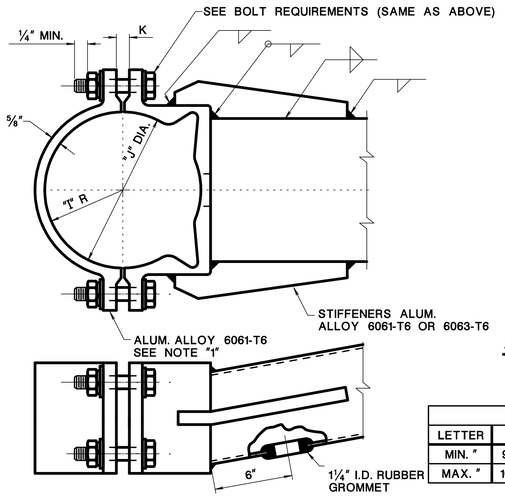
ALUM. ALLOY 356-T6
MIN. DRAFT WHERE REQUIRED

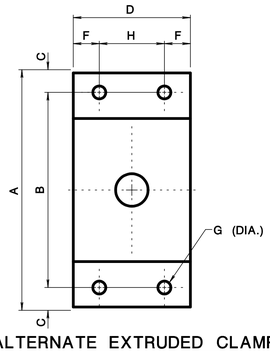



CAST CLAMP

BOLT REQUIREMENTS

8 - ⅝" Ø STN. STL. HEX HD. BOLTS, ASTM A193 GRADE B8
16 - ⅝" Ø STN. STL. FLAT WASHERS
8 - ⅝" Ø STN. STL. LOCK WASHERS
8 - ⅝" Ø STN. STL. HEX NUTS

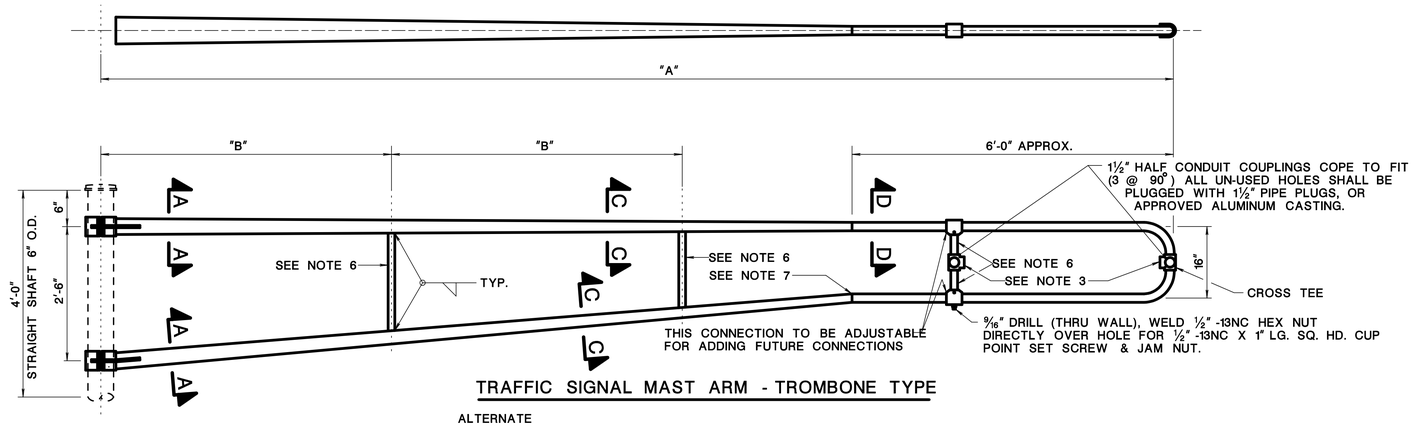



ALTERNATE EXTRUDED CLAMP

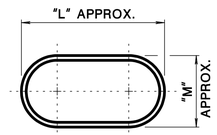
BOLT REQUIREMENTS
SAME AS CAST CLAMP

| DIMENSION CHART - CAST & EXTRUDED CLAMP | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LETTER | A | B | C | D | E | F | G | H | I | J | K |
| MIN. " | 9¼ | 7⅞ | ⅝ | 4½ | - | ¾ | 11/16 | 2⅛ | 3 1/32 | 6 1/16 | ½ |
| MAX. " | 10½ | 8 5/16 | ⅞ | 5 | - | 1 7/16 | 1 1/16 | 3 | 3 1/32 | 6 1/16 | ½ |

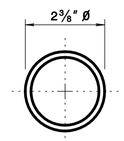



TRAFFIC SIGNAL MAST ARM - TROMBONE TYPE

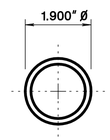
| MINIMUM TUBING SIZE | "A" | "B" | NO. OF STRUTS | ALTERNATE NO. OF STRUTS | ALTERNATE "B" |
|---|---|---|---|---|---|
| 3½" O.D. X .125" WALL 6063-T6 ALUM. ALLOY "L" = 4⅜" "M" = 2⅝" | 8'-0" | 2'-4" | 1 | | |
| | 10'-0" | 3'-4½" | 1 | 2 | 3'-6" |
| | 12'-0" | 4'-5" | 1 | | |
| | 14'-0" | 5'-4½" | 1 | | |
| 5" O.D. X .125" WALL 6063-T6 ALUM. ALLOY "L" = 6½" "M" = 3" | 15'-0" | 5'-11" | 1 | 3 | 4'-6" |
| | 16'-0" | 6'-5" | 1 | | |
| | 18'-0" | 4'-10" | 2 | | |
| | 20'-0" | 5'-5" | 2 | 4 | 4'-4" |
| | 25'-0" | 6'-0" | 3 | 5 | 4'-5" |
| 6" O.D. X .250" WALL 6063-T6 ALUM. ALLOY "L" =9⅛" "M" = 4" | 30'-0" | 7'-7" | 3 | | |



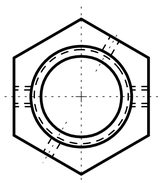

SECTION A-A



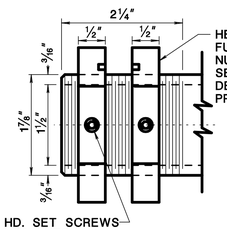

SECTION C-C



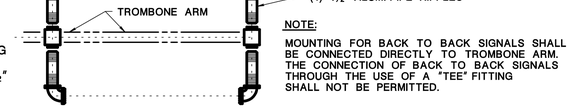

SECTION D-D



¼" -20NC STN. STL. SOC. HD. SET SCREWS ONE ON EACH SIDE OF LOCK NUTS

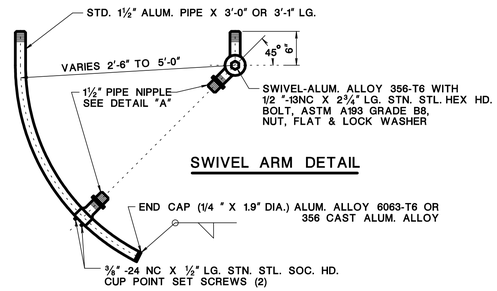



DETAIL "A"

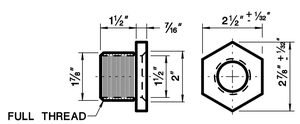



DETAIL FOR BACK TO BACK SIGNALS

TO BE INSTALLED WHERE REQUIRED

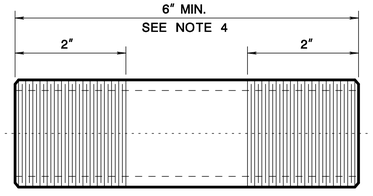



SWIVEL ARM DETAIL




STANDARD 1½" BRONZE CHASE NIPPLE

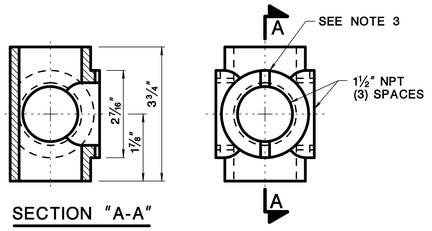
MATERIAL: BRONZE 85-5-5-5




STANDARD 1½" X 6" LG. ALUM. NIPPLE

ALLOY 6063-T6

SIGNAL MOUNTING DETAILS
MOUNTING HARDWARE




SECTION "A-A"

CROSS TEE

MATERIAL: ALUMINUM ALLOY 365-T6

## GENERAL NOTES

1. AN EXTRUDED CLAMP MAY BE SUPPLIED AS AN ALTERNATE TO THE CAST BAND INDICATED. GENERAL CONFIGURATION MUST BE SIMILAR AND STIFFENERS MUST BE INSTALLED AS INDICATED. STRENGTH OF ASSEMBLED ARM WITH EXTRUDED CLAMPS MUST EQUAL OR EXCEED CAST CLAMP CONSTRUCTION. EXTRUSION ALLOY 6005-T5 OR 6061-T6.
2. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.
3. PROVIDE SLOTS OR SERRATIONS IN FACE OF ELBOW AND CROSS TEE. SLOTS TO BE 5/32" DEEP X 3/16" WIDE. SERRATIONS TO MATCH HOUSING TO ALLOW 5° ADJUSTMENT.
4. WHEN THE CONTRACT PLANS REQUIRE THE INSTALLATION OF OPTICALLY PROGRAMMED TRAFFIC SIGNALS THE 1½" NIPPLE SHALL BE MINIMUM OF 14" LONG.
5. MAST ARM WILL BE INSTALLED ON STANDARDS CONFORMING TO DRAWING NO. T-03 WITH TRANSFORMER BASE DRAWING NO. T-02.
6. 1½" SCHEDULE 40 PIPE ALUMINUM ALLOY 6063-T6.
7. JOINTS WILL BE PERMITTED TO PROVIDE THE NECESSARY TAPER. THE MANUFACTURER SHALL DETERMINE THE LOCATION. THE JOINT SHALL PROVIDE FOR A MINIMUM OVERLAP OF 6" AND SHALL NOT INTERFEAR WITH THE ADJUSTABLE MEMBER.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

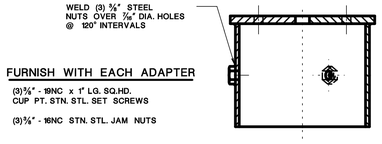
TRAFFIC SIGNAL MAST ARM-TROMBONE
WITH CLAMP DETAIL FOR "T" & "C" STANDARDS

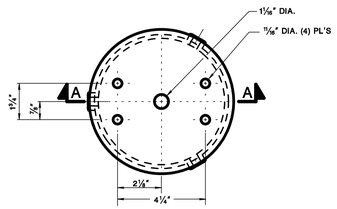
T-1207

REFERENCE

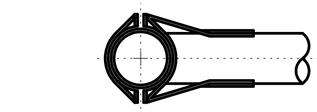
BDC07D-03

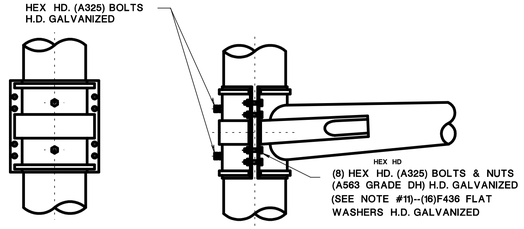
REFERENCE



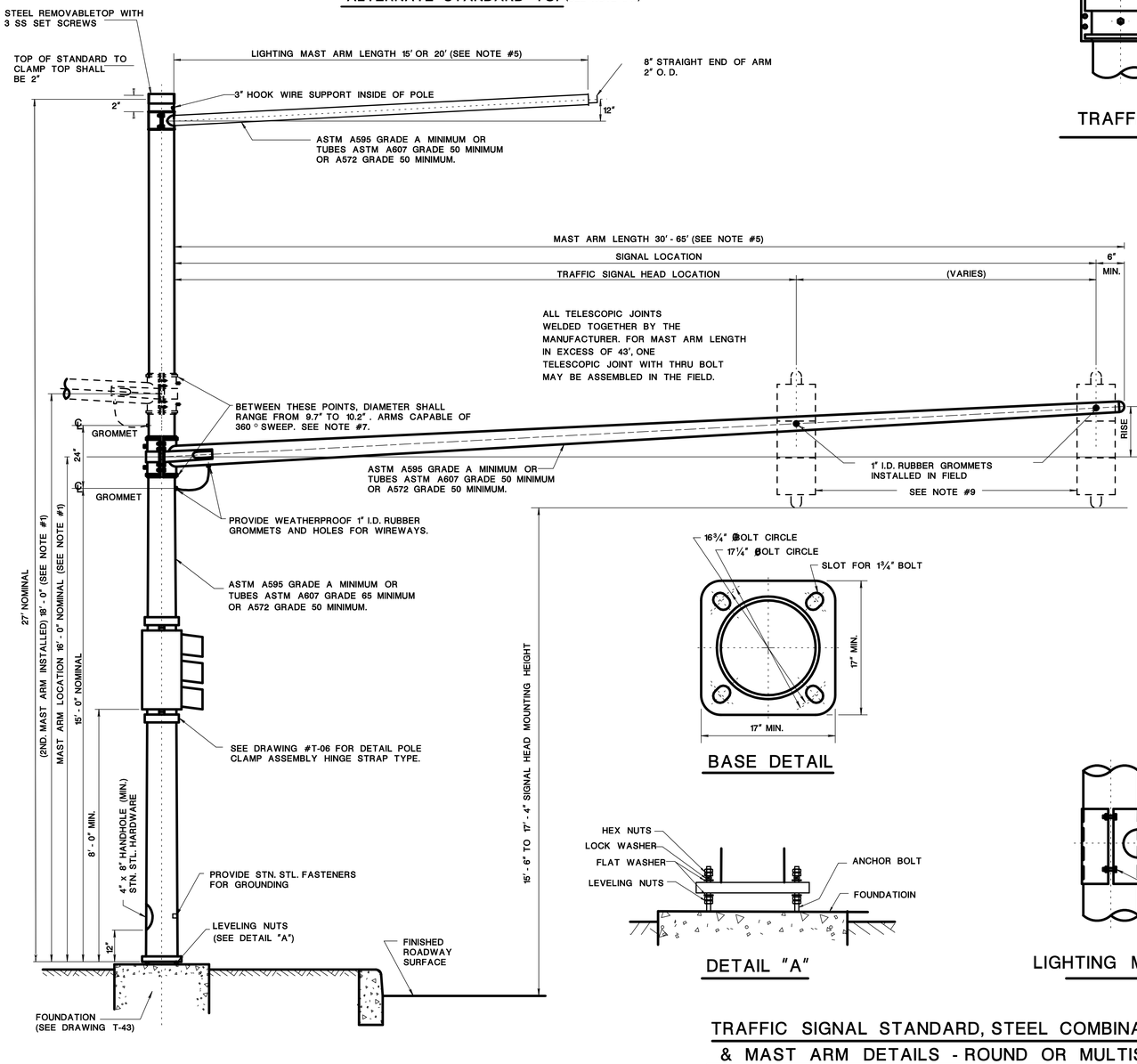




## ALTERNATE STANDARD TOP (SEE NOTE #14)






## TRAFFIC MAST ARM CONNECTION DETAIL



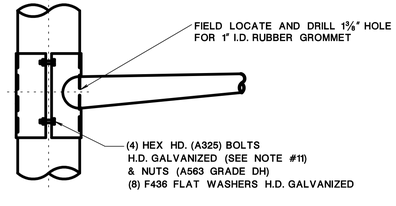




## BASE DETAIL




## DETAIL "A"




## LIGHTING MAST ARM CONNECTION DETAIL

## TRAFFIC SIGNAL STANDARD, STEEL COMBINATION & MAST ARM DETAILS - ROUND OR MULTISIDED

### NOTES:

1. ALL STANDARD AND MAST ARMS ARE HOT DIPPED GALVANIZED STEEL. FINISH IN ACCORDANCE WITH SPECIFICATIONS ASTM A123.
2. SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED FOR STEEL MAST ARMS 50 FEET AND SMALLER.
3. TRAFFIC MAST ARMS SUPPORT THE FOLLOWING (MAXIMUM LOADING):
   -FIXED SIGNALS BACK-TO-BACK AT THE END OF ARM, TOTAL WT. = 100 LBS., PROJ. AREA = 8.4 SQ. FT.
   -FIXED SIGNALS BACK-TO-BACK AT A MINIMUM DISTANCE OF 1/3 THE ARM LENGTH FROM THE END, TOTAL WT. = 100 LBS. PROJ. AREA = 8.4 SQ. FT.
   -FIXED SIGN (MAX. DEPTH = 2 FT.) MIDWAY BETWEEN SIGNALS, WT. = 70 LBS., PROJ. AREA = 12 SQ. FT.
   LIGHTING MAST ARM WILL SUPPORT THE FOLLOWING (MAXIMUM LOADING):
   -FIXED LUMINAIRE( 1.4 SQ. FT. AND 20 LBS.)
4. STANDARD WILL SUPPORT ONE LIGHTING MAST ARM 20 FT. AND TWO TRAFFIC MAST ARMS, ONE 45 FT. AND ONE 30 FT. IN LENGTH (MAX.) WITH THE ABOVE LOADING ON EACH ARM AND A MINIMUM ARM SEPARATION ANGLE OF 45°, OR ONE LIGHTING MAST ARM 20 FT. AND ONE TRAFFIC MAST ARM A MAXIMUM LENGTH OF 65 FT. WITH THE ABOVE LOADING.
5. SIZE OF MAST ARM(S) SUPPLIED SHALL BE NOTED ON PLAN SHEET OR BID PROPOSAL.
6. STANDARDS AND MAST ARMS MUST BE ROUND OR MULTISIDED (MINIMUM 8 SIDED)
7. CLAMP FOR ALL MAST ARMS CAPABLE OF ACCOMMODATING VARIOUS STANDARD DIAMETERS (9.2" TO 10.2") WITHOUT AFFECTING LOAD CHARACTERISTICS OF ASSEMBLED UNIT. ALL CLAMPS DESIGNED FOR ATTACHMENT TO ROUND OR MULTISIDED. CLAMP CAPABLE OF ROTATIONAL ADJUSTMENT RIGHT AND LEFT FROM VERTICAL PLANE AND 360 ROTATIONAL ADJUSTMENT ABOUT MAST ARMS.
8. THE MAST ARM LOCATION DETERMINED IN THE FIELD TO PROVIDE A ROADWAY CLEARANCE OF 15' - 6" MIN.TO 17' - 4" MAX. TO ALL TRAFFIC SIGNAL INDICATIONS. THE DEPARTMENT WILL DETERMINE WHICH ARM SHALL BE MOUNTED AT THE TOP POSITION TO PROVIDE THE PROPER CLEARANCE.
9. ALL INDICATIONS SET PLUMB AND AT THE SAME ELEVATION.
10. SUPPLY CERTIFICATION BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER BE SUPPLIED WHICH INCLUDES DESIGN CALCULATIONS THAT STANDARD AND ARM DESIGN MEETS ALL SPECIFIED LOADING REQUIREMENTS.
11. ALL HEX NUTS, A563 GRADE DH, INSTALLED BY TURN OF THE NUT METHOD", SEAT NUT, THEN TORQUE MINIMUM ½TURN.
12. SUPPLY ANCHOR BOLTS, LOCK WASHERS, FLAT WASHERS, NUTS, AND LEVELING NUTS WITH EACH POLE. LEVELING NUTS SHALL BE ASTM A307.
13. FOR TRAFFIC SIGNAL HEAD AND SIGN MOUNTING DETAILS SEE T-11.
14. ALTERNATE STANDARD TOP SHALL BE USED WHEN THE PLANS OR SPECIFICATIONS REQUIRE AN OFFSET TYPE LUMINAIRE.
15. THE MANUFACTURER'S SHOP SHALL BE AISC CERTIFIED, CATEGORY I, CONVENTIONAL STEEL STRUCTURES AND SIMPLE BRIDGES.
16. THE MATERIAL FOR THE ALTERNATE STANDARD TOP SHALL BE THE SAME AS THE STANDARD.
17. DO NOT INSTALL STANDARD WITHOUT ARM.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

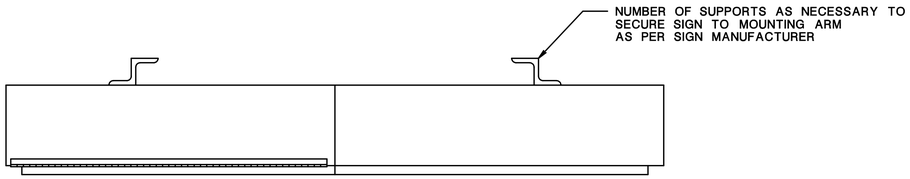
TRAFFIC SIGNAL STANDARD, SC
AND MAST ARM ASSEMBLY DETAILS

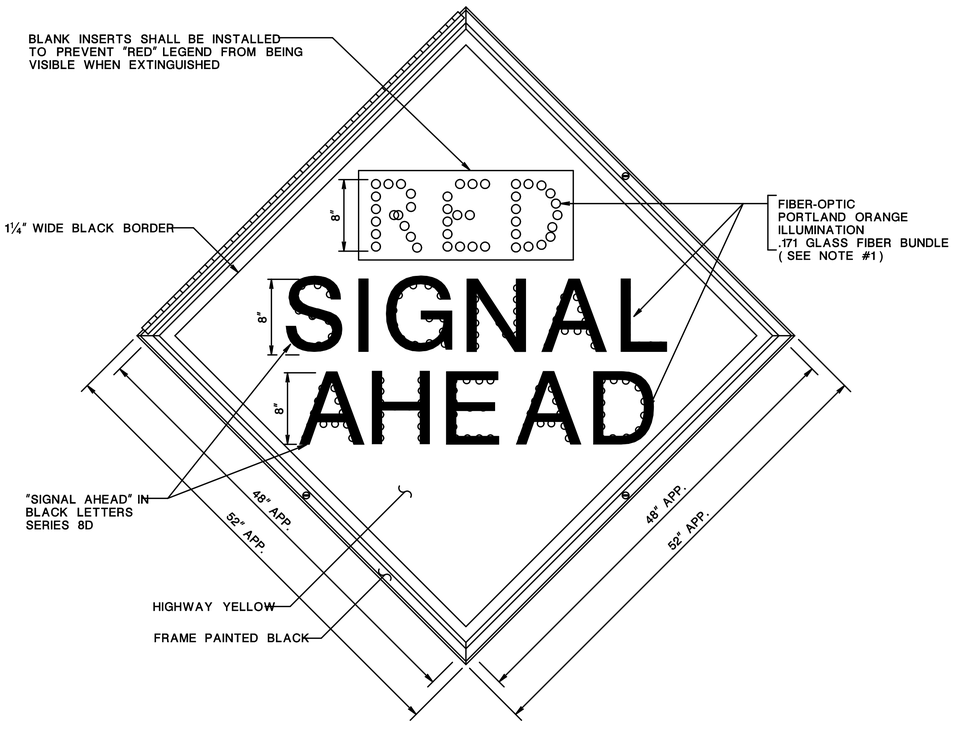
T-1307

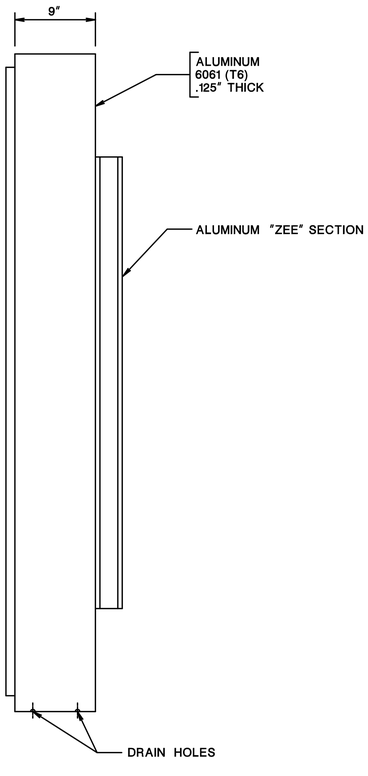
BDC07D-03

REFERENCE

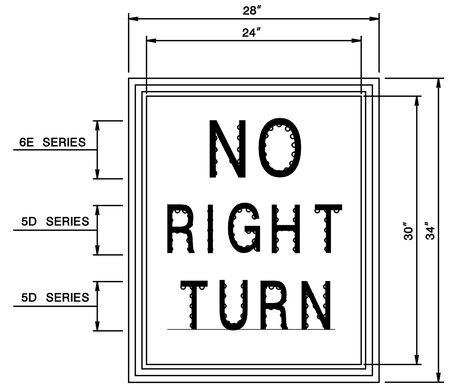
## RED SIGNAL AHEAD SIGN

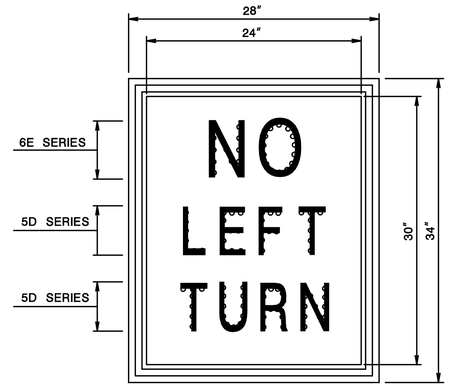



## TYPICAL BLANKOUT SIGNS




NOTES:

1. "SIGNAL AHEAD" CONTINUOUSLY LIT. "SIGNAL AHEAD" AND "RED" SHALL FLASH ALTERNATELY DURING FLASH OPERATION. FLASHING OPERATION TO BEGIN PRIOR TO TERMINATION OF HIGHWAY GREEN AS SPECIFIED. THE LEGEND "RED" IS PORTLAND ORANGE. THE LEGEND "SIGNAL AHEAD" IS LUNAR WHITE.
2. MINIMUM OF 2 LAMPS REQUIRED FOR EACH LINE OF LEGEND.
3. FIBER-OPTIC BUNDLES TO BE ARRANGED UTILIZING BIFURCATED COMBED RANDOMIZATION.
4. SIGN CASE SHALL BE FULLY GASKETED AND WATERTIGHT.
5. HINGE AND ALL HARDWARE SHALL BE STAINLESS STEEL.
6. FOR INSTALLATION ON STEEL STANDARD SEE DRAWING NO. T-34.

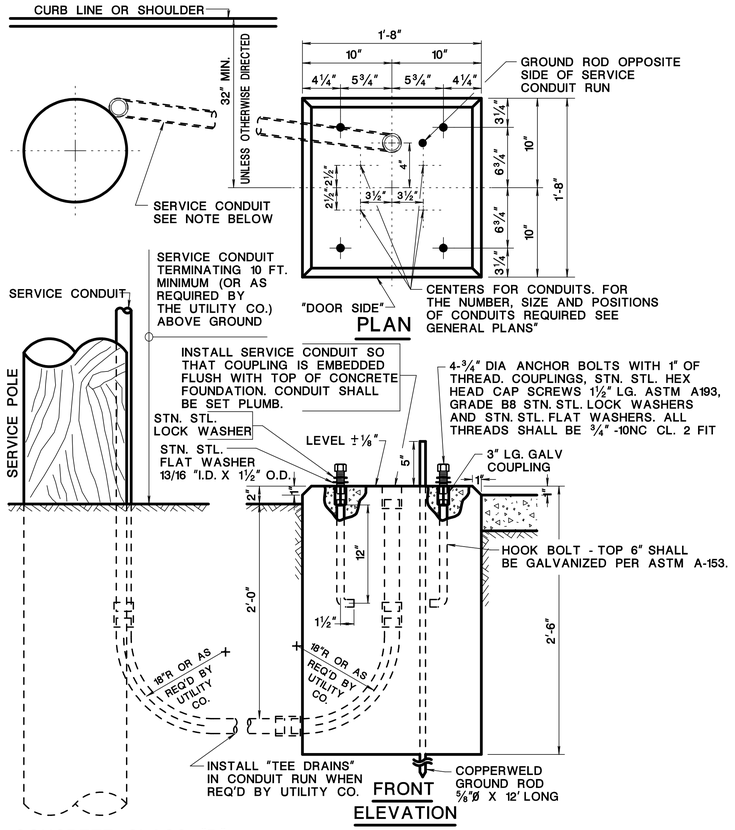
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

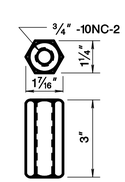
"RED SIGNAL AHEAD" SIGN

T-1407

BDC07D-03

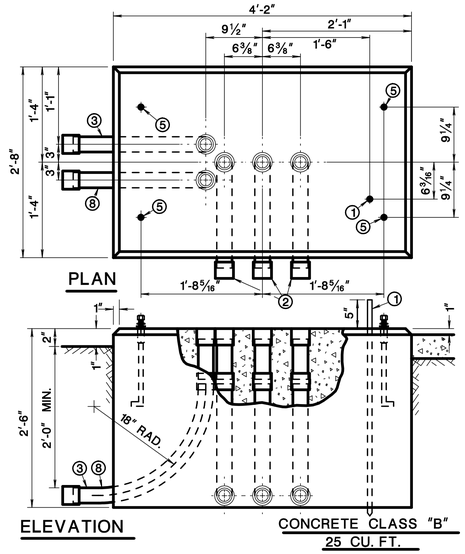



FOUNDATION TYPE "MCF"




GALVANIZED COUPLING

GALV. PER ASTM A153 CONTINUOUS THREADS



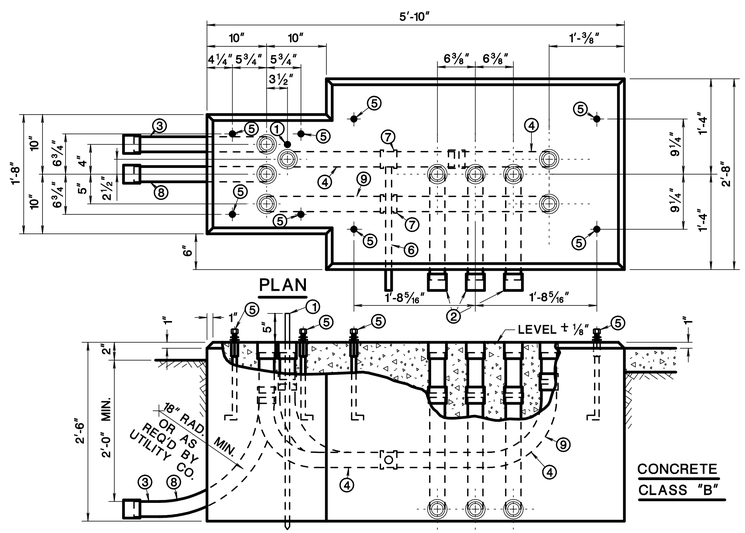

FOUNDATION TYPE "P"

ITEM

1. ⅝" X 12' LG. GROUND ROD.
2. 3" DIA. RIGID METALLIC CONDUIT. ( EXTEND TO JUNCTION BOX)
3. RIGID METALLIC CONDUIT (SERVICE CONDUIT). SEE GENERAL PLAN FOR DIRECTION AND SIZE
4. 2" DIA. RIGID METALLIC CONDUIT (SERVICE CONDUIT)
5. ¾" DIA. ANCHOR BOLTS (SEE "SPF" FOUNDATION FOR DETAILS)
6. DRAIN 1" DIA. RIGID METALLIC CONDUIT (PITCH TO JUNCTION BOX).
7. 2" X 2" X 1" GALV. TEE FITTING.
8. RIGID METALLIC CONDUIT (INTERCONNECT CONDUIT). SEE GENERAL PLAN FOR DIRECTION AND SIZE IF NOT SPECIFIED 2" DIA. RMC SHALL BE INSTALLED.
9. 2" DIA. RIGID METALLIC CONDUIT (INTERCONNECT CONDUIT)

NOTES:

1. INSTALL ALL CONDUIT SO THAT COUPLINGS ARE EMBEDDED PLUMB AND FLUSH WITH TOP OF CONCRETE FOUNDATION.
2. J-BOLT INSERTED 1½" ⅛" INTO ±3" COUPLING
3. ALL FOUNDATIONS POURED MONOLITHIC




FOUNDATION TYPE "P-MC"

NEW JERSEY DEPARTMENT OF TRANSPORTATION

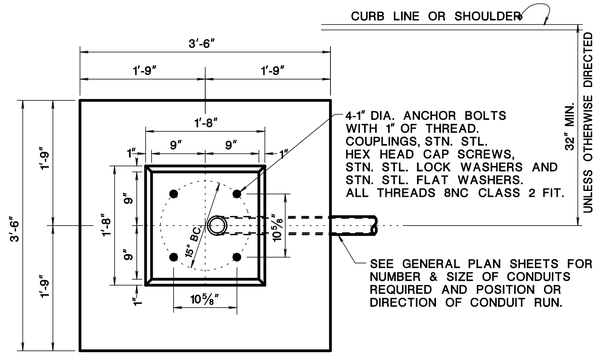
ELECTRICAL DETAILS
N.T.S.

TYPICAL DETAILS FOR FOUNDATION
MCF, P & P-MC

T-1607

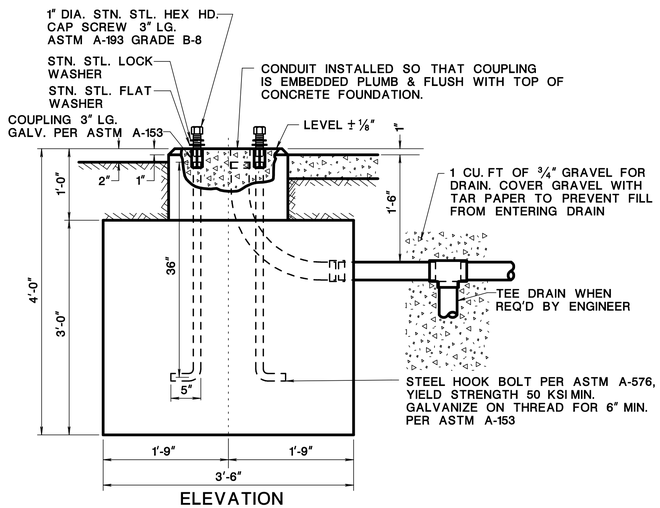
REFERENCE

BDC07D-03



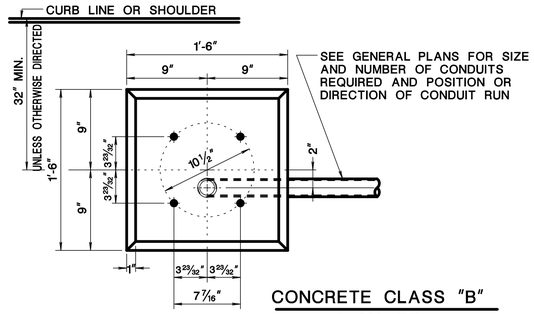

PLAN

CONCRETE CLASS "B"
1.5 CU. YDS.
FOUNDATION SHALL BE POURED MONOLITHIC



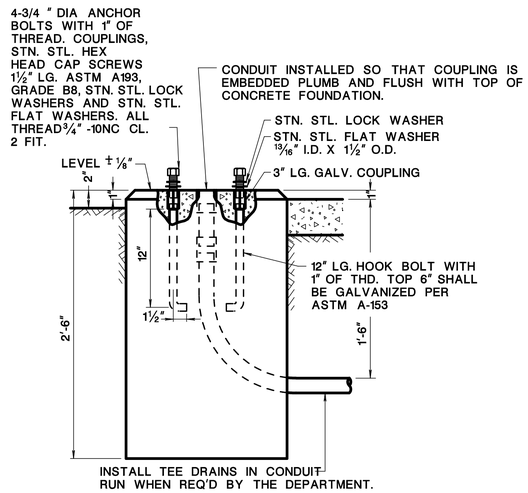

ELEVATION

FOUNDATION
TYPE "SFT"



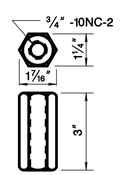

PLAN

CONCRETE CLASS "B"
6 CU. FT.

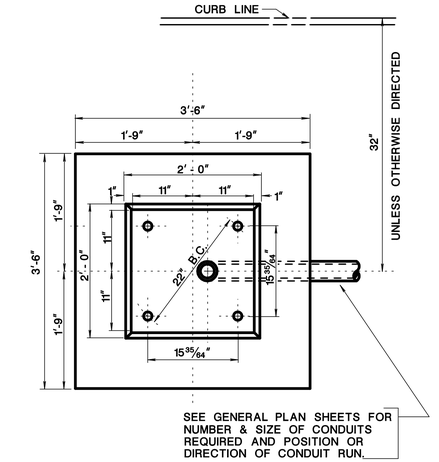



ELEVATION

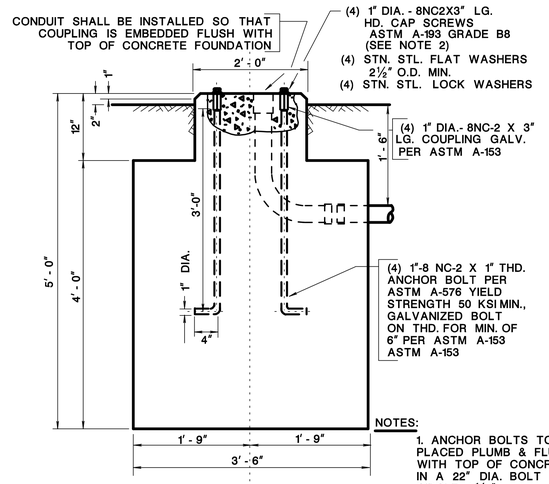
FOUNDATION
TYPE "SPF"




GALVANIZED
COUPLING
GALV. PER ASTM A-153
CONTINUOUS THREADS




PLAN




ELEVATION

FOUNDATION TYPE "SFK"

NOTES:
1. ANCHOR BOLTS TO BE PLACED PLUMB & FLUSH WITH TOP OF CONCRETE IN A 22" DIA. BOLT CIRCLE ±1/32".
2. CAP SCREW SHALL PROVIDE A MINIMUM OF ONE INCH OF THREAD IN THE COUPLING WITHOUT BUTTING THE ANCHOR BOLT.

CONCRETE CLASS "B"
2 CU. YDS.
FOUNDATION SHALL BE POURED MONOLITHIC

NOTES:
1. ALL CONDUIT INSTALLED SO THAT COUPLINGS ARE EMBEDDED PLUMB AND FLUSH WITH TOP OF CONCRETE FOUNDATION.
2. J-BOLT MUST BE INSERTED 1½" ± ⅛" INTO 3" COUPLING

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

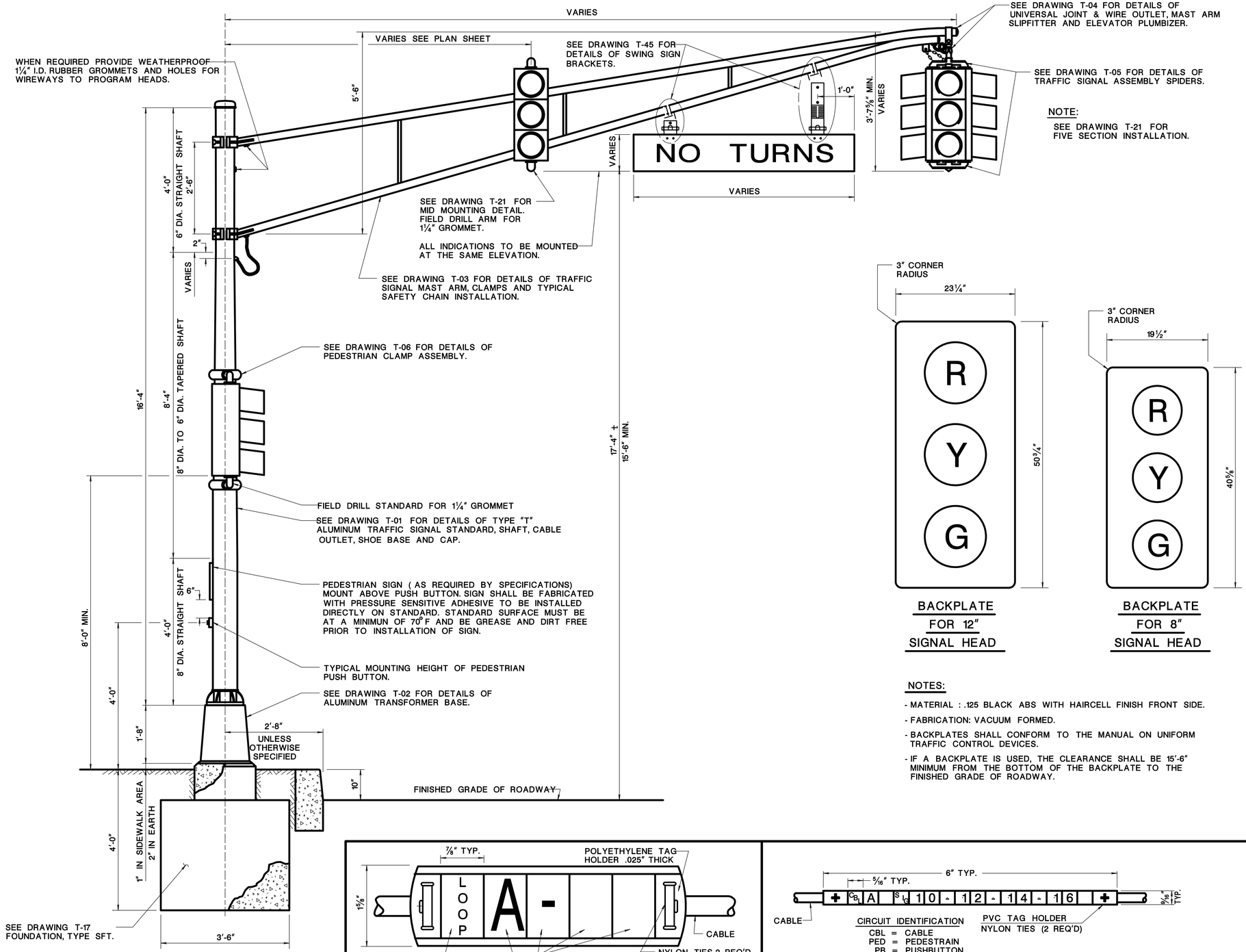
TYPICAL DETAILS FOR FOUNDATION SFT, SFK & SPF

T-1707

REFERENCE

BDC07D-03

| STATE | FEDERAL PROJECT NO. | SHEET | TOTAL SHEETS |
|---|---|---|---|
| N.J. | | | |




TYPICAL INSTALLATION




BACKPLATE FOR 12" SIGNAL HEAD

BACKPLATE FOR 8" SIGNAL HEAD

NOTES:

- MATERIAL : .125 BLACK ABS WITH HAIRCELL FINISH FRONT SIDE.
- FABRICATION: VACUUM FORMED.
- BACKPLATES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- IF A BACKPLATE IS USED, THE CLEARANCE SHALL BE 15'-6" MINIMUM FROM THE BOTTOM OF THE BACKPLATE TO THE FINISHED GRADE OF ROADWAY.




CABLE IDENTIFICATION TAG DETAIL

( LOOP DETECTOR )




( TAG LETTERS SHALL BE BLACK ON YELLOW )

CABLE IDENTIFICATION TAG DETAIL

( TRAFFIC SIGNAL )

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

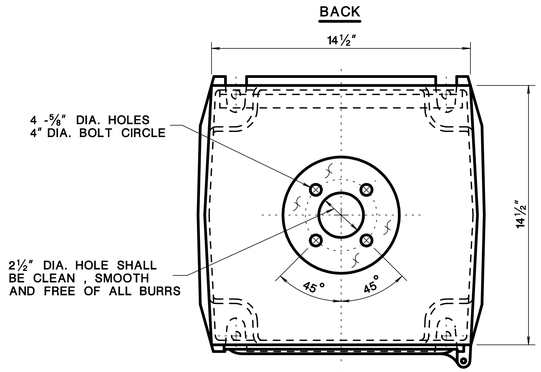
N.T.S.

TYPICAL TRAFFIC SIGNAL INSTALLATION

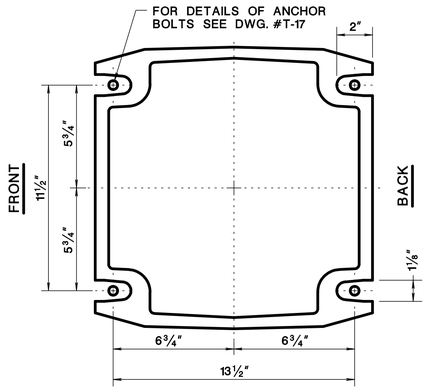
T-1807

REFERENCE

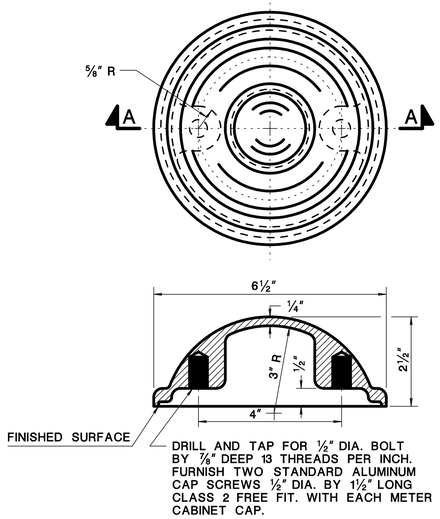
BDC07D-03




TOP OF METER CABINET

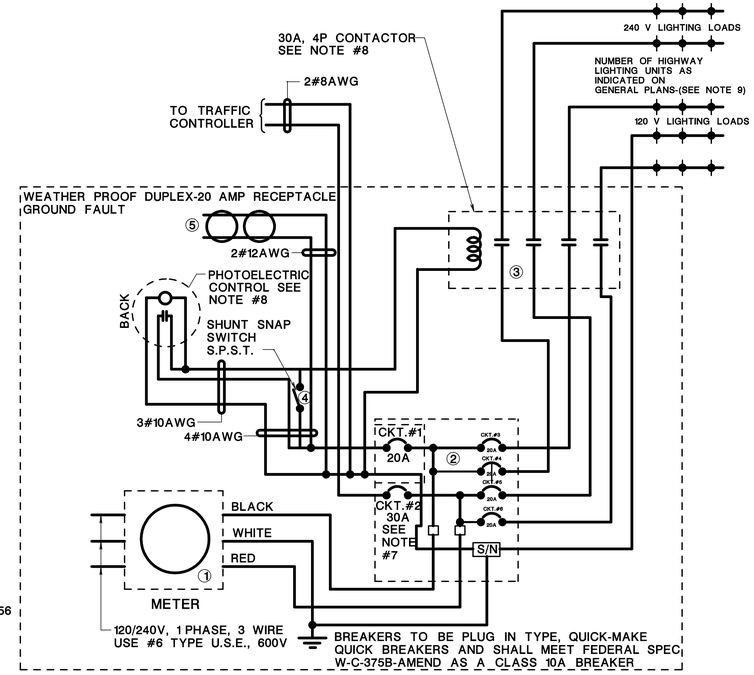



BOTTOM OF METER CABINET



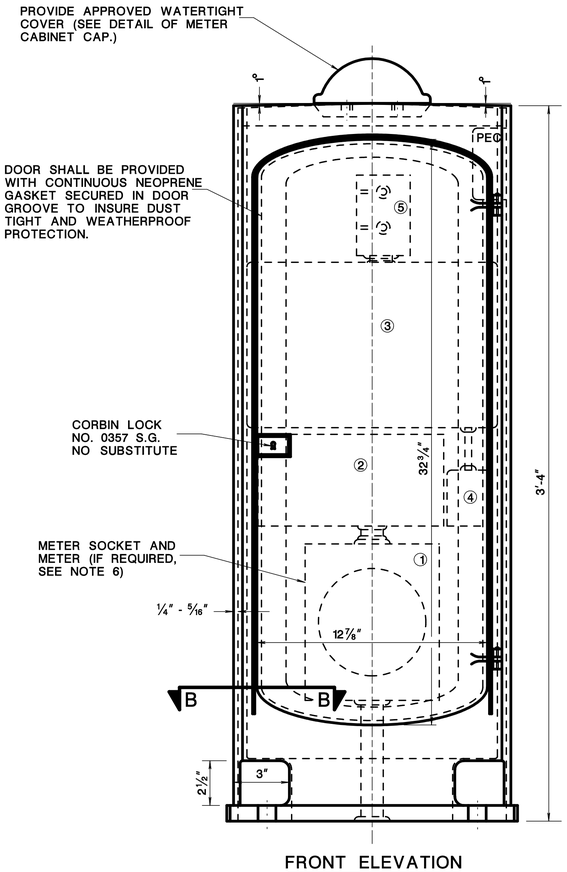

SECTION A-A

METER CABINET CAP DETAIL

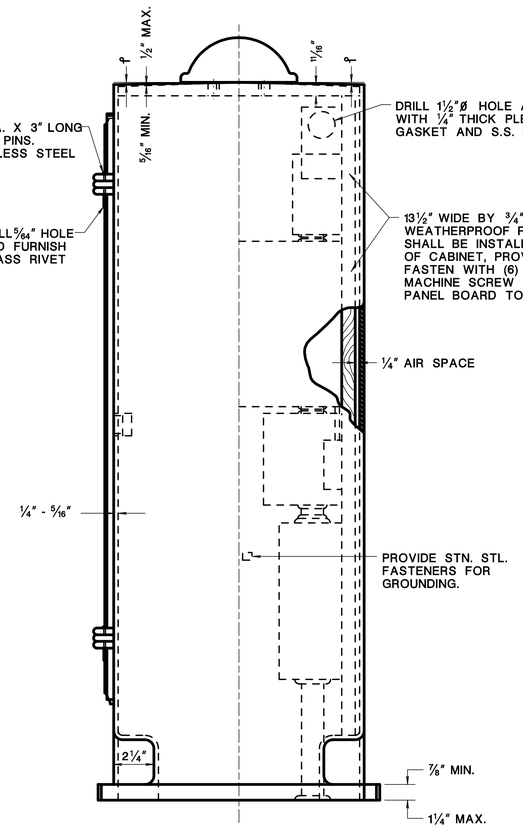



NOTE:
ALL WIRE TO BE #6-AWG-600 VOLT
OR AS OTHERWISE SHOWN.

SCHEMATIC WIRING DIAGRAM: 120/240 VOLT




FRONT ELEVATION

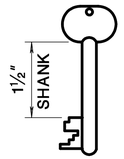



SIDE ELEVATION

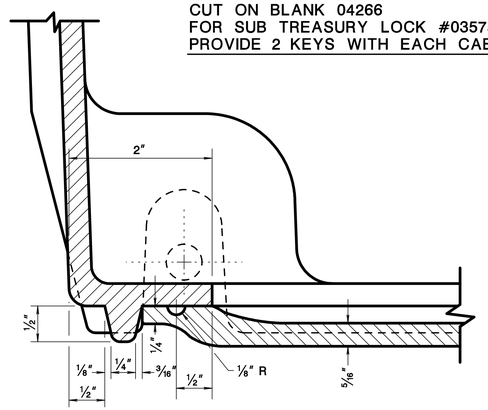
DRILL 1½"ø HOLE AND COVER
WITH ¼" THICK PLEXIGLASS.
GASKET AND S.S. HARDWARE.

ALUMINUM ALLOY, COMMERCIAL DESIGNATION 356
A.S.T.M. DESIGNATION B26-56T, ALLOY SG 70A

13½" WIDE BY ¾" THICK BY 35" LONG
WEATHERPROOF PLYWOOD PANEL BOARD
SHALL BE INSTALLED ON INSIDE REAR WALL
OF CABINET, PROVIDE ¼" AIR SPACE AS SHOWN.
FASTEN WITH (6) ¼" - 20NC STN. STL., FLAT HD.
MACHINE SCREW (DRILL & TAP METER CABINET).
PANEL BOARD TO BE GIVEN (1) COAT OF BLACK PAINT.




KEY ALIKE CHANGE #1
CUT ON BLANK 04266
FOR SUB TREASURY LOCK #03575
PROVIDE 2 KEYS WITH EACH CABINET




METER CABINET CORNER SECTION
SHOWING DOOR GASKET GROOVE DETAIL.

SECTION B-B

LEGEND

1. METER SOCKET-INSTALLED BY CONTRACTOR-PROVIDED BY UTILITY COMPANY ON REQUEST. (IN JCP&L CO. AREA METER SOCKET IS TO BE INSTALLED AND FURNISHED BY CONTRACTOR)
2. 4/8 CIRCUIT LOAD CENTER WITH ENCLOSURE COMPLETE WITH 1-30A & 5-20A CIRCUIT BREAKERS.
3. MAGNETIC CONTACTOR, 30 AMP, 120 VOLT COIL NEMA 1 ENCLOSURE.
4. PHOTOELECTRIC CONTROL UNIT 15 AMP. SHUNT SWITCH IN 2" X 4" HANDY BOX OR EQUIVALENT.
5. WEATHERPROOF, 20A DUPLEX RECEPTICAL GROUND FAULT.
6. IF METER IS NOT REQUIRED, INSTALL 1¼" I.D. SEALTITE FLEX CONDUIT AND 1¼" I.D. NIPPLE FROM REDUCER COUPLING TO MAIN BREAKER PANEL.
7. A 40 AMP BREAKER INSTALLED WITH EIGHT PHASE CONTROLLER ASSEMBLIES.
8. FOR METER CABINET "TL", PHOTOELECTRIC CONTROL AND MAGNETIC CONTACTOR FURNISHED AND INSTALLED.
9. THE TOTAL NUMBER OF CIRCUIT BREAKERS MUST NOT EXCEED SIX.

METER CABINET DETAIL

- ALUMINUM ALLOY, COMMERCIAL DESIGNATION 356 A.S.T.M. DESIGNATION B26-56T, ALLOY SG 70A.
- THE CABINET SHALL BE FREE OF BURRS, SHARP EDGES, DENTS, PINHOLES, AND PARTING LINES AND SHALL HAVE A UNIFORM #30 GRIT FINISH.
- FOR ALTERNATE FABICATED METER CABINET SEE DWG. T-35

METER CABINET TYPE "T"

METER CABINET TYPE "TL" - SEE NOTE #8

NEW JERSEY DEPARTMENT OF TRANSPORTATION

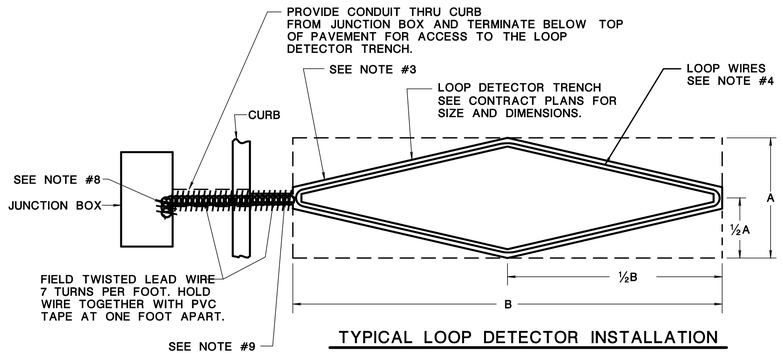
ELECTRICAL DETAILS
N.T.S.

METER CABINET "T" AND "TL"
ELECTRICAL INSTALLATION

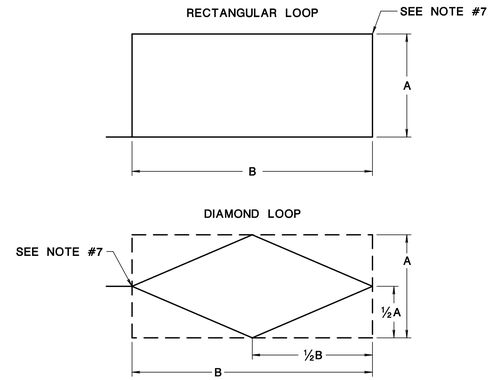
T-1907

REFERENCE

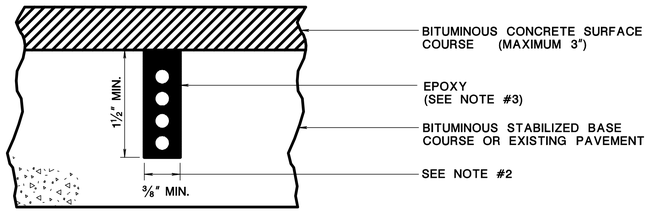
BDC07D-03




TYPICAL LOOP DETECTOR INSTALLATION

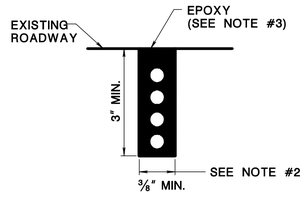



LOOP CONFIGURATIONS



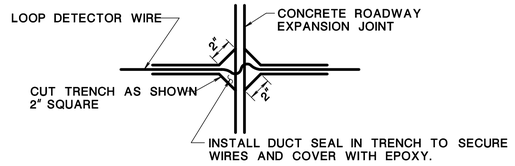

SKETCH "A"

SECTION SHOWING INSTALLATION IN NEW ROADWAYS OR IN EXISTING ROAD WITH NEW OVERLAY SEE NOTE #6




SKETCH "B"

SECTION SHOWING INSTALLATION IN EXISTING ROADWAY WITH NO NEW OVERLAY




TYPICAL CONCRETE EXPANSION JOINT CUT FOR LOOP DETECTOR WIRE

## GENERAL NOTES

1.) SKETCH "A" & "B" APPLIES WHEN CONTRACT PROVIDES FOR LOOP DETECTOR ONLY.

2.) DIMENSIONS AND CONFIGURATIONS FOR LOOP DETECTOR TRENCHES AS SHOWN ON THE PLAN SHEETS FOR EACH LOCATION. PROVIDE TRENCH OF SUFFICIENT SIZE TO ACCOMMODATE THE TYPE AND THE NUMBER OF OF CONDUCTORS REQUIRED BY LOOP DETECTOR SENSOR.

3.) EPOXY FOR LOOP DETECTORS TO BE A FLEXIBLE SEALER WITH SUFFICIENT STRENGTH AND RESILIENCY TO WITHSTAND STRESS SET UP BY DIFFERENCE IN EXPANSION AND CONTRACTION OF THE PAVEMENT CAUSED BY TEMPERATURE CHANGES AND NORMAL PAVEMENT MOVEMENT.

4.) THE LOOP INDUCTANCE MEASURED IN THE FIELD. ALL LOOPS HAVE SIX TURNS.

5.) "DIAMOND" LOOPS ARE BASED ON RECTANGULAR MEASUREMENTS GIVEN IN THE LOOP DETECTOR SCHEDULE ON PLAN SHEETS FOR EACH LOCATION.

6.) LOOPS IN EXISTING ROADWAY INSTALLED AFTER THE MILLING PROCESS AND PRIOR TO THE INSTALLATION OF THE NEW OVERLAY.

7.) ALL CORNERS ARE CUT SMOOTH WITH A CHISEL TO ASSURE A CLEAN SMOOTH RADIUS.

8.) THE SPLICE KIT USED TO SPLICE THE LOOP DETECTOR LEAD TO THE LOOP WIRE ENCAPSULATES A MINIMUM OF 1" OF THE LOOP WIRE TUBING.

9.) IF THE LOOP WIRE IN THE CUT TRENCH TO THE CURB LINE IS DUCT WIRE, DO NOT TWIST BUT TAPE TOGETHER EVERY 6" WITH PVC TAPE.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

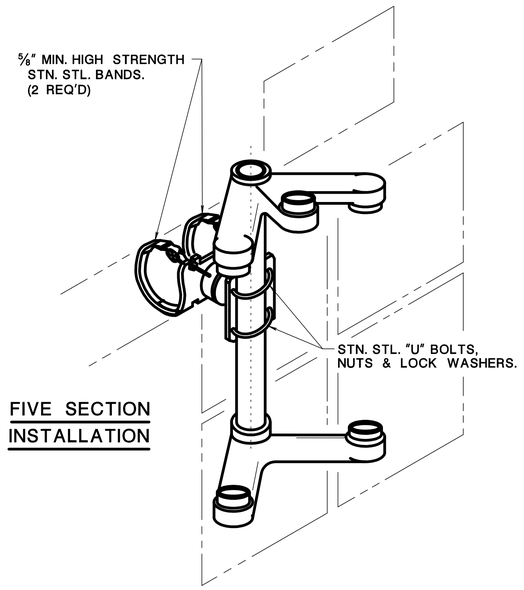
N.T.S.

LOOP DETECTOR TRENCH & LOOP DETECTOR

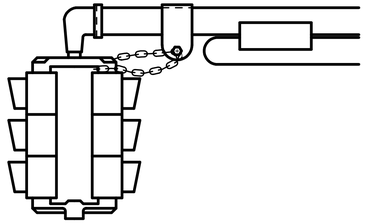
T-2007

REFERENCE

BDC07D-03




FIVE SECTION
INSTALLATION

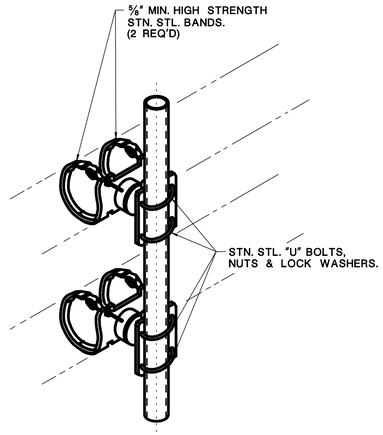


TYPICAL TRAFFIC SIGNAL INSTALLATION

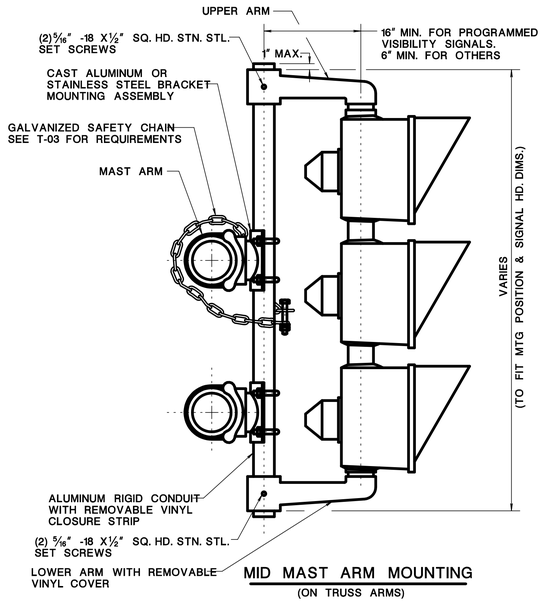
## SAFETY CHAIN REQUIREMENTS FOR TRAFFIC SIGNALS

FURNISH:

42" LG. ¼" HOT DIPPED GALVANIZED COILPROOF STRAIGHT LINK CHAIN.
1 - ⅝"Ø X 2½" LG. STAINLESS STEEL HEX HEAD BOLT.
2 - ⅝" Ø STAINLESS STEEL HEX NUTS.
2 - ⅝" ØSTAINLESS STEEL FLAT WASHERS.
1- ⅝"Ø STAINLESS STEEL LOCK WASHER.




MID MAST BRACKET DETAIL




MID MAST ARM MOUNTING
(ON TRUSS ARMS)

NOTES:

1. TO MOUNT SIGNALS ON A PEDESTAL STANDARD INVERT 3 IN LINE BRACKETS WITH PIPE AND ELBOWS, USE A 4½" SLIPFITTER IN PLACE OF THE MAST ARM PLUMBIZER.
2. TO MOUNT 8" SIGNALS BACK TO BACK WITH 12" SIGNALS USE SPACER NIPPLES ON BOTTOM. RED SIGNALS SHALL BE IN LINE.
3. TO MOUNT BACK TO BACK OPTICALLY PROGRAMMED SIGNALS USE MID MAST BRACKET.
4. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

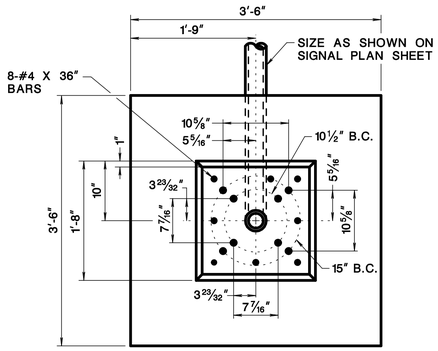
ELECTRICAL DETAILS
N.T.S.

OPTICALLY PROGRAMMED AND MIDMAST MOUNTING DETAILS

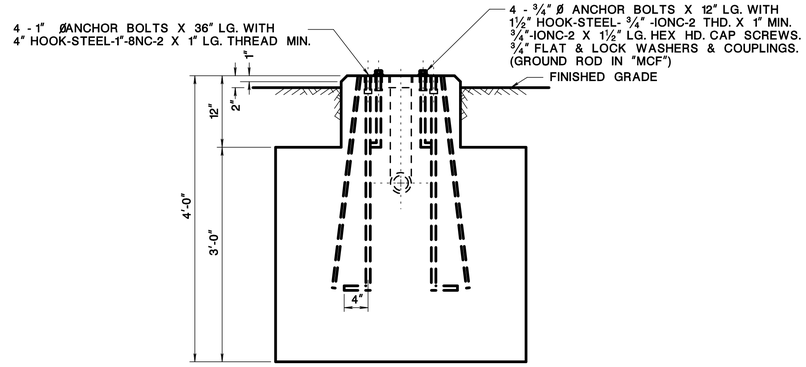
T-2107

REFERENCE

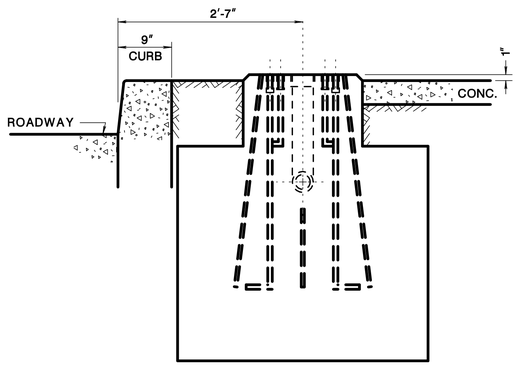
BDC07D-03




PLAN VIEW

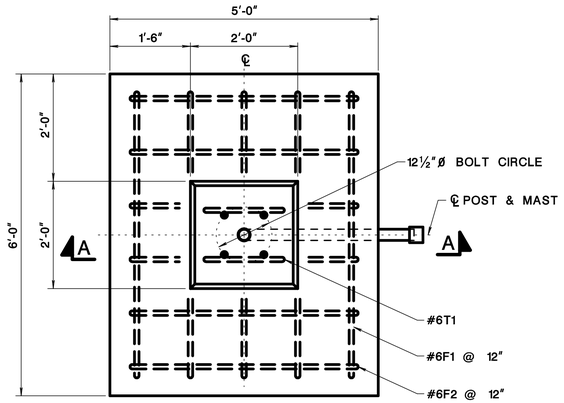



SIDE VIEW AT GRADE

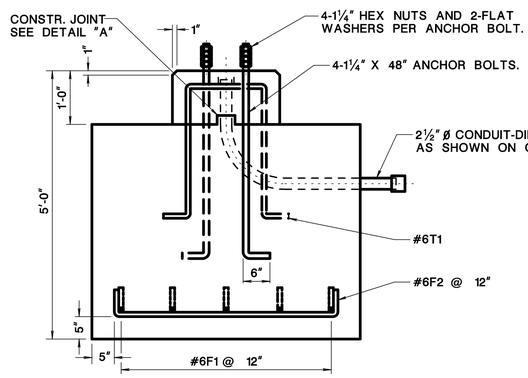



SIDE VIEW AT SIDEWALK

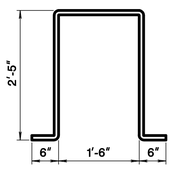
SCHOOL SIGN FOUNDATION TYPE "SSF"



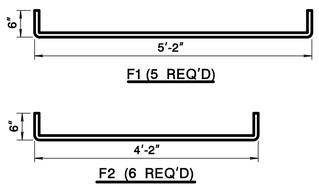

PLAN




SECTION A-A

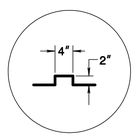



T1 (2 REQ'D)




F1 (5 REQ'D)

F2 (6 REQ'D)




DETAIL A

NOTES:

1. REINFORCING STEEL ASTM A615 GRADE 60 fs=24,000 PSI.
2. ALL BAR DIMENSIONS ARE OUT TO OUT OF BARS.
3. ANCHOR BOLT PER ASTM A576 YIELD STRENGTH 50 KSI MIN.

FOUNDATION TYPE "SSF-A"

CONCRETE CLASS "B" 4.6 C.Y.

(SEE DWG. NO. T-15 FOR APPLICATION)

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

N.T.S.

SIGN FOUNDATIONS

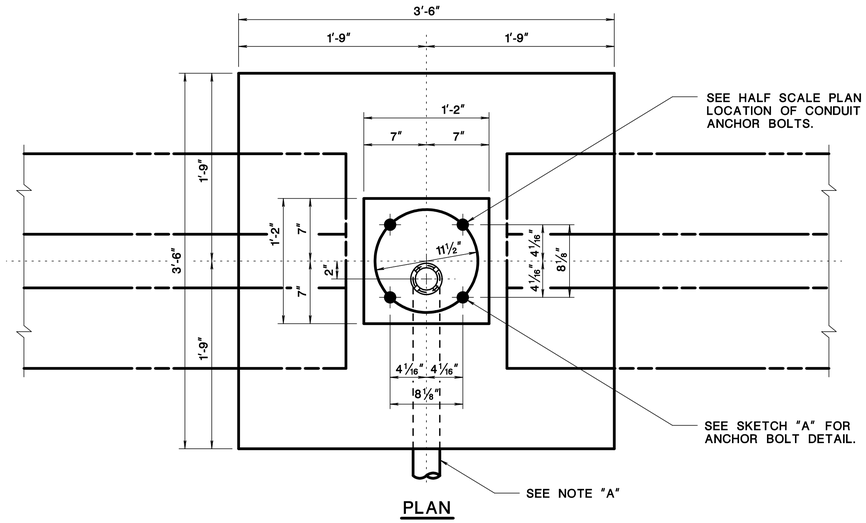
"SSF" & "SSF-A"

T-2207

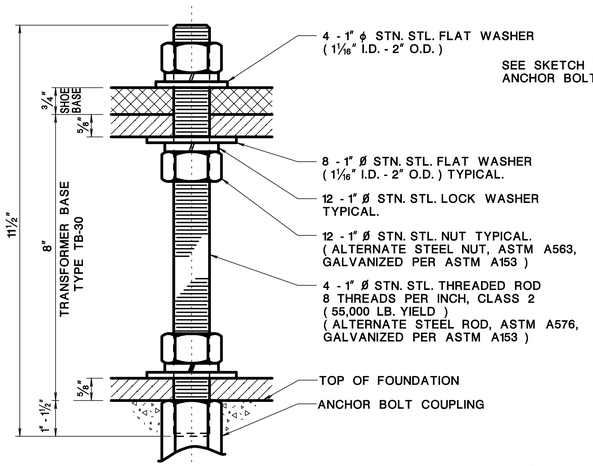
REFERENCE

BDC07D-03

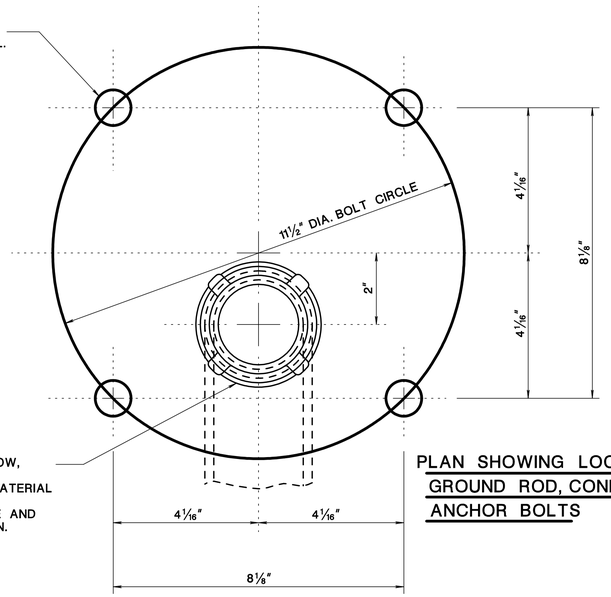
REFERENCE




PLAN



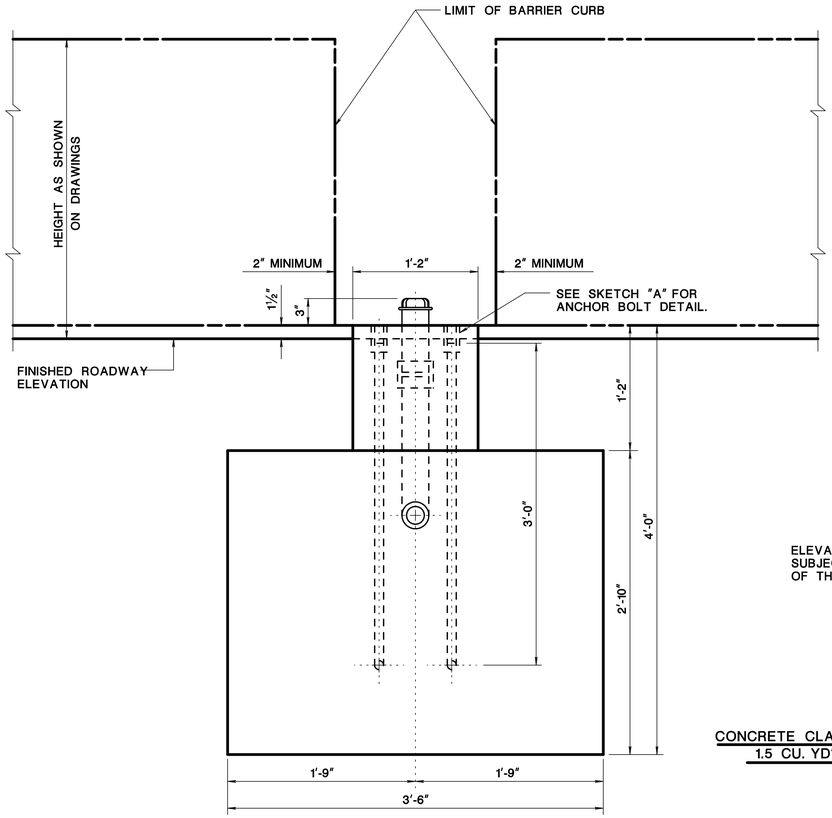

SKETCH "B"
THROUGH BOLT DETAIL
FOR THROUGH BOLTING




PLAN SHOWING LOCATION OF GROUND ROD, CONDUIT AND ANCHOR BOLTS

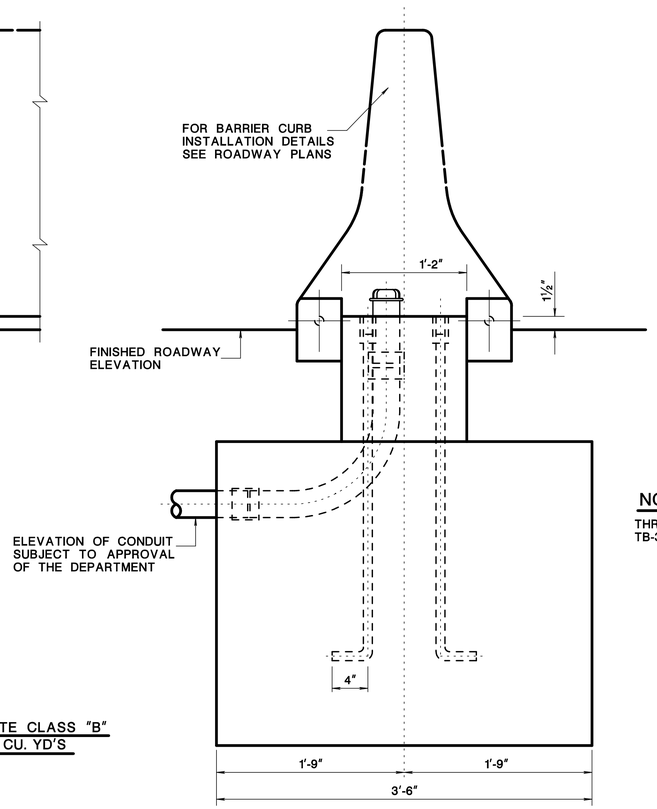
NOTE "A"

RIGID METALLIC CONDUIT, ELBOW, COUPLING, APPROVED CAP BONDING BUSHING ETC. ALL MATERIAL GALVANIZED.
SEE GENERAL PLANS FOR SIZE AND DIRECTION CONDUIT IS TO RUN.




ELEVATION

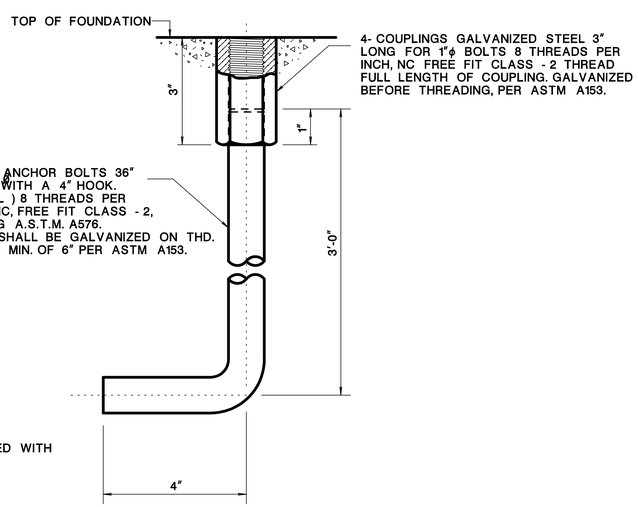
CONCRETE CLASS "B"
1.5 CU. YD'S




END VIEW

NOTE:

THROUGH BOLTING IS REQUIRED WITH TB-30 BASE INSTALLATION.




DETAIL OF ANCHOR BOLT
SKETCH "A"

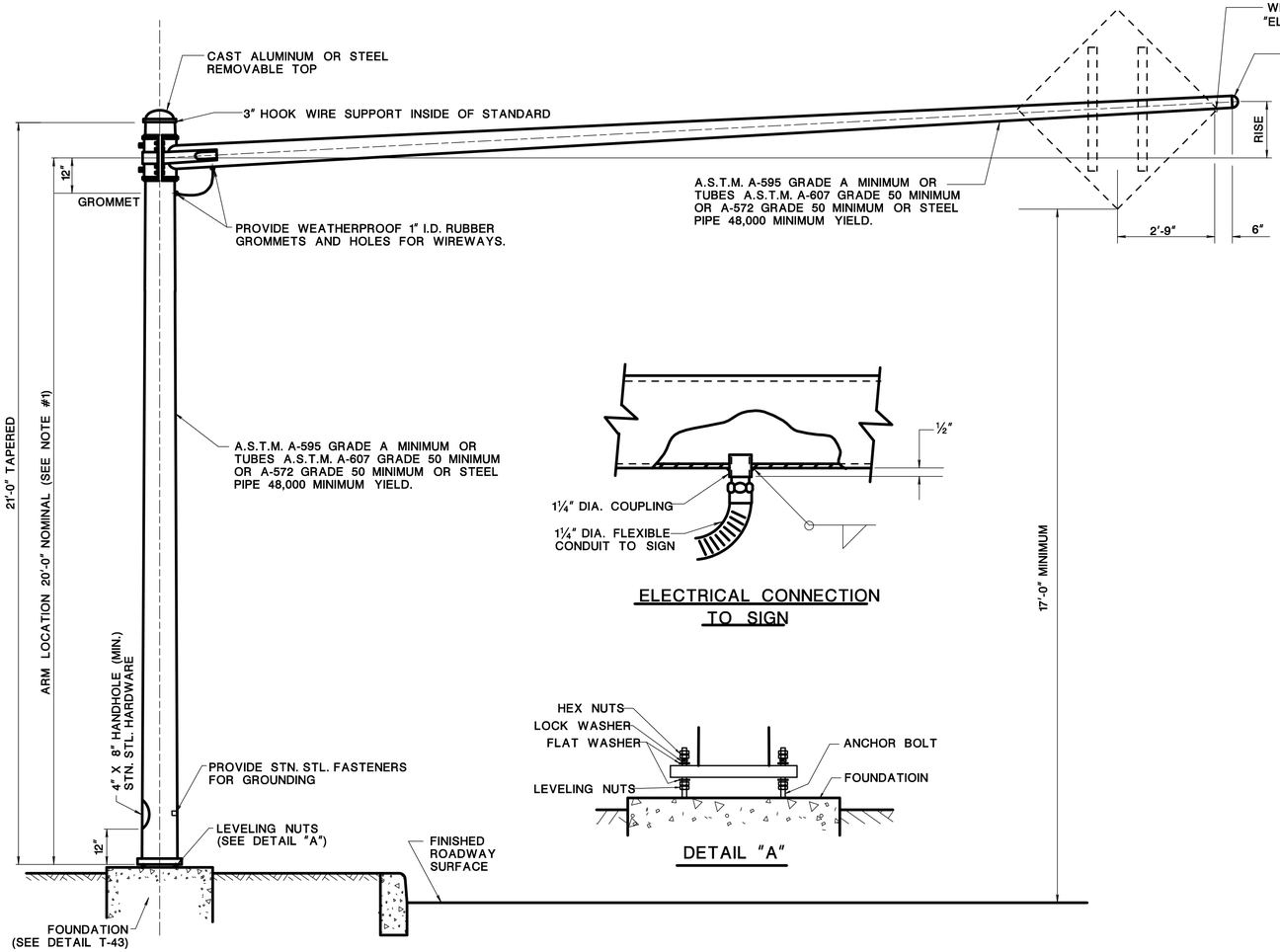
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

FOUNDATION TYPE "SFX"
BARRIER CURB

T-2907

BDC07D-03



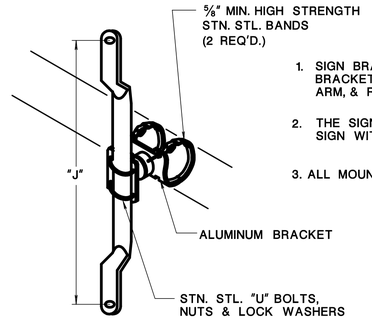

STEEL POLE AND ARM DETAIL FOR ELECTRIC SIGN-ROUND OR MULTISIDED




ELECTRICAL CONNECTION TO SIGN



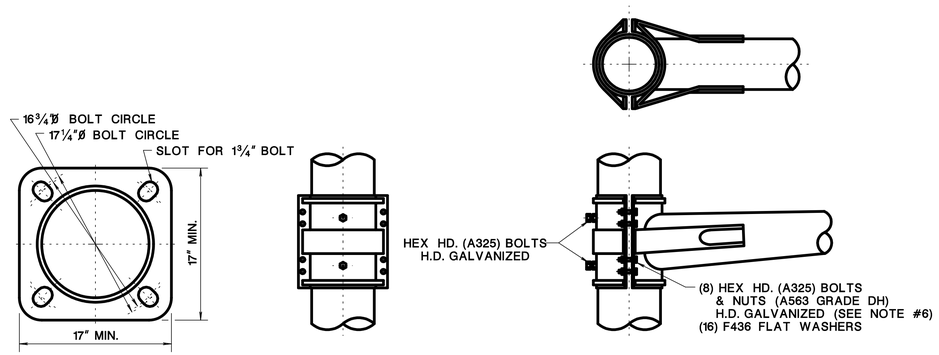

DETAIL "A"




1. SIGN BRACKET SHALL PERMIT ROTATIONAL ADJUSTMENT ABOUT BRACKET AXIS, VERTICAL & ROTATIONAL ADJUSTMENT ABOUT MAST ARM, & ROTATIONAL ADJUSTMENT RIGHT & LEFT IN VERTICAL PLANE.
2. THE SIGN BRACKET SHALL BE DESIGNED TO SUPPORT A 350 LB. SIGN WITH A PROJECTED AREA OF 19 SQ. FT.
3. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

| SIGN SIZE | DIM. "J" |
|---|---|
| 24" X 24" | 18" |
| 30" X 30" | 24" |
| 36" X 36" | 30" |
| 48" X 48" | 42" |

ALUMINUM SIGN BRACKET DETAIL




BASE DETAIL

ARM CONNECTION DETAIL

## NOTES:

1. STANDARD AND MAST ARMS SHALL BE HOT DIPPED GALVANIZED STEEL. FINISH IN ACCORDANCE WITH SPECIFICATIONS A.S.T.M. A-123.
2. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED FOR STEEL MAST ARMS 50' OR SMALLER.
3. ARMS WILL SUPPORT ALL OF THE FOLLOWING:
   FIXED SIGNALS AT THE END OF ARM-WT.=100# PROJ. AREA=8.4 S.F.
   FIXED SIGNALS 1/3 OF LENGTH FROM END-WT.=100# PROJ. AREA=8.4 S.F.
   FIXED SIGN MIDWAY BETWEEN SIG'S-WT.=35# PROJ. AREA=12 S.F.
4. STANDARD WILL SUPPORT ONE 45' AND ONE 30' MAST ARM WITH ABOVE LOADING AND A MINIMUM ARM SEPARATION OF 45°, OR ONE 65' ARM WITH ABOVE LOADING.
5. SIZE OF ARM SUPPLIED SHALL BE NOTED ON PLAN SHEET OR BID PROPOSAL.
6. ALL HEX NUTS, A-563 GRADE DH, SHALL BE INSTALLED BY "TURN OF THE NUT METHOD". SEAT NUT, THEN TORQUE MINIMUM ½TURN.
7. STANDARD AND ARMS MUST BE ROUNDED OR MULTISIDED. (MINIMUM 8 SIDED).
8. CLAMP FOR ALL MAST ARMS MUST BE CAPABLE OF ACCOMMODATING VARIOUS STANDARD DIAMETERS (9.7" TO 10.2") WITHOUT AFFECTING LOAD CHARACTERISTICS OF ASSEMBLED UNIT. ALL CLAMPS MUST BE DESIGNED FOR ATTACHMENT TO ROUND OR MULTISIDED. CLAMP MUST BE CAPABLE OF ROTATIONAL ADJUSTMENT RIGHT AND LEFT FROM VERTICAL PLANE AND 360° ROTATIONAL ADJUSTMENT ABOUT MAST ARMS.
9. SUPPLY CERTIFICATION BY A LICENSED PROFESSIONAL ENGINEER WHICH INCLUDES DESIGN CALCULATIONS THAT STANDARD AND ARM DESIGN MEETS ALL SPECIFIED LOADING REQUIREMENTS.
10. ALL TELESCOPIC JOINTS SHALL BE WELDED TOGETHER BY THE MANUFACTURER. FOR ARM LENGTH IN EXCESS OF 43 FEET, ONE TELESCOPIC JOINT WITH THRU BOLT MAY BE ASSEMBLED IN THE FIELD.
11. ANCHOR BOLTS, LOCK WASHERS, FLAT WASHERS, NUTS, AND LEVELING NUTS, SHALL BE SUPPLIED WITH EACH POLE. LEVELING NUTS SHALL BE ASTM A-307.
12. DO NOT INSTALL POLE WITHOUT ARM.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

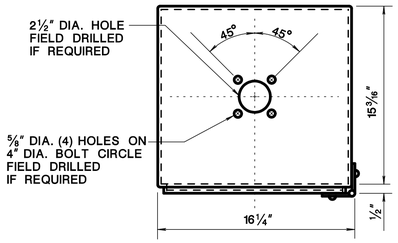
N.T.S.

TRAFFIC SIGNAL STANDARD STEEL, AND ARM DETAILS FOR ELECTRICAL SIGNS

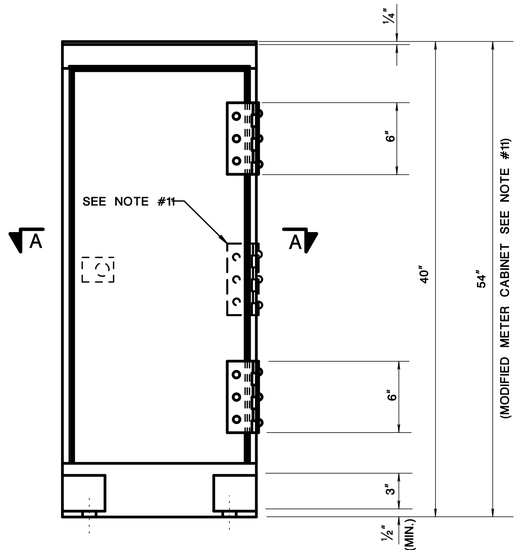
T-3407

REFERENCE

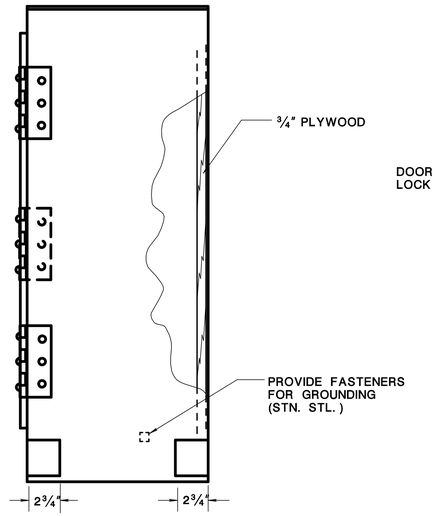
BDC072-03



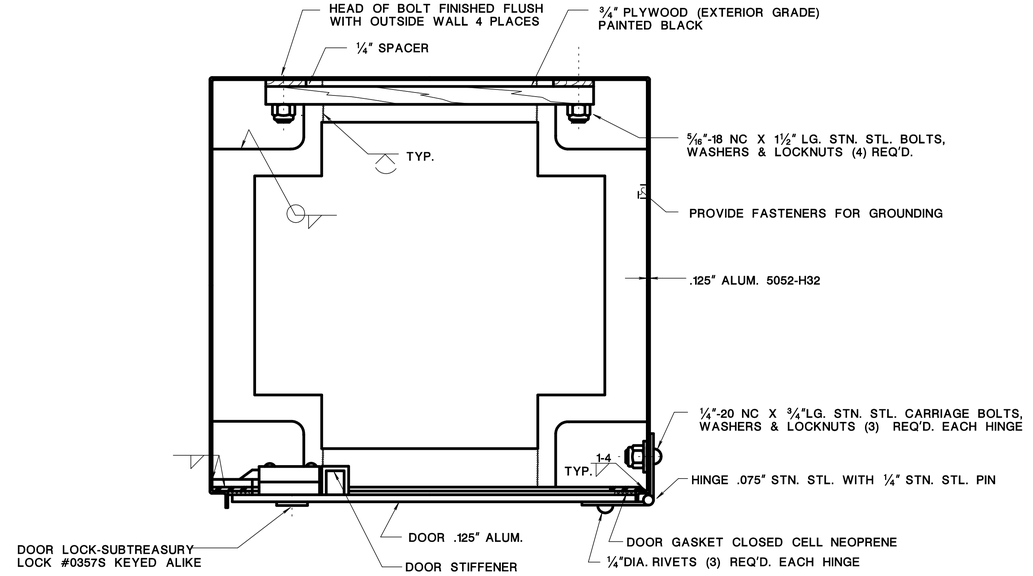

TOP VIEW



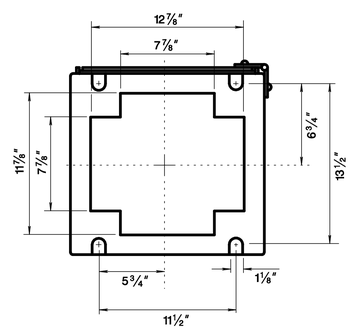

FRONT ELEVATION




SIDE ELEVATION




SECTION A-A




BOTTOM VIEW

## NOTES

1. ALL DIMENSIONS SHOWN IN INCHES AND ±1/32" TOLERANCE.
2. CABINET CONSTRUCTED OF FORMED ALUMINUM ALLOY 5052-H32 .125 INCH THICK WELDED WHERE SHOWN.
3. CABINET SHALL BE UNPAINTED.
4. ALL BOLTS SHALL BE VANDAL PROOF TYPE.
5. ANY VARIATIONS TO THE DIMENSIONS MUST BE APPROVED IN WRITING BY THE N.J.D.O.T. BEFORE FABRICATION.
6. NO CHANGES IN ANCHORAGE DIMENSIONS ARE PERMITTED.
7. COMPONENT LOCATION FOR METER PAN AND METER (IF REQUIRED) ARE SHOWN FOR METER CABINET TYPE "T" SEE DWG. No. T-19.
8. IF METER IS NOT REQUIRED, INSTALL 1¼" I.D. SEALTITE FLEXIBLE AND 1¼" I.D. NIPPLE FROM REDUCER COUPLING TO MAIN BREAKER PANEL.
9. THE BASE OF THE CABINET SHALL BE ½" MINIMUM THICKNESS.
10. AS AN ALTERNATE A STAINLESS STEEL PIANO TYPE HINGE MAY BE UTILIZED.
11. 3 HINGES REQUIRED FOR 54" MODIFIED METER CABINET.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

N.T.S.

METER CABINET

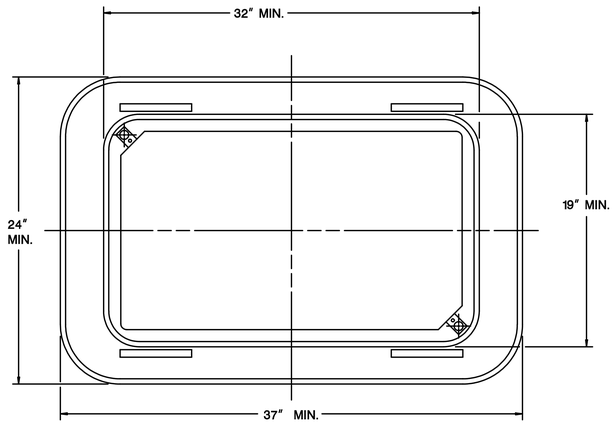
FABRICATED TYPE-40" AND 54"

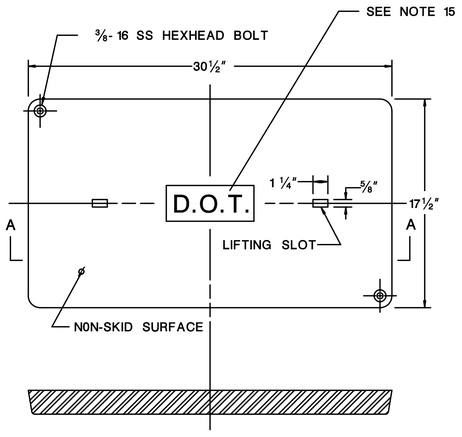
T-3507

REFERENCE

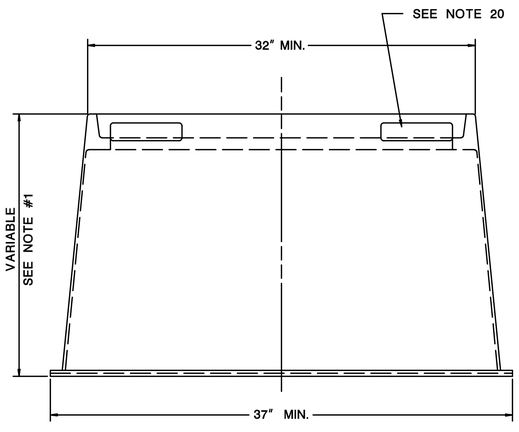
BDC07D-03

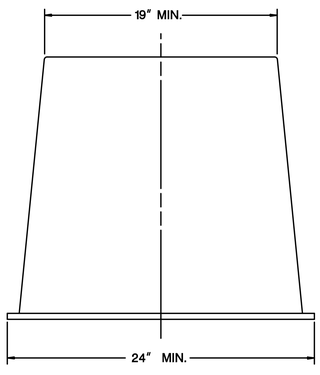
REFERENCE

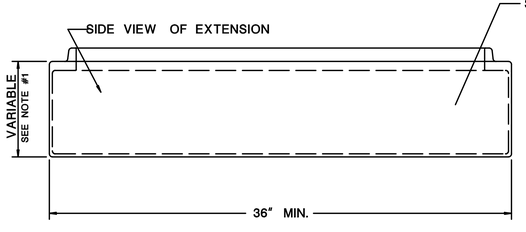


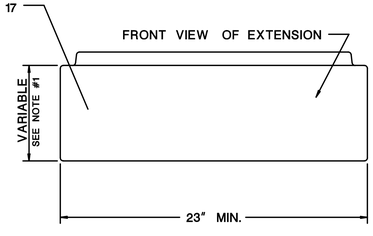



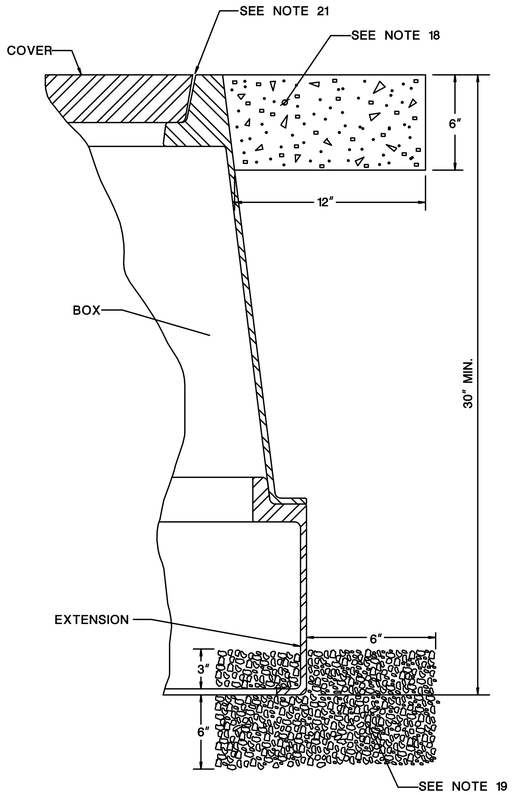

COVER
SECTION A-A




BASIC WALL LAYOUT

## NOTES:

1. THE BOX DEPTH SHALL BE 18" MINIMUM AND THE EXTENSION DEPTH SHALL BE 8" MINIMUM. THE COMBINATION OF BOX AND ONE EXTENSION SHALL HAVE A MINIMUM DEPTH OF 30". AS AN ALTERNTE, A SINGLE SECTION JUNCTION BOX MAY BE SUPPLIED.
2. THE BOX SIDES SHALL BE TAPERED INWARD TOWARD THE TOP FOR STABILITY. BOX SHALL BE PROVIDED WITH A BOTTOM FLANGE AT LEAST 1¼ INCH WIDE TO PREVENT SETTLING IN FIRM SOIL WHEN SUBJECTED TO SPECIFIED LOADS. TOP REGION OF THE BOX SHALL BE CONFIGURED TO PROVIDE "KEYING-IN" AND LOCK THE BOX IN CONCRETE OR BLACKTOP WHEN IT IS INSTALLED. THREADED INSERTS PROVIDED FOR SECURING THE LID SHALL BE STAINLESS STEEL.
3. THE COVER SHALL BE FASTENED TO THE BOX WITH TWO ⅜" -16NC STAINLESS STEEL HEX BOLTS, LOCATED AT OPPOSITE CORNERS OF THE COVER. BOLTS SHALL BE CAPTIVE TO LID.
4. COVER SURFACE SHALL BE SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5.
5. EXTENSION SHALL FIT THE BOTTOM OF THE BOX; ITS DESIGN SHALL BE SUCH AS TO REINFORCE THE BOX AGAINST SIDE LOADS WHEN THE TWO ARE STACKED TOGETHER.
6. THE BOX ASSEMBLY SHALL BE DESIGNED FOR A8 LOADING AS SPECIFIED IN ASTM C857-87 "MINIMUM STRUCTURAL DESIGN LOADING FOR UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES." THE MINIMUM ULTIMATE LOAD SHALL BE 20,800 LB. MINIMUM.
7. DESIGN SHALL BE BASED ON A MINIMUM SAFETY FACTOR OF 2.0 FOR WHEEL LOADS AND 2.0 FOR SOIL LOADS. COVER DEFLECTION AT DESIGN LOADS SHALL NOT EXCEED 0.5 INCHES OF NET COVER DEFLECTION WIDTH AND SIDE WALL DEFLECTION SHALL NOT EXCEED 0.25 INCHES PER FOOT OF COVER WIDTH AND SIDE WALL DEFLECTION SHALL NOT EXCEED 0.25 INCHES PER FOOT OF BOX LENGTH. COMPLIANCE TESTING, IF REQUIRED, SHALL BE PERFORMED ACCORDING TO CURRENT WESTERN UNDERGROUND COMMITTEE GUIDE No. 3.6, NON-CONCRETE ENCLOUSRE.
8. ANY POINT ON THE COVER, BOX OR EXTENSION SHALL WITHSTAND A 70 FT. LBS. IMPACT ADMINISTERED WITH A C-TUP ACCORDING TO ASTM D-2444.
9. A MINIMUM OF 20 YEARS LIFE EXPECTANCY IS REQUIRED. ACCELERATED SERVICE TESTS IN ACCORDANCE WITH ASTM METHOD D-756-56 PROCEDURE E, SHALL BE ACCEPTED AS A SATISFACTORY ALTERNATIVE.
10. THE JUNCTION BOX SHALL BE MADE OF FIBER GLASS, RPM/FRP COMBINATION OR POLYMER CONCRETE AND THE COVER SHALL BE MADE OF FIBER GLASS REINFORCED POLYMER CONCRETE.
11. THE MATERIALS UTILIZED IN THE MANUFACTURE OF JUNCTION BOXES AND COVERS SHALL BE RESISTANT TO CHEMICALS COMMONLY FOUND IN THE SOIL OR IN THE OPERATING ENVIRONMENT. THEY MUST ALSO BE RESISTANT TO SUNLIGHT AND UV IN ACCORDANCE WITH ASTM G53. CHEMICAL RESISTANCE PROPERTIES SHALL BE DETERMINED USING ASTM D543 AND ASTM D570 FOR WATER ABSORPTION.
12. THE MATERIALS SHALL BE RESISTANT TO FIRE, INCLUDING DIRECT FLAME AND HEAT IN ACCORDANCE WITH ASTM D635.
13. THE JUNCTION BOX SHALL BE USABLE, WITHOUT ANY DETRIMENTAL EFFECT IN ANY KIND OF CLIMATE, IN A TEMPERATURE RANGE OF -40° F TO + 149° F. SUDDEN TEMPERATURE CHANGES SHALL NOT AFFECT THE HANDHOLE INCLUDING ITS LIFE EXPECTANCY.
14. THE COLOR OF THE COVER AND THAT PART OF THE BOX THAT IS VISIBLE WHEN IT IS INSTALLED, SHALL BE "CONCRETE GREY."
15. IDENTIFICATION OF THE COVER SHALL BE PERMANENTLY MOLDED ON THE TOP SURFACE WITH DOT. JUNCTION BOX COVER WITHOUT D.O.T. LOGO SHALL BE UTILIZED FOR ALL LOCAL SIGNALIZED INTERSECTIONS AND BRIDGES ON LOCAL ROADS.
16. ALL CONDUIT ENTRANCES INTO THE JUNCTION BOX FIELD DRILLED WITH A HOLE SAW OR PUNCHED OUT USING A HYDRAULIC HOLE PUNCH UNLESS OTHERWISED DIRECTED BY THE DEPARTMENT.
17. SAND ALL CONDUIT OPENINGS. AFTER THE CONDUITS ARE INSTALLED, ALL CONDUIT ENTRANCES ARE SEALED WITH AN EPOXY PUTTY OR SILICON CAULK.
18. IN GRASS OR DIRT AREAS, A CONCRETE PAD, CLASS "B", POURED AROUND THE TOP OF THE JUNCTION BOX.
19. COMPACTED ¾" GRAVEL OR BROKEN STONE REQUIRED.
20. A CONCRETE LOCK-IN FEATURES SHALL BE PROVIDED AT THE TOP OF THE BOX. ACTUAL DESIGN MAY VARY PER MANUFACTURER.
21. THE GAP FROM THE EDGE OF THE COVER TO THE INSIDE EDGE OF THE BOX SHALL BE A MAXIMUM OF ⅛" + ⅛".
22. TOP OF THE POLYMER CONCRETE COVER SHALL SET FLUSH WITH THE TOP OF THE JUNCTION BOX.
23. THIS BOX IS USED FOR LOOP INSTALLATIONS ONLY.
24. THIS BOX IS NOT ALLOWED IN THE TRAVELED WAY OR SHOULDERS.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

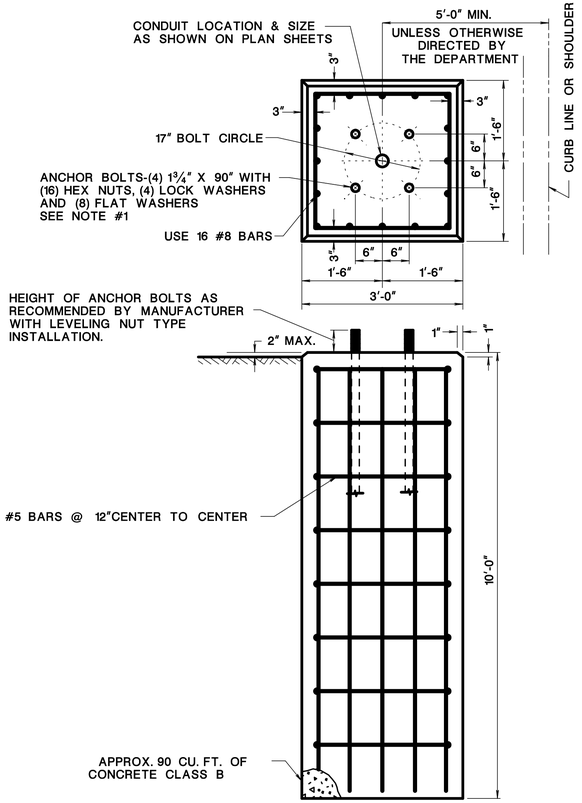
ELECTRICAL DETAILS
N.T.S.

17" X 30" COMPOSITION JUNCTION BOX

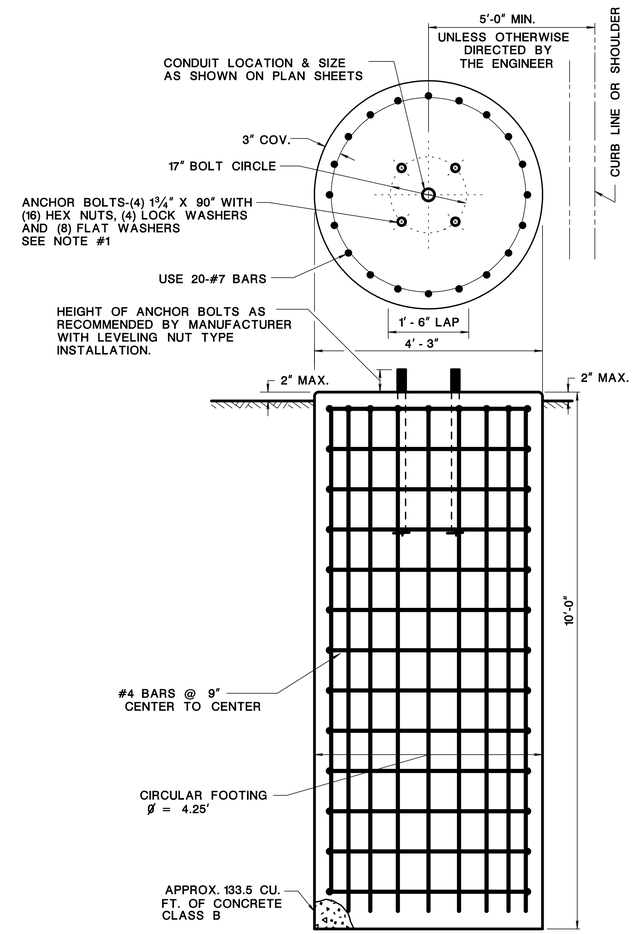
T-3807

BDC07D-03

REFERENCE




TRAFFIC SIGNAL STANDARD FOUNDATION
TYPE "STF"




ALTERNATE TRAFFIC SIGNAL STANDARD FOUNDATION
TYPE "STF"

NOTE:

1. ANCHOR BOLTS SHALL BE HOT DIPPED GALVANIZED STEEL ASTM F1554 GRADE 55.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

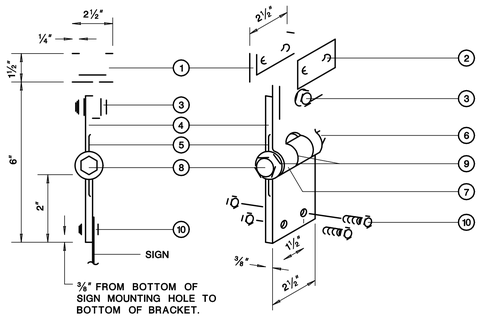
ELECTRICAL DETAILS
N.T.S.

TRAFFIC SIGNAL STANDARD, STEEL FOUNDATION DETAILS

T-4307

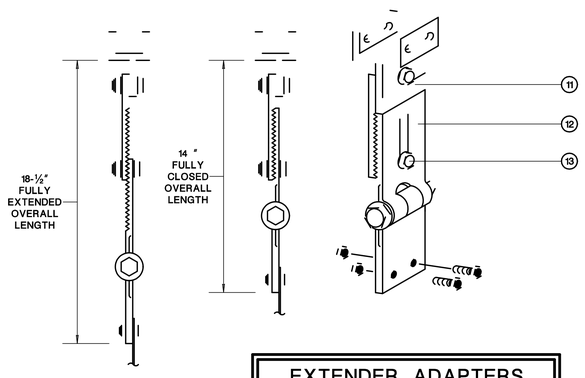
BDC07D-03

## FIXED LENGTH NON-ADJUSTABLE SWING SIGN BRACKET




1. PIVOTAL UPPER BRACKET.
2. 1⅝" x ¼" SLOT FOR DOUBLE STRAPPING TO MAST ARM. (M2G-34S(HD) .030 x ¾" HEAVY DUTY STAINLESS STEEL STRAP WITH M2G-34B(HD) BUCKLE RECOMMENDED.)
3. ½" - 13 x 1½" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT AND ⅛" STAINLESS STEEL WASHER (BOTH SIDES). ALLOWS UPPER BRACKET TO PIVOT AND ALIGN WITH MAST ARM.
4. 6" OVERALL DROP WITH FIXED LENGTH SIGN BRACKET.
5. STAINLESS STEEL DAMPENER SPRING (REMOVABLE).
6. STAINLESS STEEL HEX LOCK NUT WITH ⅛" STAINLESS STEEL WASHER.
7. 1" O.D. AXLE HOUSING.
8. ½" - 13 x 4" STAINLESS STEEL HEX HEAD BOLT WITH ⅛" STAINLESS WASHER.
9. OILITE BUSHING.
10. SIGN MOUNTING SETS, CONSISTING OF TWO EACH ⅝" - 18 x 1" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT. TWO HOLES ON 1½" CENTERS PROVIDE POSITIVE LOCK SIGN MOUNTING TO BRACKET.

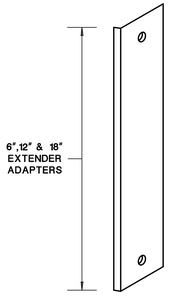
## ADJUSTABLE LENGTH SWING SIGN BRACKET

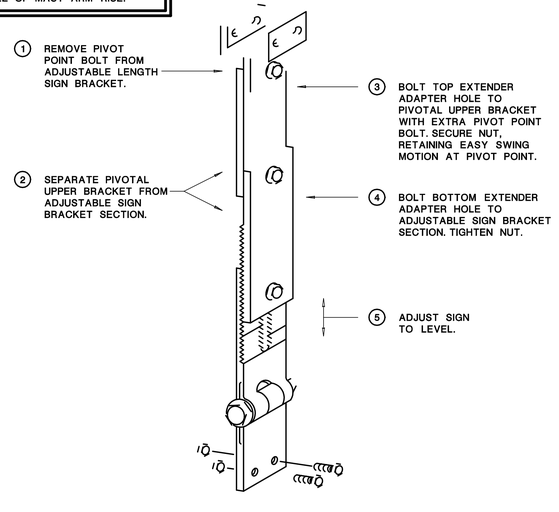



11. 8¼" OVERALL LENGTH UPPER ADJUSTABLE SIGN BRACKET SECTION.
12. 9" OVERALL LENGTH LOWER ADJUSTABLE SIGN BRACKET SECTION, INCLUDING AXLE HOUSING (8" OVERALL LENGTH TO TOP OF AXLE HOUSING).
13. ½" - 13 x 1½" STAINLESS STEEL HEX BOLT WITH STAINLESS STEEL HEX LOCK NUT AND ⅛" STAINLESS STEEL WASHERS (BOTH SIDES). LOOSEN LOCK NUT, ADJUST BRACKET TEETH TO LEVEL SIGN.

## EXTENDER ADAPTERS

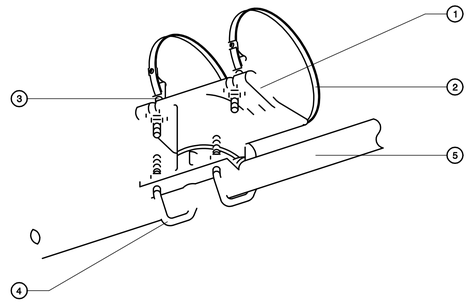
FOR ADJUSTABLE LENGTH SWING SIGN BRACKET. EXTENDS BRACKET TO LEVEL SIGN. FITS ANY DEGREE OF MAST ARM RISE.

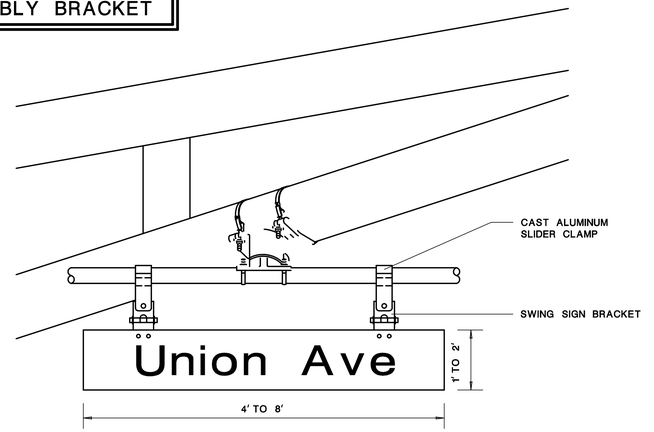


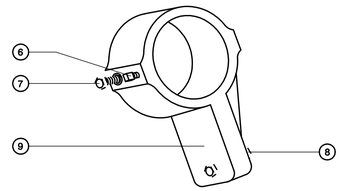

EXTENDER ADAPTERS ARE ALL ALUMINUM 6061T6 ALLOY. ⅜" THICK x 2½" WIDE BAR x VARIABLE LENGTH COMPLETE WITH ONE HOLE EACH END FOR ½" BOLT. EACH EXTENDER BAR INCLUDES ONE PIVOT POINT ½" - 13 x 1½" STAINLESS STEEL HEX HEAD BOLT WITH HEX LOCK NUT AND 2 WASHERS. (EXTENDER ADAPTERS ARE AVAILABLE IN VARIABLE LENGTHS ON REQUEST.)

## MAST ARM ASSEMBLY BRACKET



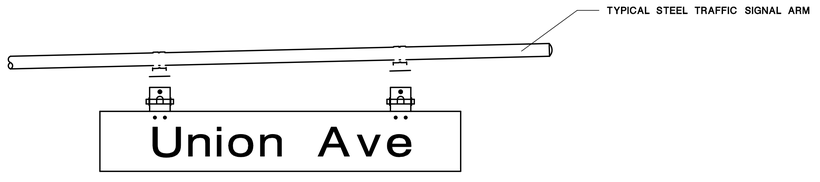



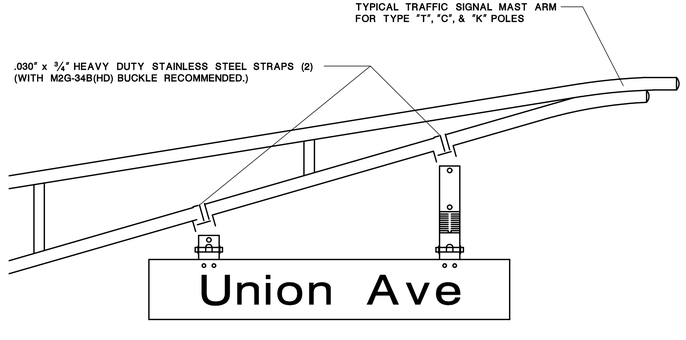

## SLIDER CLAMP




1. CLAMP SHALL BE ALUMINUM ALLOY (356-T6)
2. ⅝" STAINLESS STEEL STRAP (2) WITH ⅝" BANDCLAMP.
3. STAINLESS STEEL CLAMP SCREW WITH BEARING WASHER, ⅞" FLATWASHER & ⅞" - 14 HEX NUT. CLAMP SCREW SHALL BE INSTALLED WITH MAINTAINING A MINIMUM OF ¼" CLEARANCE TO THE MAST ARM CLAMP.
4. ⅝" - 18 x 1¾" x 2⅝" x ⅞" U-BOLT WITH ⅝" SPLIT LOCKWASHER & ⅝" - 18 HEX NUT.
5. 1½" ALUMINUM TUBE
6. ⅜" SQUARE HEAD SET SCREW
7. ⅝" x 1½" HEX BOLT WITH LOCKWASHER
8. ⅜" x 1½" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT AND ⅛" STAINLESS STEEL WASHER (BOTH SIDES). A BRONZE REDUCER BUSHING (½" TO ⅜") SHALL BE USED INSIDE THE SLIDER CLAMP.
9. CAST ALUMINUM SLIDER CLAMP

NOTE:
INSTALLATION OF SLIDER:
DRILL ⅜" HOLE THRU ONE WALL OF PIPE. TIGHTEN ⅝" x 1½" HEX BOLT WITH LOCKWASHER INTO SLIDER THRU HOLE IN PIPE. ATTACH ⅜" SQUARE HEAD SET SCREW.




NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

OVERHEAD MAST ARM ADJUSTABLE SWING SIGN BRACKETS

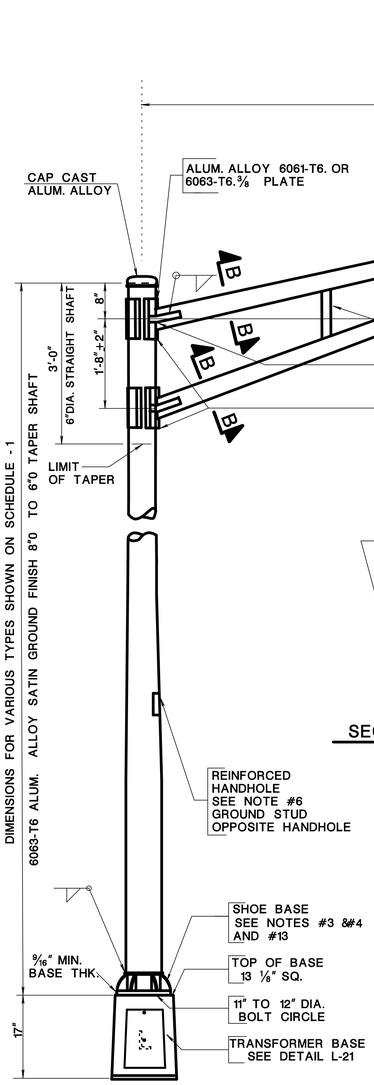
T-4507

REFERENCE

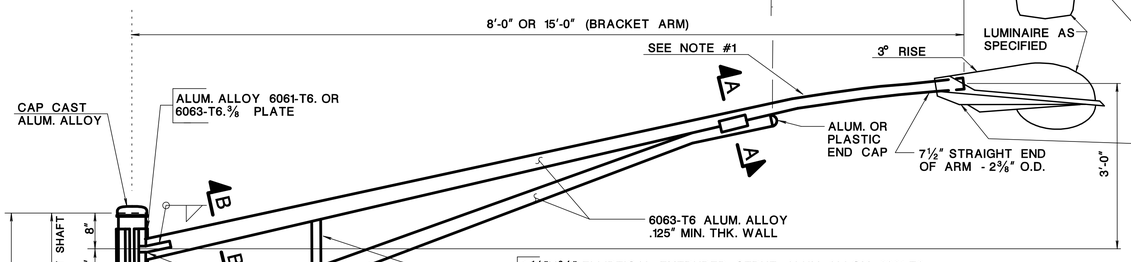
BDC07D-03

REFERENCE

DIMENSIONS FOR VARIOUS TYPES SHOWN ON SCHEDULE - 1
6063-T6 ALUM. ALLOY SATIN GROUND FINISH 8'O TO 6'O TAPER SHAFT

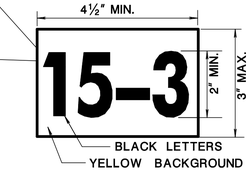


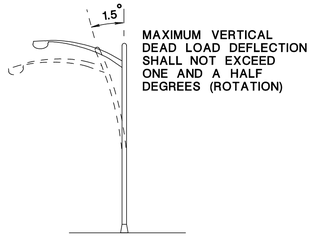

LIGHTING STANDARD
WITH 8FT. OR 15FT. ARM



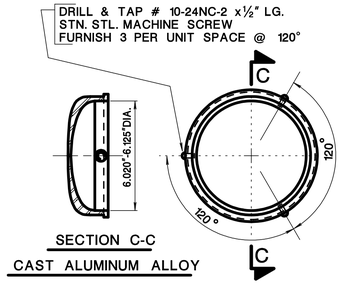

| LEGEND | | |
|---|---|---|
| WATTAGE | TYPE II MEDIUM/SEMI CUTOFF | TYPE III MEDIUM/SEMI CUTOFF |
| 150 | 15 - 2 | 15 - 3 |
| 250 | 25 - 2 | 25 - 3 |
| 400 | 40 - 2 | 40 - 3 |

HIGH PRESSURE SODIUM SHALL BE A YELLOW BACKGROUND WITH BLACK LETTERS FOR THE WATTAGE AND TYPE REQUIRED.



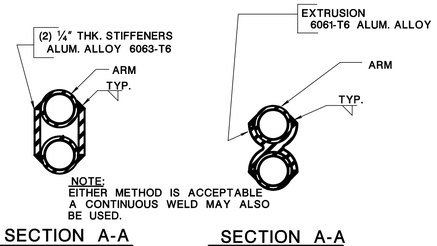




VERTICAL DEFLECTION
DETAIL



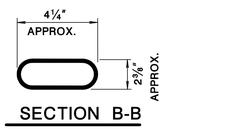

SECTION C-C
CAST ALUMINUM ALLOY

CAST ALUMINUM CAP

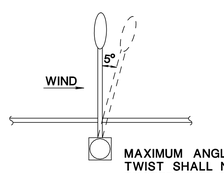



SECTION A-A

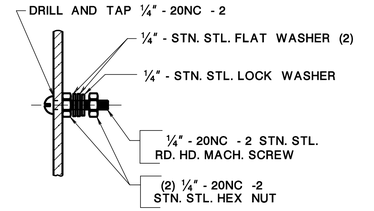
SECTION A-A




SECTION B-B



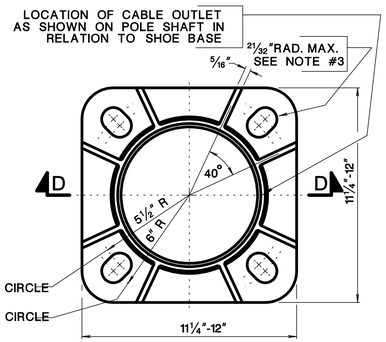

ANGLE OF TWIST
DETAIL




DETAIL "A"

GROUND STUD DETAIL

OPPOSITE HANDHOLE




ALUMINUM ALLOY 356-T6 ASTM SPEC. NO. SAND CST'G B26 OR PERM. MOLD CST'G B108
ASTM ALLOY DESIG. SG 70A

1. ALTERNATE ARRANGEMENT OF TAPERED ELLIPTICAL TRUSS TYPE BRACKET ARM MEMBERS PERMISSABLE SUBJECT TO APPROVAL. WIRE MUST ENTER UPPER MEMBER 8" FROM TOP OF POLE. ALUMINUM SPLIT CLAMPS SHALL BE PROVIDED.

2. HOLE SHALL BE OF SUFFICIENT DIAMETER TO ACCEPT 1" DIAMETER BOLTS.

3. CERTIFICATIONS SHALL BE FURNISHED THAT ALUMINUM ALLOY AND TEMPER SHOWN MEET REQUIREMENTS AS SET FORTH BELOW OR AS OTHERWISE INDICATED ON DRAWING. ALUMINUM CASTINGS, PERMANENT OR SAND MOLD FOR CLAMPS AND SHOE BASE TRADE DESIGNATION 356-T6. ALUMINUM EXTRUSIONS FOR CLAMPS OR MAST ARM STRUT: CURRENT ASTM SPECIFICATIOIN B-221 ALLOY 6005-T5, 6061-T6 OR 6063-T6. THE HARDWARE SUPPLIED SHALL BE : 8-½"-13NC HARDWARE GRADE ASTM A193 B8 STAINLESS STEEL WITH 16 STAINLESS STEEL FLAT WASHERS AND 8 STAINLESS STEEL LOCK WASHERS.

4. FURNISH WITH EACH STANDARD:
   4- 1"-8NC x 3½"LONG HEX HEAD BOLTS ASTM A-193 GRADE B-8, THREADS CLASS 2 FREE FIT, STAINLESS STEEL.
   4- 2½"O.D. x 1⅛" I.D. x ⅜" THK. OR 2¾"O.D. x 1⅛" I.D. x ½" THK. LARGE HEAVY STEEL FLATWASHERS GLAVANIZED PER ASTM B695-85 CLASS 50.
   8- 1" DIA. PLAIN WASHERS STAINLESS STEEL.
   4- 1" DIA. LOCK WASHERS, STAINLESS STEEL.
   4- 1" DIA. HEX NUTS, STAINLESS STEEL.
   4- BOLT COVERS ALUMINUM ALLOY WITH STAINLESS STEEL SCREWS.

5. ALUMINUM LIGHTING STANDARD ASSEMBLY SHALL BE DESIGNED TO ADEQUATELY SUPPORT A LUMINAIRE OF THE WEIGHT AND PROJECTED AREA AS CALLED FOR IN SCHEDULE 1 ON THIS SHEET AND THE UNIT ASSEMBLY SHALL NOT EXCEED THE MAXIMUM REQUIREMENTS FOR VERTICAL DEFLECTION AND ANGLE OF TWIST AS SHOWN IN DETAILS WHEN SUBJECTED TO A 104 M.P.H. WIND.

6. A REINFORCED FLUSH HANDHOLE IS REQUIRED ON ALL SB LIGHTING STANDARDS AND SHALL BE LOCATED 20"-24" FROM BASE OF SHAFT. WHEN LOCATED BEHIND CHAINLINK FENCE, THE HANDHOLE SHALL BE LOCATED ONE FOOT ABOVE THE FENCE. A FIBERGLASS HANDHOLE COVER (MODIFIED FOR UV RESISTANCE) SHALL BE USED.

7. UNTAPERED 8" DIAMETER SECTION OF THE 37 FT. SHAFT WILL BE PERMITTED, BUT UNTAPERED SECTION SHALL NOT EXCEED 25 FT. MAXIMUM FROM BASE OF THE SHAFT.

8. THE LIGHTING STANDARD MUST BE CERTIFIED TO MEET CURRENT AASHTO BREAKAWAY CRITERIA FOR STRUCTURAL SUPPORTS UTILIZING A TYPE APPROVED TRANSFORMER BASE.

9. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. FOR FATIGUE IS WAVED.

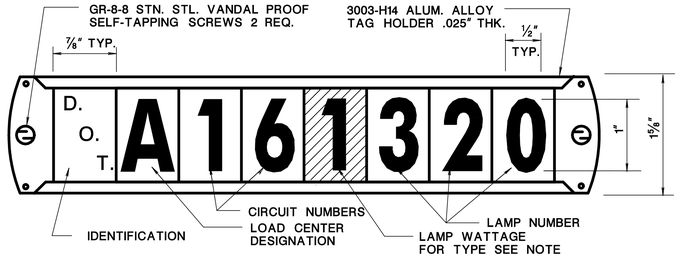
10. OPENING SHALL HAVE A MINIMUM DIAMETER OF 6". THE GEOMETRY SHALL BE DETERMINED BY THE MANUFACTURER.

11. ALL LIGHTING STANDARDS, OF A PARTICULAR TYPE, SHALL BE IDENTICAL IN ALL ASPECTS.

12. ALL DIMENSIONS OF CASTINGS SHALL BE ±1/32".

13. THE MANUFACTURER SHALL SUPPLY ALL OTHER HARDWARE WHICH HE DEEMS NECESSARY TO INSTALL THE STANDARD ON THE BASE AS WELL AS INSTRUCTION FOR INSTALLATION.

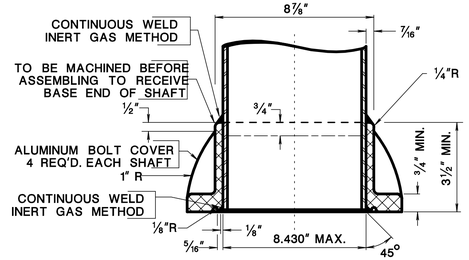
14. DO NOT INSTALL STANDARD WITHOUT ARM.



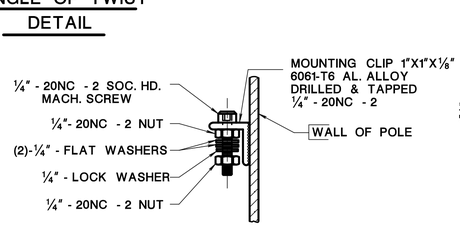

POLE IDENTIFICATION TAG DETAIL

ALL STANDARDS SHALL HAVE IDENTIFICATION TAGS. LETTERS SHALL BE PAINTED BLACK ON ALUMINUM. A BLANK SPACER SHALL BE USED WHEN A NUMBER IS NOT REQUIRED. THE TAG SHALL BE INSTALLED AT 4'-0" FROM GROUND LEVEL. TAG SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE LOAD CENTERS THAT HAVE MULTIPLE LETTER DESIGNATIONS.

MERCURY VAPOR LAMPS SHALL BE BLUE BACKGROUND, HIGH PRESSURE SODIUM LAMPS SHALL BE YELLOW BACKGROUND, WITH THE FOLLOWING NUMBER FOR THE WATTAGE: 1=150W, 2=250W, 4=400W.



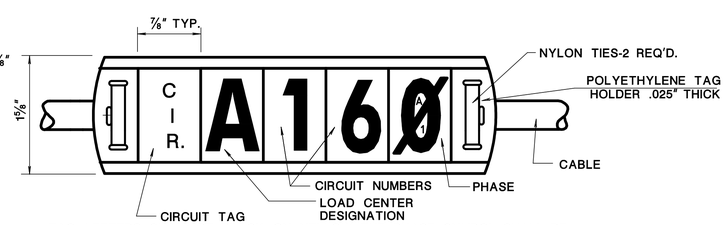

SECTION D-D
ALUMINUM SHOE BASE




ALTERNATE DETAIL "D"

GROUND STUD DETAIL

OPPOSITE HANDHOLE




TAG LETTERS SHALL BE BLACK ON YELLOW. THE PHASE SYMBOL SHALL BE:
A=RED, B=BROWN, C=BLUE. ALL NEUTRAL CABLE SHALL HAVE A BLANK WHITE SPACER.
WHEN A LETTER IS NOT REQUIRED A YELLOW SPACER SHALL BE USED.
TAGS SHALL BE INCLUDED IN ALL CABLE ITEMS.
TAG SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE LOAD CENTERS THAT HAVE MULTIPLE LETTER DESIGNATIONS.

CABLE IDENTIFICATION TAG DETAIL

SCHEDULE 1

| LIGHTING STANDARDS | MAX. LUMINAIRE SIZE | | | | |
|---|---|---|---|---|---|
| SHAFT DIMENSIONS | | | WEIGHT | PROJ.AREA SQ.FT. |
| TAPER | MIN. WALL THICKNESS | LENGTH | | |
| 8"x6" | .188" | 22' | 75# | 3.2 |
| 8"x6" | .188" | 22' | 75# | 3.2 |
| 8"x6" | .188" | 22' | 75# | 3.2 |
| 8"x6" | .250" | 37' | 75# | 3.2 |
| 8"x6" | .250" | 37' | 75# | 3.2 |
| 8"x6" | .250" | 37' | 75# | 3.2 |
| 8"x6" | .188" | 22' | 75# | 3.2 |
| 8"x6" | .188" | 22' | 75# | 3.2 |
| 8"x6" | .250" | 22' | 75# | 3.2 |
| 8"x6" | .250" | 37' | 74# | 3.2 |
| 8"x6" | .250" | 37' | 74# | 3.2 |
| 8"x6" | .188" | 22' | 75# | 3.2 |
| 8"x6" | .188" | 22' | 75# | 3.2 |

NEW JERSEY DEPARTMENT OF TRANSPORTATION

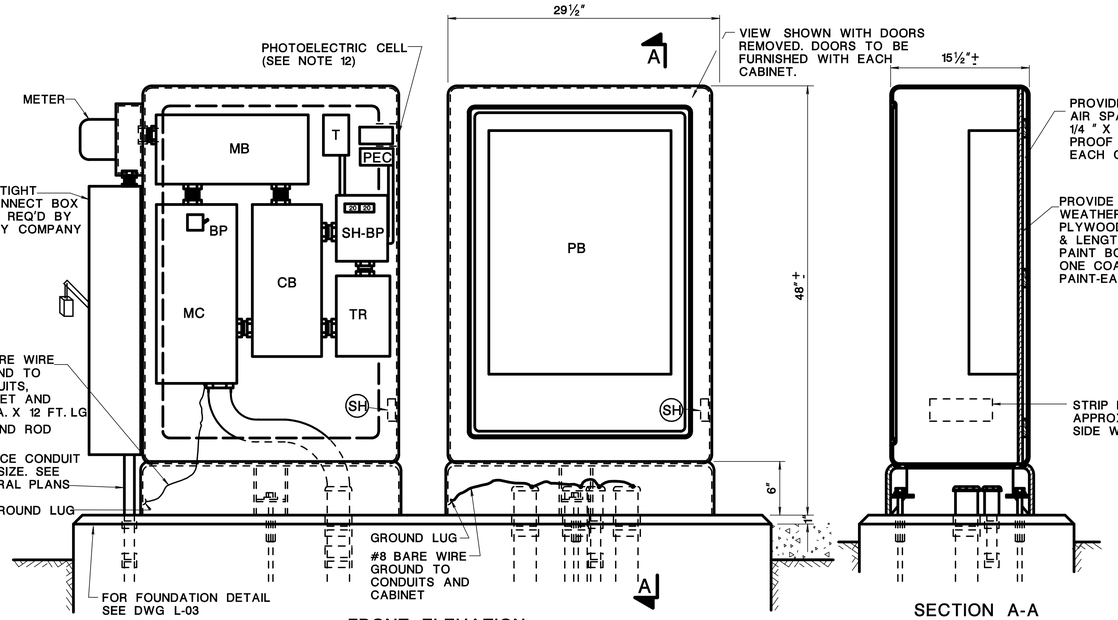
ELECTRICAL DETAILS

N.T.S.

LIGHTING STANDARD

L-0107

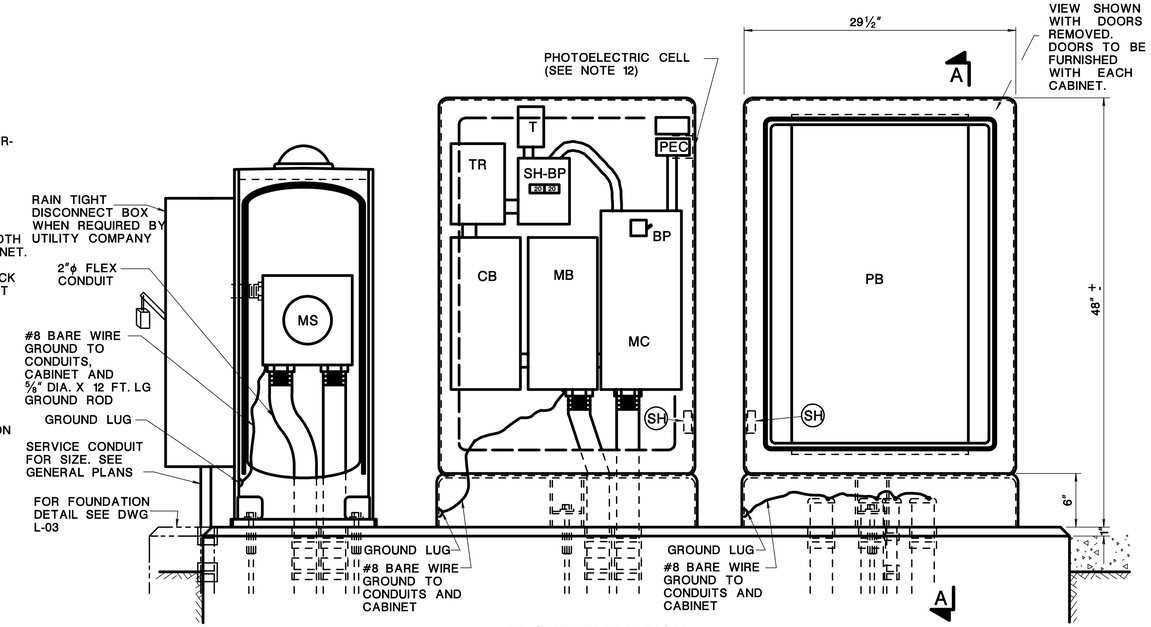
BDC07D-03




FRONT ELEVATION
METER CABINET TYPE 2M

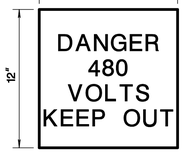



SECTION A-A




FRONT ELEVATION
METER CABINET TYPE 2M-MC

| METER CABINET TYPE 2M - 240/480V | | |
|---|---|---|
| SYMBOL | APPARATUS DESCRIPTION | RATING |
| MB | MAIN BREAKER<br>2 POLE 480 VOLT S/N<br>NEMA TYPE 1 ENCLOSURE | 100 AMP |
| CB | CONTROL DISCONNECT CIRCUIT BREAKER<br>2 POLE S/N 480 VOLT<br>NEMA TYPE 1 ENCLOSURE | 15 AMP |
| BP | PHOTOELECTRIC CONTROL BY-PASS SWITCH<br>BUILT INTO CONTACTOR ENCLOSURE | 15 AMP |
| MC | MAGNETIC CONTACTOR 2 POLE 480 VOLT<br>WITH 120 VOLT COIL. NEMA TYPE 1 ENCLOSURE | 100 AMP |
| SH | STRIP HEATER 400W-120V WITH STAINLESS STEEL OR<br>CHROME SHEATH MOUNTED ON PORCELAIN STAND-OFF | N.A. |
| T | THERMOSTAT LINE VOLTAGE-OPERATING RANGE 50° F. TO<br>70° F. 120V RATING 2000 WATTS SINGLE POLE. | N.A. |
| TR | CONTROL TRANSFORMER PRIMARY 240/480 VOLT.<br>SECONDARY 120 VOLT. | N.A. |
| PB | LIGHTING DISTRIBUTION PANEL SINGLE PHASE-3 WIRE S/N<br>MIN. 12 CIRCUITS-240/480 VOLT DEAD FRONT PANEL-NO ENCL.<br>BREAKER 30 AMP, 240 VOLTS, SINGLE POLE. | 30 AMP |
| MS | METER SOCKET 200 AMP 3 WIRE, 240/480 VOLT SINGLE Ø<br>INSTALLED BY CONTRACTOR, FURNISHED BY UTILITY CO.; IN<br>JCPL AREA, FURNISHED BY CONTRACTOR. | N.A. |
| PEC. | PHOTOELECTRIC CONTROL<br>120 VOLTS. 1800 VA | N.A. |
| SH-BP | CIRCUIT BREAKER. 120V. (2) 1 POLE, NEMA TYPE 1 ENCLOSURE<br>FOR STRIP HEATER AND PHOTOELECTRIC BY-PASS SWITCH | 20 AMP |




ENAMELED METAL SIGN TO BE INSTALLED ON DOOR OF EACH LOAD CENTER CABINET WHITE WITH RED LETTERS.

NOTES:

1. ⅝" DIA. X 12 FT. LG. GROUND ROD.
2. PROVIDE SCALE DRAWING TO VERIFY THAT PROPOSED COMPONENTS WILL FIT IN CABINET.
3. CABINET M-CAST ALUMINUM CABINET - SEC. 906.12-FURNISHED WITH DOOR AND LOCK FABRICATED IN ACCORDANCE WITH STANDARD DETAILED DRAWING. DETAILS FURNISHED UPON REQUEST OR APPROVED EQUAL.
4. LOCATION OF METER CABINET FOUNDATION, SIZE, NUMBER AND DIRECTION OF CONDUIT RUN SHALL BE TAKEN FROM THE GENERAL ELECTRICAL PLANS FOR THE AREA WHERE REQUIRED AND SUBJECT TO THE APPROVAL OF THE DEPARTMENT.
5. GROUNDING FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS & N.E.C.
6. TERMINATE ALL CONDUITS WHEN ENTERING ENCLOSURES WITH LOCKNUT AND BONDING BUSHINGS. ALL OTHER CONDUITS PROVIDED WITH BONDING BUSHINGS. ALL CONDUITS TO BE BONDED WITH #8 AWG. STANDED BARE COPPER GROUND WIRE.
7. ALL CIRCUIT BREAKERS TO BE PLUG-IN TYPE, SHALL MEET FEDERAL SPECIFICATION W-C-375-B. THE INTERRUPTING RATING IN SYMETRICAL AMPERS SHALL BE, 120 VOLTS - 7,500 AMPS MIN., 240 VOLTS - 10,000 AMPS MIN. AND 480 VOLTS - 18,000 AMPS MIN.
8. LOAD CENTERS SHALL BEAR UNDERWRITERS LABORATORIES LABEL.
9. WIRES IN CABINET ARRANGED IN A WORKMAN-LIKE MANNER USING WAXING SERVING CORD OR NYLON SELF CLINCHING STRAPS OR APPROVED EQUAL.
10. FOR METER CABINET FOUNDATION DETAILS, SEE DWG. L-03
11. SERVICE DISCONNECT SWITCH-480 VOLT, 100A, 2 POLE S/N, NEMA 3 R ENCLOSURE WITH PADLOCK PROVISIONS (LOCK TO BE SUPPLIED BY UTILITY CO.)
12. PHOTOELECTRIC CONTROL MOUNTED INSIDE CABINET. HOLE IN CABINET FOR PHOTOCELL SHALL BE 3" X 3" MIN. AND COVERED WITH CLEAR ¼" PLEXIGLASS. PHOTOELECTRIC CONTROL MOUNTED WITH PHOTOCELL FACING NORTH. PHOTOCELL MAY BE REPOSITIONED TO AVOID BEING AFFECTED BY ARTIFICIAL LIGHT.
13. LUG ON 30 AMP CIRCUIT BREAKER SHALL BE CAPABLE OF ACCEPTING A NO. 2 AWG WIRE.

| METER CABINET TYPE 2M-MC - 240/480V | | |
|---|---|---|
| SYMBOL | APPARATUS DESCRIPTION | RATING |
| MB | MAIN BREAKER<br>2 POLE 480 VOLT S/N<br>NEMA TYPE 1 ENCLOSURE | 100 AMP |
| CB | CONTROL DISCONNECT CIRCUIT BREAKER<br>2 POLE 480 VOLT S/N<br>NEMA TYPE 1 ENCLOSURE | 15 AMP |
| BP | PHOTOELECTRIC CONTROL BY-PASS SWITCH<br>BUILT INTO CONTACTOR ENCLOSURE | 15 AMP |
| MC | MAGNETIC CONTACTOR 2 POLE 480 VOLT<br>WITH 120 VOLT COIL. NEMA TYPE 1 ENCLOSURE | 100 AMP |
| SH | STRIP HEATER 400W-120V WITH STAINLESS STEEL OR<br>CHROME SHEATH MOUNTED ON PORCELAIN STAND-OFF | N.A. |
| T | THERMOSTAT LINE VOLTAGE-OPERATING RANGE 50 F. TO<br>70 °F. 120V RATING 2000 WATTS SINGLE POLE. | N.A. |
| TR | CONTROL TRANSFORMER PRIMARY 240/480 V.<br>SECONDARY 120V. | N.A. |
| PB | LIGHTING DISTRIBUTION PANEL SINGLE PHASE-3 WIRE S/N<br>MIN. 12 CIRCUITS-240/480 VOLT DEAD FRONT PANEL-NO ENCL.<br>BREAKER 30 AMP, 240 VOLTS, SINGLE POLE. | 30 AMP |
| MS | METER SOCKET 200 AMP 3 WIRE, 240/480 VOLT SINGLE Ø<br>INSTALLED BY CONTRACTOR, FURNISHED BY UTILITY CO.; IN<br>JCPL AREA, FURNISHED BY CONTRACTOR. | N.A. |
| PEC. | PHOTOELECTRIC CONTROL<br>120 VOLTS. 1800 VA | N.A. |
| SH-BP | CIRCUIT BREAKER. 120V. (2) 1 POLE, NEMA TYPE 1 ENCLOSURE<br>FOR STRIP HEATER AND PHOTOELECTRIC BY-PASS SWITCH | 20 AMP |

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

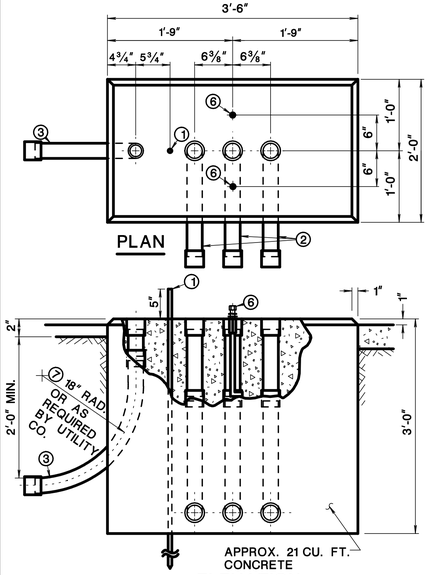
N.T.S.

METER CABINET 2M 240/480 VOLT
AND 2M-MC 240/480 VOLT

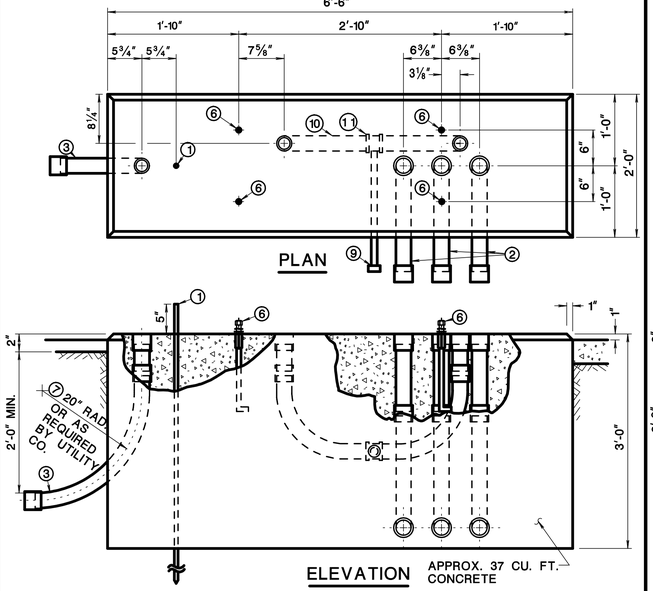
L-0207

REFERENCE

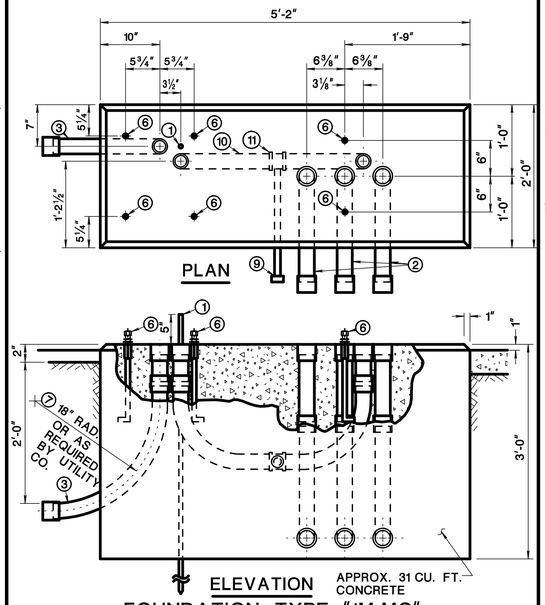
BDC07D-03



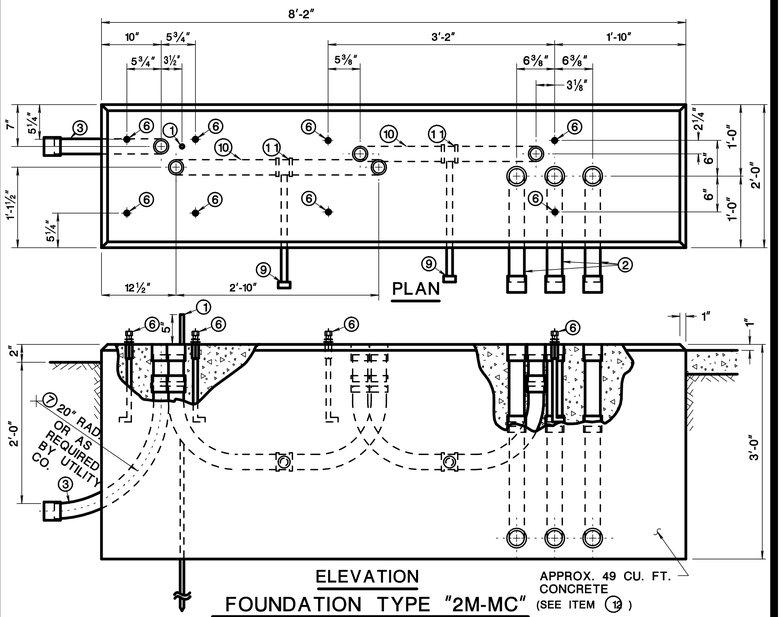

FOUNDATION TYPE "1-M"



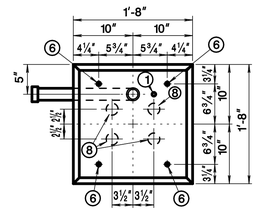

FOUNDATION TYPE "2-M"



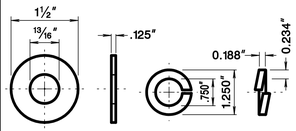

FOUNDATION TYPE "1M-MC"

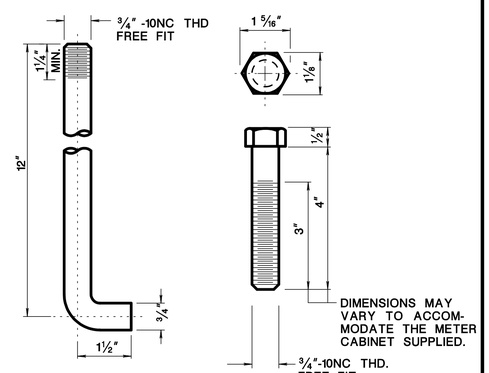



FOUNDATION TYPE "2M-MC"

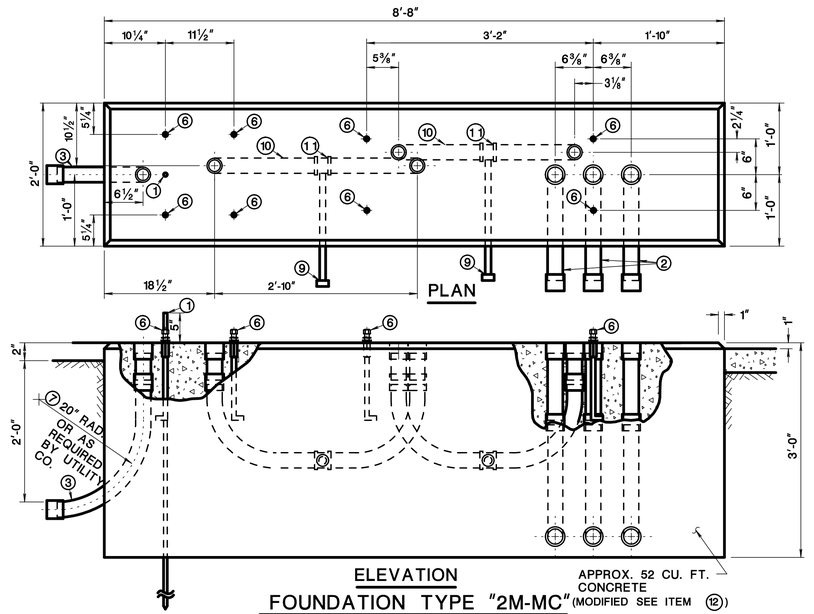



FOUNDATION TYPE "MCF"




⑥ ANCHOR BOLT ASSEMBLY




FOUNDATION TYPE "2M-MC"

NOTE: MUST BE UTILIZED WHEN RAINTIGHT DISCONNECT IS REQUIRED

ITEM

1. ⅝" DIA. X 12 FT. LONG GROUND ROD.
2. 3" DIA. RIGID METALLIC CONDUIT.
3. RIGID METALLIC SERVICE CONDUIT. (SEE GENERAL CONSTRUCTION PLANS FOR DIRECTION AND SIZE.)
4. ALL CONCRETE CLASS "B"
5. PLUG/CAP ALL CONDUIT ENDS.
6. ANCHOR BOLT DETAIL AS SHOWN.
7. RADIUS - SUBJECT TO APPROVAL OF UTILITY COMPANY.
8. LOCATIONS FOR DISTRIBUTION CONDUITS - FOR NUMBER, SIZE AND POSITION SEE GENERAL PLANS.
9. DRAIN-1"DIA.RIGID METALLIC CONDUIT.(PITCH DOWN TO JUNCTION BOX.)
10. 2" DIA. RIGID METALLIC CONDUIT.
11. 2" X 2" X 1" GALVANIZED TEE FITTING FOR DRAIN.
12. FOUNDATION AS REQUIRED BY UTILITY COMPANY.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

N.T.S.

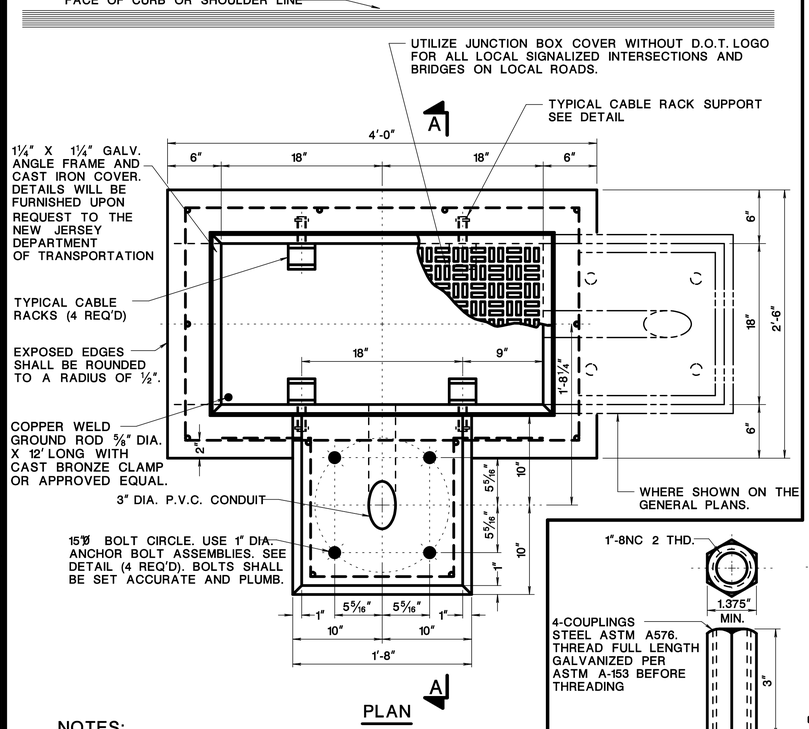
METER CABINET FOUNDATION

"1-M", "2-M", "1M-MC", "2M-MC" & "MCF"

L-0307

REFERENCE

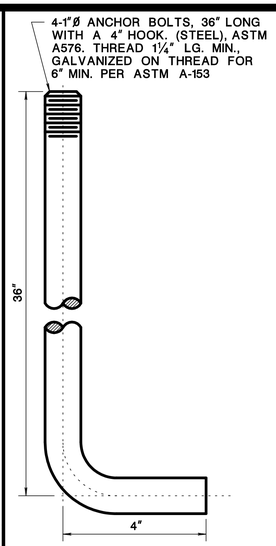
BDC07D-03




## NOTES:

A. MATERIALS AND CONSTRUCTION SHALL CONFORM TO N.J.D.O.T. STANDARD SPECIFICATIONS UNLESS OTHERWISE AMENDED.

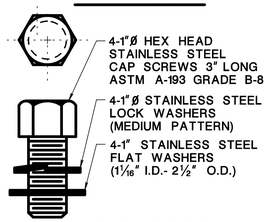
B. CONCRETE CLASS "B" USING APPROVED ⅝" AGGREGATE 1.08 CUBIC YARDS




ANCHOR BOLT




COUPLING



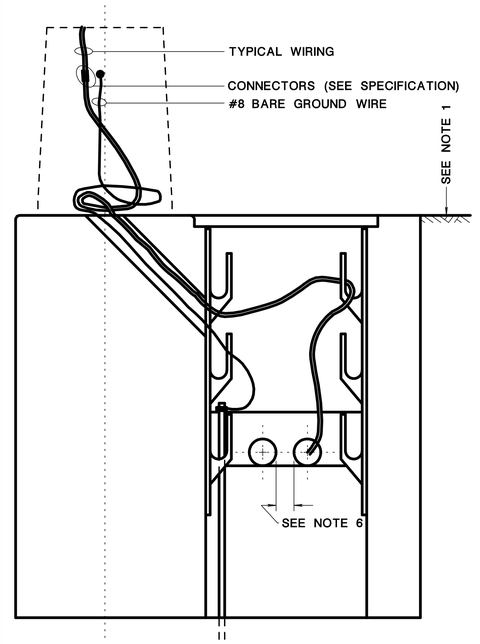

HEX HEAD CAP SCREW

### NOTES

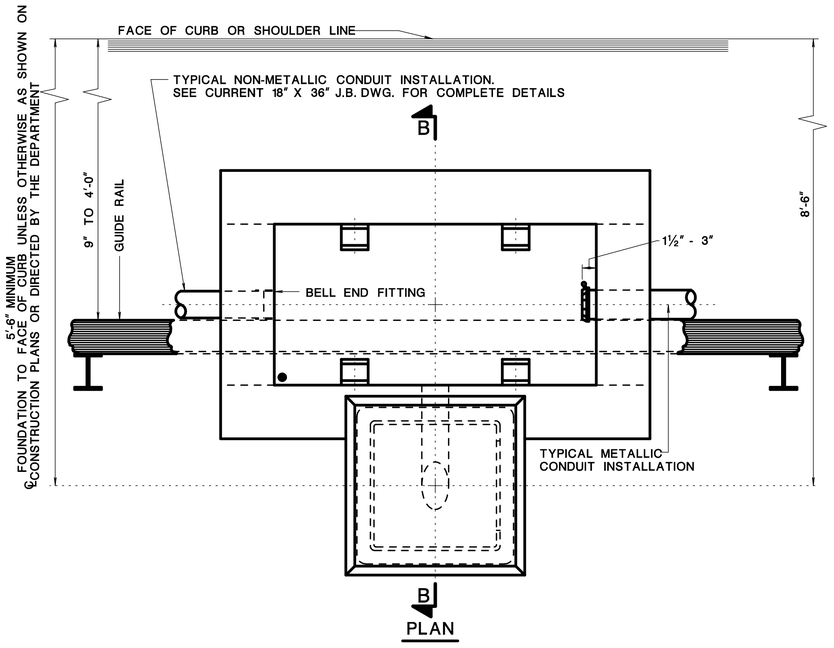
1.) ANCHOR BOLTS TO BE SET 1½" ± ⅛" INTO COUPLINGS SO THAT CAP SCREWS WHEN TIGHTENED, SECURING POLE BASE TO FOUNDATION, WILL NOT BUTT AGAINST TOP OF ANCHOR BOLTS.

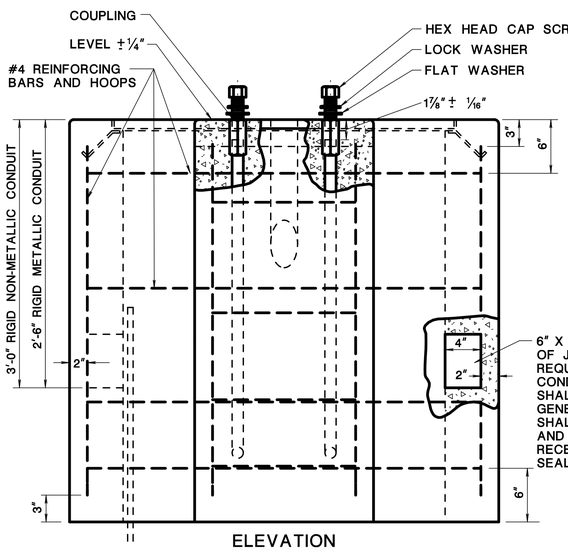
2.) ALL THREADS SHALL BE 8 THREADS PER INCH, NC, FREE FIT CLASS-2.

DETAIL OF ANCHOR BOLTS



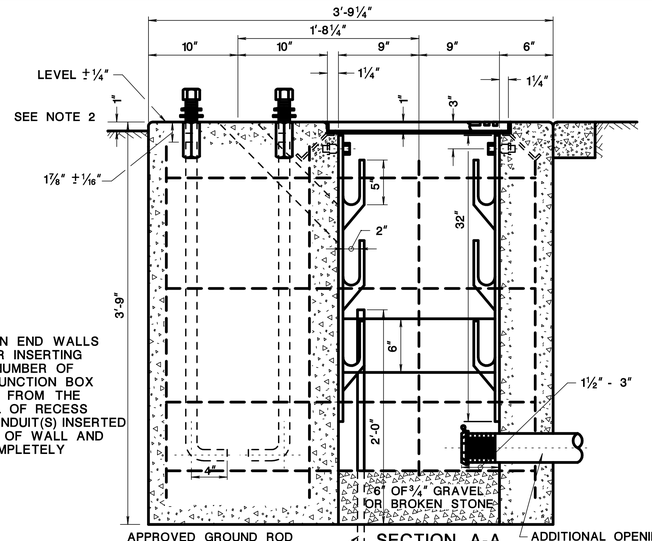

SECTION B-B




ELEVATION

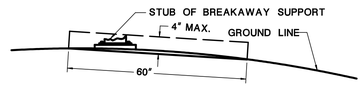
6" X 18" X 4" RECESS IN END WALLS OF JUNCTION BOX FOR INSERTING REQUIRED CONDUITS. NUMBER OF CONDUITS ENTERING JUNCTION BOX SHALL BE DETERMINED FROM THE GENERAL PLANS. WALL OF RECESS SHALL BE BROKEN, CONDUIT(S) INSERTED AND REMAINING AREA OF WALL AND RECESS SHALL BE COMPLETELY SEALED WITH GROUT.




APPROVED GROUND ROD
REFER TO NOTE IN PLAN VIEW

SECTION A-A

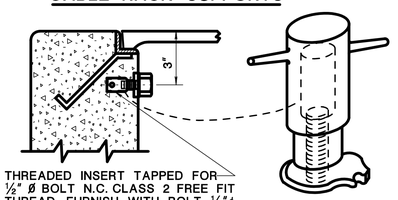
ADDITIONAL OPENINGS SHALL BE PROVIDED AT APPROVED ELEVATIONS FOR UNDER ROADWAY CONDUITS ENTERING JUNCTION BOX TYPICAL.



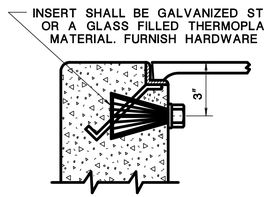

BREAKAWAY SUPPORT HEIGHT MEASUREMENT

DETAIL "A"

### CABLE RACK SUPPORTS




THREADED INSERT TAPPED FOR ½" ø BOLT N.C. CLASS 2 FREE FIT THREAD. FURNISH WITH BOLT ½"ϕ N.C. CLASS 2 FREE FIT, THREAD 1½" LONG AND FLAT WASHER ½" I.D. X 1½" O.D. BOLTS AND WASHERS SHALL BE GALVANIZED.




INSERT SHALL BE GALVANIZED STEEL OR A GLASS FILLED THERMOPLASTIC MATERIAL. FURNISH HARDWARE AS REQ'D. ABOVE.

### NOTES:

1.) SET JUNCTION BOX FOUNDATION PARALLEL TO THE CURB AND SET TOP OF JUNCTION BOX TO GRADE IN SIDEWALK OR PAVED AREA. DEPARTMENT MAY REQUIRE TOP OF JUNCTION BOX TO BE INCLINED IN ORDER TO CONFORM WITH FIELD CONDITIONS. SET JUNCTION BOX AT FINISH GRADE.

2.) JUNCTION BOX FOUNDATION CONSTRUCTED IN DIRT OR GRASS AREAS SHALL MEET THE CRITERIA AS PER DETAIL "A".

3.) CABLE RACKS FURNISHED AND INSTALLED AS INDICATED.

4.) INSTALL BONDING AND GROUNDING INSULATED BUSHINGS ON CONDUITS TERMINATING IN JUNCTION BOXES AND/OR FOUNDATIONS. INSTALL A FITTING TO PREVENT ENTRY OF FOREIGN MATTER PRIOR TO INSTALLATION OF WIRING.

5.) FURNISH AND INSTALL A NYLON CORD, 125 POUND MINIMUM TEST STRENGTH, IN ALL CONDUITS. SEE SPECIFICATIONS.

6.) CONDUITS TO ENTER JUNCTION BOX PERPENDICULAR TO WALLS OR AS APPROVED BY THE DEPARTMENT. A 2" SEPARATION SHALL BE MAINTAINED BETWEEN ADJACENT WALLS, CONDUITS, AND CABLE RACK LOCATIONS.

7.) ALL NON-METALLIC CONDUITS TERMINATED WITH BELL END CONSTRUCTION IN JUNCTION BOX.

8.) PLUG OR CAP ALL UNUSED CONDUIT.

9.) TERMINAL ENDS OF ALL METALLIC CONDUIT ARE THREADED.

10.) IFJUNCTION BOX FOUNDATION IS INSTALLED ON PROJECT WITHOUT LIGHTING STANDARDS, INSTALL 1"MINIMUM LONG BOLTS WITH GREASE.

11.) IF CURB IS NOT CONSTRUCTED AND COLORED BITUMINOUS STONE SURFACE TREATMENT IS UTILIZED BEHIND SHOULDER AREA, ROTATE ENTIRE JUNCTION BOX FOUNDATION 180 DEGREES FROM ABOVE SKETCH WITH FOUNDATION PORTION BEHIND GUIDE RAIL.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

# ELECTRICAL DETAILS

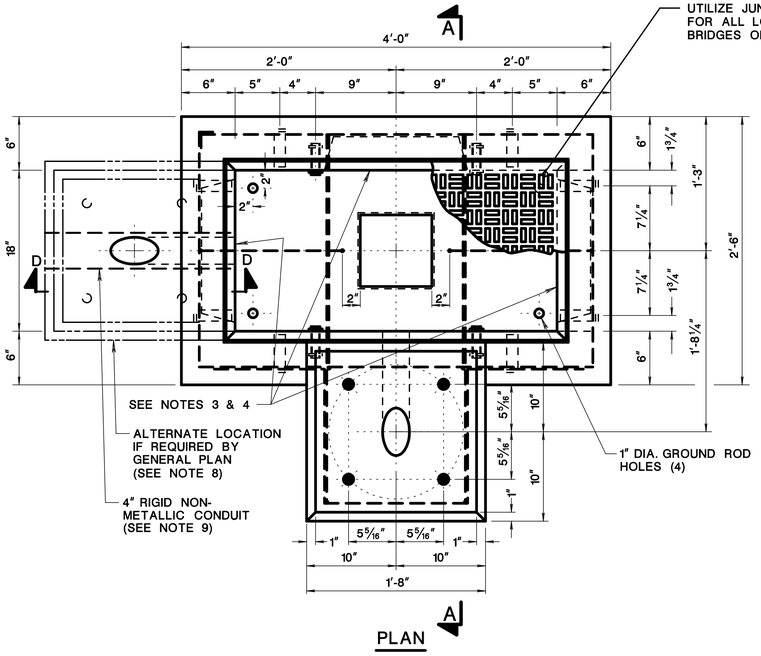
N.T.S.

JUNCTION BOX FOUNDATION "JBF", CAST IN PLACE

L-0407

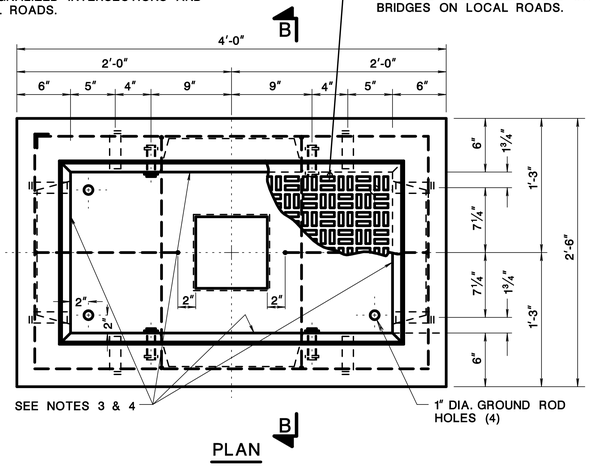
REFERENCE

BDC07D-03




PLAN

UTILIZE JUNCTION BOX COVER WITHOUT D.O.T. LOGO FOR ALL LOCAL SIGNALIZED INTERSECTIONS AND BRIDGES ON LOCAL ROADS.




PLAN

UTILIZE JUNCTION BOX COVER WITHOUT D.O.T. LOGO FOR ALL LOCAL SIGNALIZED INTERSECTIONS AND BRIDGES ON LOCAL ROADS.

## ITEM

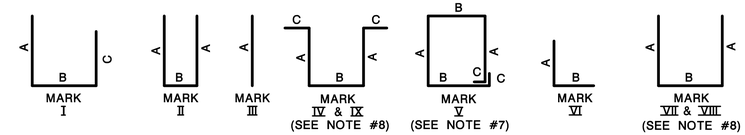
JUNCTION BOX FOUNDATION "JBF"

| MARK | SIZE NO. 4 RODS A | B | C | NO. RODS REQ. |
|---|---|---|---|---|
| I | 41" | 40" | 40" | 2 |
| II | 40" | 24" | — | 2 |
| III | 19" | — | — | 2 |
| IV | 15" | 16" | 12" | 4 |
| V | 44" | 26" | 4" | 4 |
| VI | 1" | 15" | — | 2 |
| VII | 15" | 26" | — | 2 |
| VIII | 40" | 59" | — | 2 |
| IX | 15" | 16" | 4" | 4 |

## ITEM

18" X 36" JUNCTION BOX "JB"

| MARK | SIZE NO. 4 RODS A | B | C | NO. RODS REQ. |
|---|---|---|---|---|
| II | 42" | 25" | — | 4 |
| III | 21" | — | — | 2 |
| V | 44" | 26" | 4" | 3 |
| VI | 2" | 16" | — | 2 |
| VII | 15" | 26" | — | 2 |




NOTES:

1.) THE CONSTRUCTION AND INSTALLATION OF PRECAST JUNCTION BOX FOUNDATION AND 18" X 36" JUNCTION BOX SHALL CONFORM TO SPECIFICATIONS FOR THE CONTRACT AND TO DETAILS AND NOTES SHOWN ON THIS DRAWING AND IN ADDITION SHALL INCLUDE APPLICABLE NOTES AND DETAILS SHOWN ON DRAWING FOR CAST-IN-PLACE TYPE.

2.) COMPACTED ¾" GRAVEL OR BROKEN STONE BASE REQUIRED FOR ALL PRECAST UNITS. MINIMUM DEPTH 8".

3.) A 16" X 7" X 4" RECESS TO BE PROVIDED IN SIDE AND END WALLS AS SHOWN.

4.) AFTER THE INSTALLATION OF CONDUIT, ALL OPEN RECESSES ARE TO BE COMPLETELY BRICKED AND FINISHED.

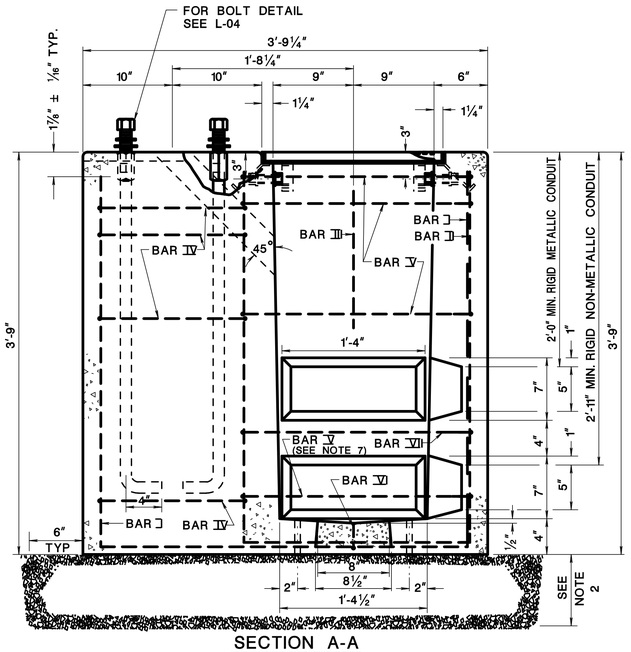
5.) AN ALTERNATE RECESS ARRANGEMENT MAY BE SUBSTITUTED AS SHOWN BELOW IN DETAIL "A" & "B". IF THIS ARRANGEMENT IS USED AND THE CONDUIT IS BROUGHT INTO THE JUNCTION BOX THROUGH THE TOP OF THE RECESS THEN THE ENTIRE RECESS MUST BE BRICKED FROM TOP TO BOTTOM.

6.) PRECAST JUNCTION BOX FOUNDATION MAY BE INSTALLED BEHIND THE GUIDE RAIL OR IN AREAS WHERE THE SLOPE IS LESS THAN 1:22.

7.) INSTALL THIS BAR WHEN USING DETAIL "A" ONLY.

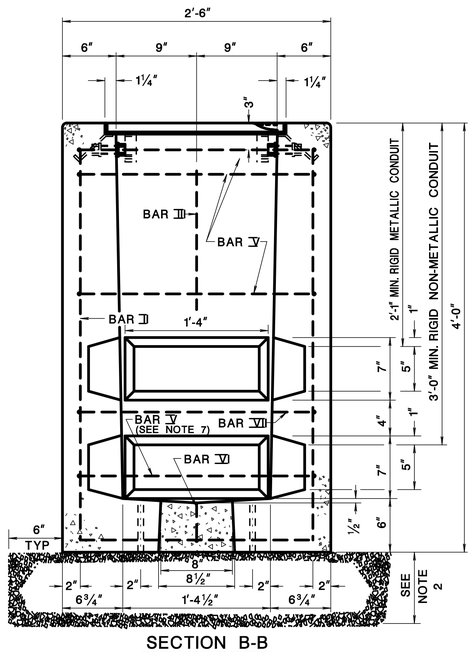
8.) FOR ALTERNATE LOCATION FOR THE FOUNDATION, USE MARK 8 AND 9 IN PLACE OF MARK 1 AND 4.

9.) ALIGN CONDUITS.



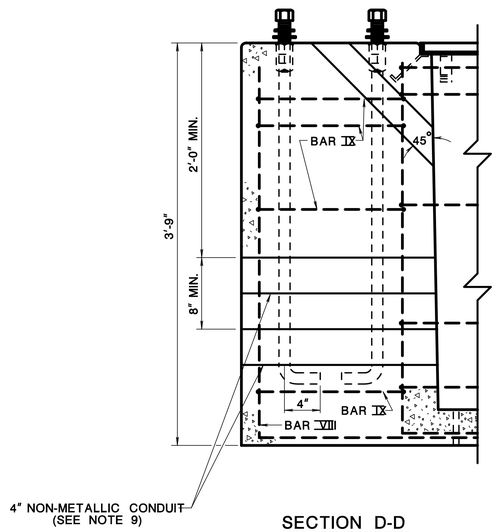

SECTION A-A

JUNCTION BOX FOUNDATION "JBF"
PRECAST



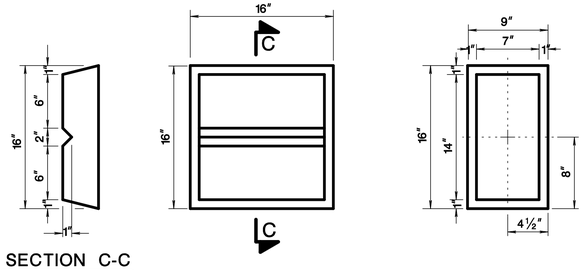

SECTION B-B

18" X 36" JUNCTION BOX "JB"
PRECAST




SECTION D-D

ALTERNATE JUNCTION BOX FOUNDATION
PRECAST




ALTERNATE RECESS ARRANGEMENT FOR END WALLS.

DETAIL "A"

ALTERNATE RECESS (VERTICAL) ARRANGEMENT FOR SIDE WALLS.

DETAIL "B"

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

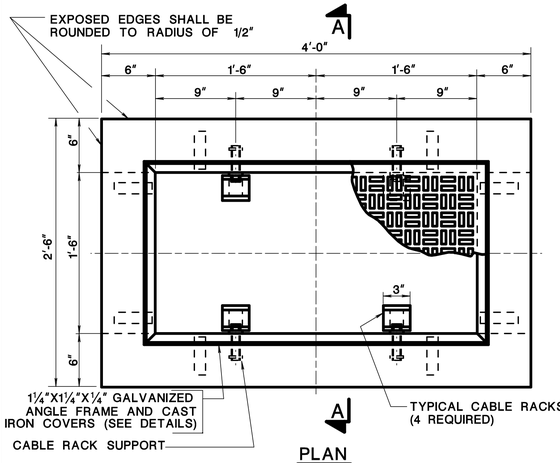
N.T.S.

JUNCTION BOX FOUNDATION "JBF"
18" X 36" JUNCTION BOX "JB"
PRECAST

L-0507

REFERENCE

BDC07D-03



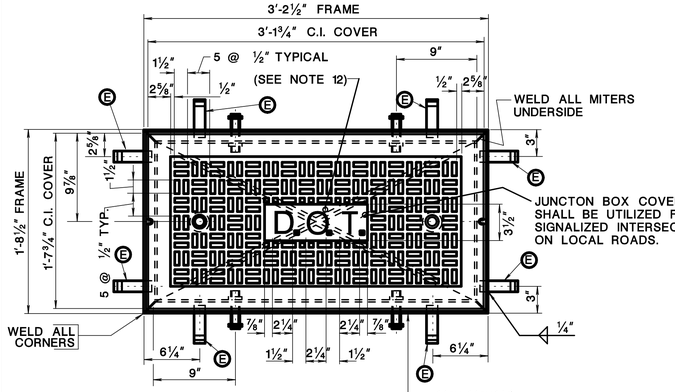

PLAN

## 18" X 36" JUNCTION BOX - CLASS "JB"

CONCRETE CLASS "B"
USING APPROVED ⅝" AGGREGATE
0.8 CU. YD.

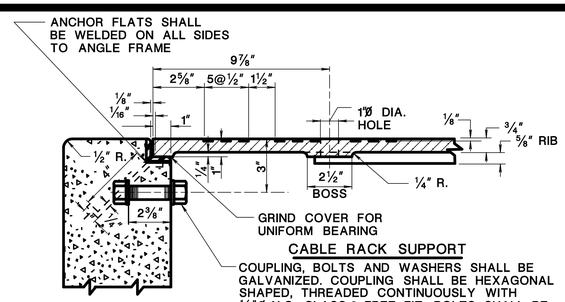
### NOTES

MINIMUM WEIGHT OF FRAME = 16 LBS.
MINIMUM WEIGHT OF C.I. COVER = 150 LBS.
FRAME AND ANCHORS OF STRUCTURAL STEEL.
(E) - DENOTES 1" X ¼" X 6" STL. ANCHORS (8 REQUIRED)




COVER & FRAME

1¼"X1¼"X¼ @ 1.92# ∠ AND ANCHORS TO BE HOT DIP GALVANIZED AFTER FABRICATION.

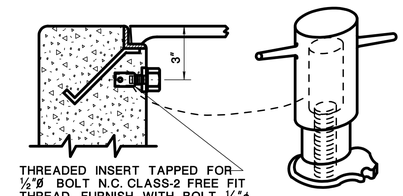



CABLE RACK SUPPORT

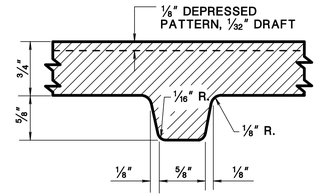
COUPLING, BOLTS AND WASHERS SHALL BE GALVANIZED. COUPLING SHALL BE HEXAGONAL SHAPED, THREADED CONTINUOUSLY WITH ½"ø N.C. CLASS-2 FREE FIT. BOLTS SHALL BE ½"ø HEXAGONAL HEAD N.C. CLASS-2 FREE FIT ½" LONG AND 1½" LONG FLAT WASHERS SHALL BE ½" I.D. X 1½" O.D.

SECTION THRU JUNCTION BOX

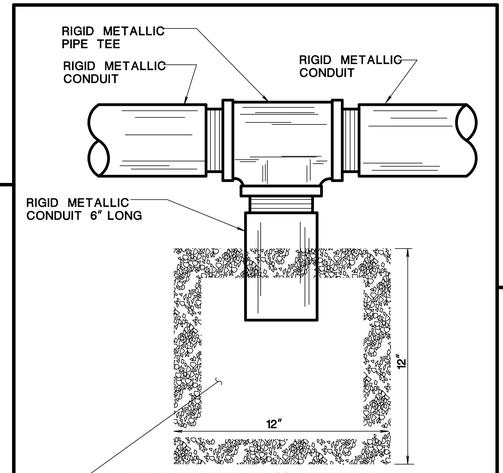
ALTERNATE CABLE RACK SUPPORT




THREADED INSERT TAPPED FOR ½"ø BOLT N.C. CLASS-2 FREE FIT THREAD. FURNISH WITH BOLT ½"ø N.C. CLASS-2 FREE FIT THREAD, 1½" LONG AND FLAT WASHER ½" I.D. X 1½" O.D. BOLTS AND WASHERS SHALL BE GALVANIZED. INSERTS SHALL BE GALVANIZED STEEL OR GLASS FILLED THERMOPLASTIC MATERIAL. FURNISH HARDWARE AS REQUIRED ABOVE.

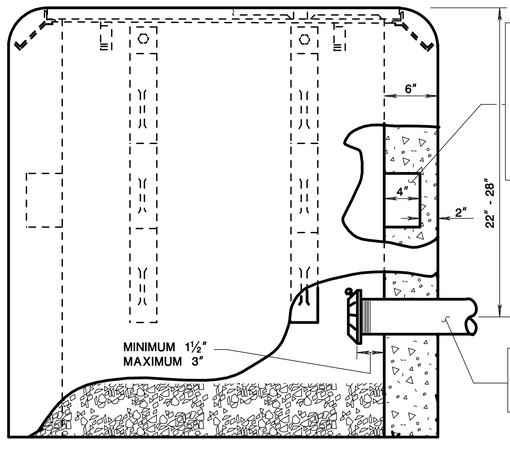



SECTION OF RIB




ONE CUBIC FOOT OF ¾" AGGREGATE CONSISTING OF BROKEN STONE, WASHED GRAVEL OR BLAST FURNACE SLAG FOR DRAIN. COVER WITH TAR PAPER TO PREVENT BACK FILL FROM ENTERING DRAIN.

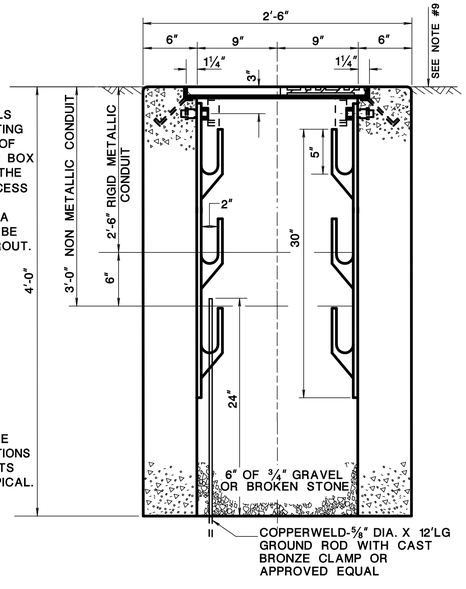
TYPICAL TEE DRAIN



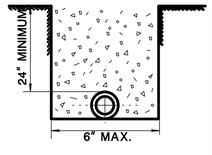

6"X18"X4" RECESS IN END WALLS OF JUNCTION BOX FOR INSERTING REQUIRED CONDUITS. NUMBER OF CONDUITS ENTERING JUNCTION BOX SHALL BE DETERMINED FROM THE GENERAL PLANS. WALL OF RECESS SHALL BE BROKEN, CONDUIT(S) INSERTED AND REMAINING AREA OF WALL AND RECESS SHALL BE COMPLETELY SEALED WITH GROUT.

ADDITIONAL OPENINGS SHALL BE PROVIDED AT APPROVED ELEVATIONS FOR UNDER ROADWAY CONDUITS ENTERING JUNCTION BOX - TYPICAL.

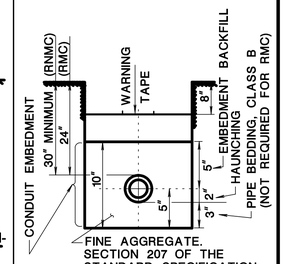
ELEVATION




SECTION A-A




CONDUITS INSTALLATION- OPEN CUT METHOD

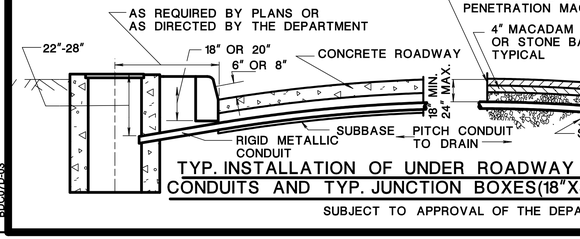



FINE AGGREGATE. SECTION 207 OF THE STANDARD SPECIFICATION

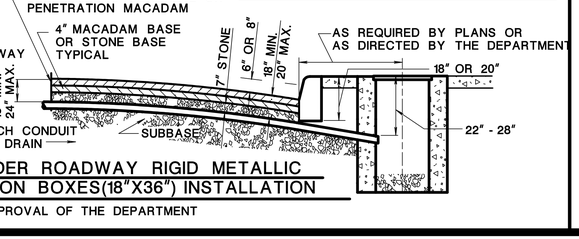
NON METALLIC CONDUIT & CUG INSTALLATION

TYPICAL CONDUIT INSTALLATION

RIGID METALLIC CONDUIT INSTALLED IN SUBBASE OF CONCRETE ROAD




RIGID METALLIC CONDUIT INSTALLED IN SUBBASE OF BITUMINOUS SURFACE ROAD




TYP. INSTALLATION OF UNDER ROADWAY RIGID METALLIC CONDUITS AND TYP. JUNCTION BOXES(18"X36") INSTALLATION

SUBJECT TO APPROVAL OF THE DEPARTMENT

WARNING TAPE

CAUTION CAUTION CAUTION
ELECTRIC LINE BURIED BELOW
6" TYP.

BLACK LETTERS ON RED BACKGROUND

### NOTES:

1.) SET JUNCTION BOX FOUNDATION PARALLEL TO THE CURB AND SET TOP OF JUNCTION BOX AT GRADE IN SIDEWALK, PAVED AREA AND IN GRASS OR DIRT AREAS.

2.) CABLE RACKS FURNISHED AND INSTALLED AS INDICATED.

3.) INSTALL BONDING AND GROUNDING INSULATED BUSHINGS ON METALLIC CONDUITS TERMINATING IN JUNCTION BOXES AND/OR FOUNDATIONS AND INSTALL A FITTING TO PREVENT ENTRY OF FOREIGN MATTER PRIOR TO INSTALLATION OF WIRING.

4.) FURNISH AND INSTALL A NYLON CORD, 125 POUND MINIMUM TEST STRENGTH, IN ALL CONDUITS. SEE SPECIFICATIONS.

5.) CONDUITS SHALL ENTER JUNCTION BOX PERPENDICULAR TO WALLS OR AS APPROVED BY THE DEPARTMENT. A 2" SEPARATION SHALL BE MAINTAINED BETWEEN ADJACENT WALLS, CONDUITS, AND CABLE RACK LOCATIONS.

6.) TERMINAL ENDS OF ALL METALLIC CONDUIT ARE THREADED.

7.) ALL NON-METALLIC CONDUITS SHALL TERMINATE WITH BELL END CONSTRUCTION IN JUNCTION BOX.

8.) PLUG OR CAP ALL UNUSED CONDUIT.

9.) ENGINEER MAY REQUIRE TOP OF JUNCTION BOX TO BE INCLINED IN ORDER TO CONFORM WITH FIELD CONDITIONS. JUNCTION BOX SHALL BE SET TO GRADE IN SIDEWALK AREA AND IN ALL OTHER AREAS.

10.) WARNING TAPE SHALL BE A RED 4 MIL. FLEXIBLE POLYETHYLENE FILM WHICH IS RESISTANT TO ACIDS, BASES, HYDROCARBONS AND WATER.

11.) IN INCLINE AREA, NO PART OF THE JUNCTION BOX EXTENDS MORE THAN 4" ABOVE THE FINISH GRADE.

12.) JUNCTION BOX COVER WITHOUT D.O.T. LOGO UTILIZED FOR ALL LOCAL SIGNALIZED INTERSECTIONS AND BRIDGES ON LOCAL ROADS.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

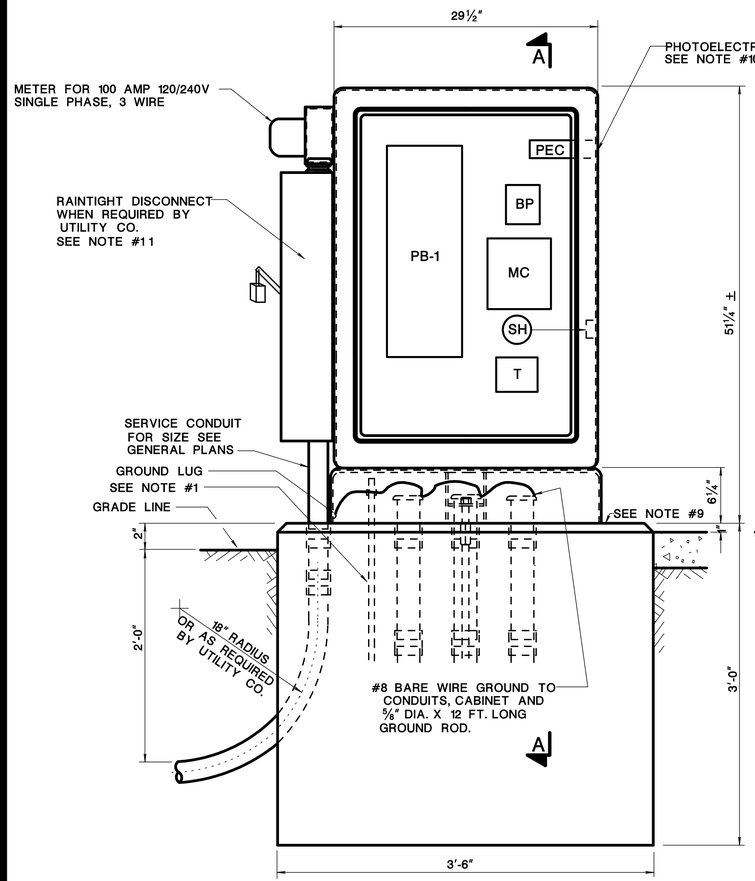
N.T.S.

18" X 36" JUNCTION BOX CAST IN PLACE TYPE
TYPICAL INSTALLATION OF JUNCTION BOX
& UNDER ROADWAY CONDUIT

L-0607

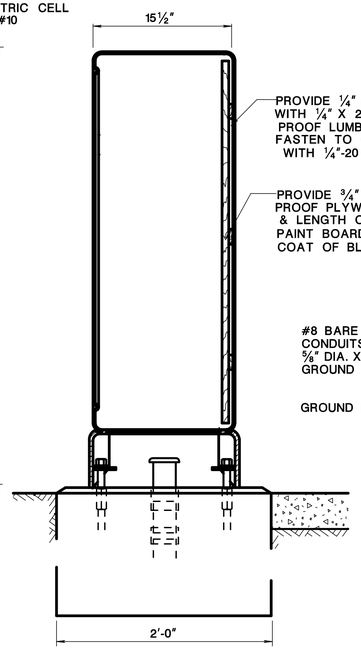
REFERENCE

BDC07D-03

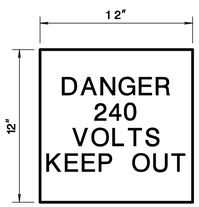



FRONT ELEVATION

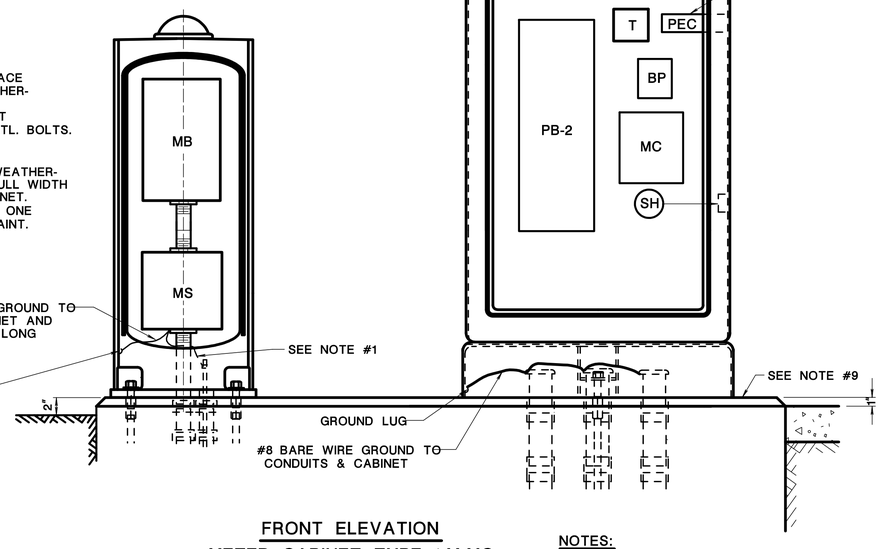
METER CABINET TYPE 1M




SECTION A-A

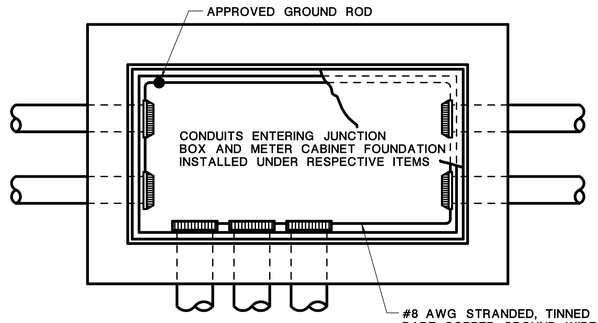



ENAMELED METAL SIGN TO BE
INSTALLED ON DOOR OF EACH
LOAD CENTER CABINET
WHITE WITH RED LETTERS.

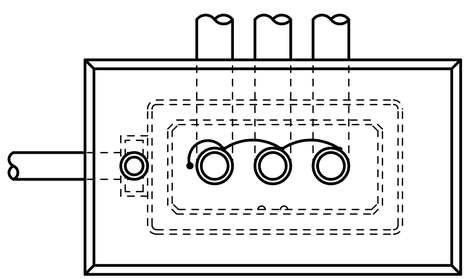



FRONT ELEVATION

METER CABINET TYPE 1M-MC




PLAN-JUNCTION BOX



PLAN-METER CABINET FOUNDATION

| METER CABINET TYPE 1M OR 1M-MC - 120/240V | | |
|---|---|---|
| SYMBOL | APPARATUS DESCRIPTION | RATING |
| MB | MAIN BREAKER<br>2 POLE 240 VOLT S/N<br>NEMA TYPE 1 ENCLOSURE | AMP |
| PEC | PHOTOELECTRIC CELL<br>240 VOLTS-3 KVA | N.A. |
| BP | TOGGLE SWITCH (BY-PASS) SINGLE POLE 10 AMP,<br>277 VOLT WITH ENCLOSURE | N.A. |
| MC | MAGNETIC CONTACTOR, 2 POLE 1 PHASE, NEMA SIZE 1<br>240 VOLT WITH 120 VOLT OPERATING COIL | AMP |
| SH | STRIP HEATER, 400 WATT, 240 VOLT, WITH STAINLESS STEEL OR<br>CHROME STEEL SHEATH MOUNTED ON PORCELAIN STAND-OFF | N.A. |
| T | THERMOSTAT LINE VOLTAGE-OPERATING RANGE 50° F. TO<br>70 °F. 240V RATING 2,000 WATTS SINGLE POLE. | N.A. |
| PB-1 | PANELBOARD-SPLIT BUSS-8 CIRCUITS TOP SECTION MIN. 12 CIRCUITS<br>BOTTOM-125 AMP RATED MAINS LIGHTING BREAKERS AMP.<br>CONTROL AND HEATER BREAKERS 15 AMP. | LIGHTING BREAKERS AMP.<br>MAIN BREAKER AMP. |
| PB-2 | PANELBOARD-MIN. 16 CIRCUITS-125 AMP RATED MAINS<br>LIGHTING BREAKERS AMP. CONTROL AND<br>HEATER BREAKERS AMP. | LIGHTING BREAKERS AMP.<br>CONTROL & HEATER BREAKERS AMP. |

NOTES:

1. ⅝" DIA. X 12' LONG GROUND ROD.
2. CABINETS TYPES M AND MC-CAST ALUMINUM CABINET FURNISHED WITH DOOR AND LOCK FABRICATED IN ACCORDANCE WITH THE STANDARD DETAILED DRAWING.
3. LOCATION OF METER CABINET FOUNDATION, SIZE, NUMBER AND DIRECTION OF CONDUIT RUNS SHALL BE TAKEN FROM THE GENERAL ELECTRICAL PLANS FOR THE AREA WHERE REQUIRED AND SUBJECT TO THE APPROVAL OF THE DEPARTMENT.
4. GROUNDING FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS AND N.E.C.
5. TERMINATE ALL CONDUITS WHEN ENTERING ENCLOSURES WITH LOCKNUT AND BONDING BUSHINGS. ALL OTHER CONDUITS SHALL BE PROVIDED WITH BONDING BUSHINGS. ALL CONDUITS TO BE BONDED WITH #8AWG STRANDED BARE COPPER GROUND WIRE.
6. ALL CIRCUIT BREAKERS TO BE PLUG-IN TYPE, SHALL MEET FEDERAL SPECIFICATION W-C-375B AS A CLASS 10A OR 10B BREAKER.
7. LOAD CENTERS SHALL BEAR UNDERWRITERS LABORATORIES LABEL.
8. WIRES IN CABINET SHALL BE ARRANGED IN A WORKMAN LIKE MANNER USING WAXED SERVING CORD OR NYLON SELF CLINCHING STRAPS OR APPROVED EQUAL.
9. FOR METER CABINET FOUNDATION DETAILS SEE DWG. #L-03.
10. PHOTELECTRIC CONTROL TO BE MOUNTED INSIDE CABINET. HOLE IN CABINET FOR PHOTOCELL SHALL BE 3" X 3" MIN. AND SHALL BE COVERED WITH CLEAR PLEXIGLASS AND GASKETED. PHOTOELECTRIC CONTROL SHALL BE MOUNTED WITH THE PHOTOCELL FACING NORTH. PHOTOCELL MAY BE REPOSITIONED TO AVOID BEING AFFECTED BY ARTIFICIAL LIGHTING.
11. SERVICE DISCONNECT SWITCH - 240 VOLT, 100 AMP., S/N, NEMA 3R ENCLOSURE WITH PADLOCK PROVISIONS. (LOCK TO BE SUPPLIED BY UTILITY COMPANY).
12. SEE GENERAL PLANS FOR SERVICE AND CIRCUIT WIRE SIZE.
13. CONTROL CIRCUIT WIRING SHALL BE No. 10AWG MIN. NO. 12 AWG TYPE TFE HIGH TEMP. WIRE SHALL BE USED TO CONNECT THE THERMOSTAT AND HEATING ELEMENT.
14. FOR ALTERNATE FABRICATED ALUMINUM TYPES M AND MC CABINETS SEE DRAWING P-20 AND P-07 AVAILABLE UPON REQUEST.
15. CONTRACTOR SHALL PROVIDE SCALE DRAWING TO VERIFY THAT PROPOSED COMPONENTS WILL FIT IN CABINET.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

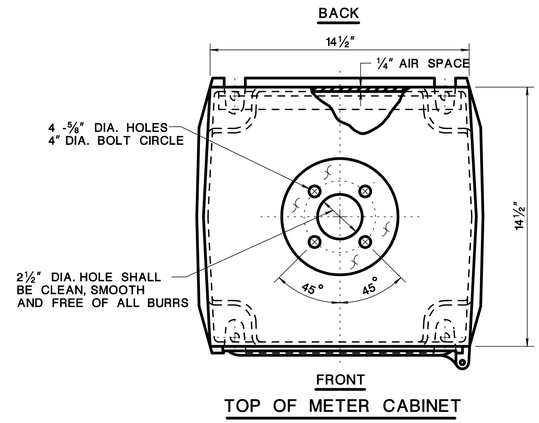
N.T.S.

METER CABINET, 1M, 120/240 VOLT
AND TYPE 1M-MC, 120/240 VOLT

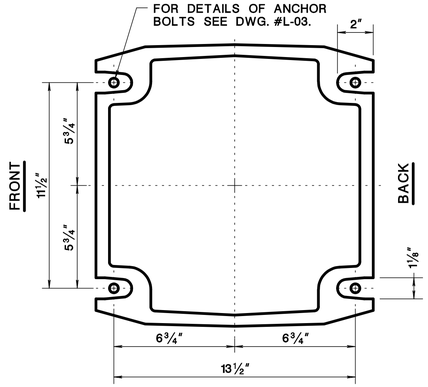
L-0707

REFERENCE

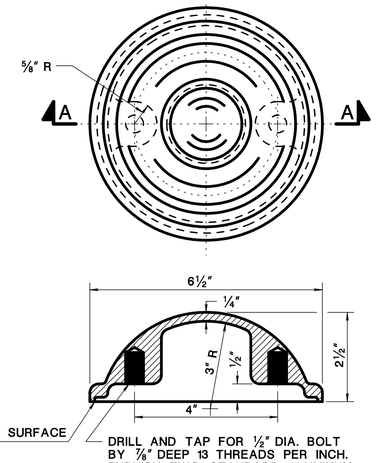
BDC07D-03




TOP OF METER CABINET



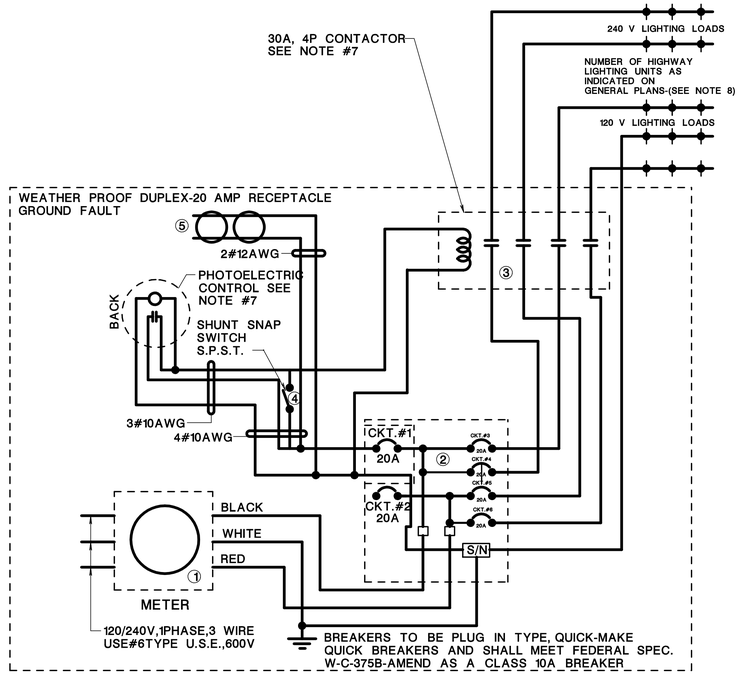

BOTTOM OF METER CABINET




DRILL AND TAP FOR ½" DIA. BOLT BY ⅞" DEEP 13 THREADS PER INCH. FURNISH TWO STANDARD ALUMINUM CAP SCREWS ½" DIA. BY 1½" LONG CLASS 2 FREE FIT WITH EACH METER CABINET CAP.

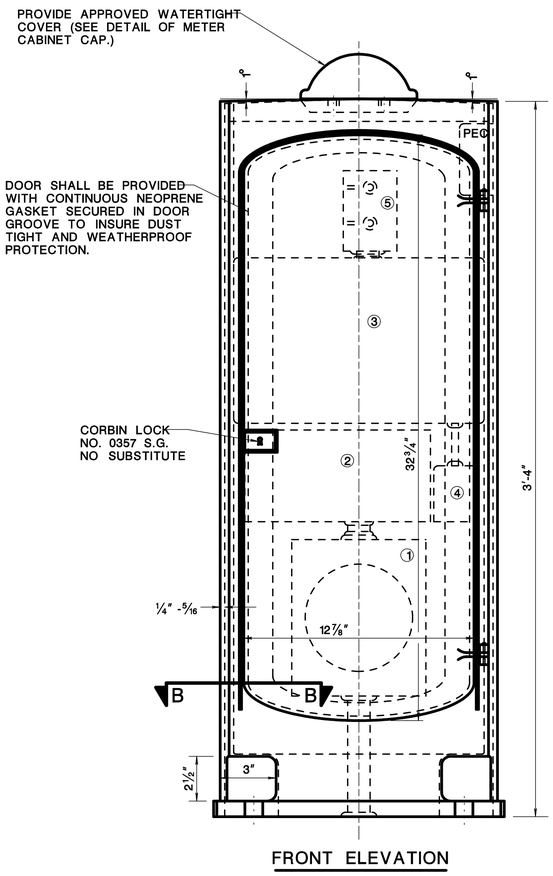
SECTION A-A

METER CABINET CAP DETAIL

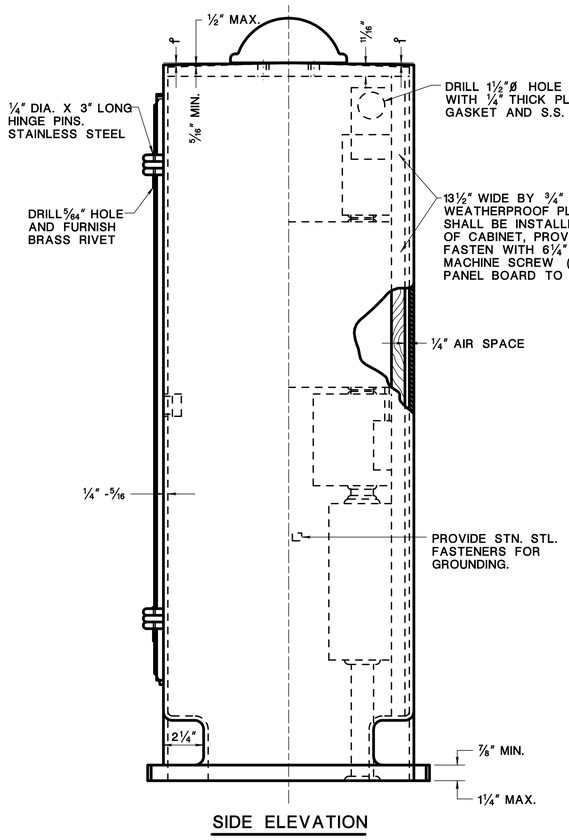



NOTE:
ALL WIRE TO BE #6-AWG-600 VOLT
OR AS OTHERWISE SHOWN.

SCHEMATIC WIRING DIAGRAM: 120/240 VOLT




FRONT ELEVATION

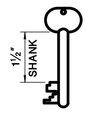



SIDE ELEVATION

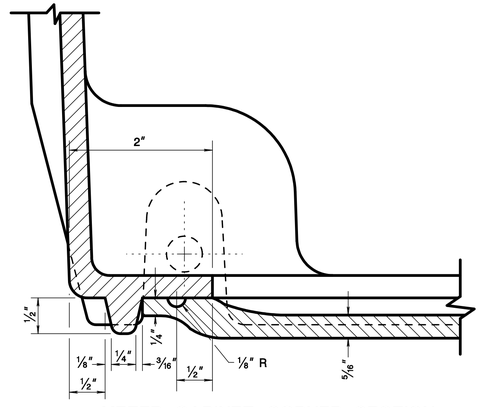
DRILL 1½"ø HOLE AND COVER WITH ¼" THICK PLEXIGLASS. GASKET AND S.S. HARDWARE.

13½" WIDE BY ¾" THICK BY 35" LONG WEATHERPROOF PLYWOOD PANEL BOARD SHALL BE INSTALLED ON INSIDE REAR WALL OF CABINET, PROVIDE ¼" AIR SPACE AS SHOWN. FASTEN WITH 6¼" - 20NC STN. STL., FLAT HD. MACHINE SCREW ( DRILL & TAP METER CABINET). PANEL BOARD TO BE GIVEN (1) COAT OF BLACK PAINT.

ALUMINUM ALLOY, COMMERCIAL DESIGNATION 356
A.S.T.M. DESIGNATION B26-56T, ALLOY SG 70A




KEY ALIKE CHANGE #1
CUT ON BLANK 04266
FOR SUB TREASURY LOCK #03575
PROVIDE 2 KEYS WITH EACH CABINET




METER CABINET CORNER SECTION
SHOWING DOOR GASKET GROOVE DETAIL.

SECTION B-B

## NOTE

1. METER SOCKET-INSTALLED BY CONTRACTOR-PROVIDED BY UTILITY COMPANY ON REQUEST. (IN JCP&L CO. AREA METER SOCKET IS TO BE INSTALLED AND FURNISHED BY CONTRACTOR)
2. 4/8 CIRCUIT LOAD CENTER WITH ENCLOSURE COMPLETE WITH 6-20A CIRCUIT BREAKERS.
3. MAGNETIC CONTACTOR, 30 AMP, 120 VOLT COIL NEMA 1 ENCLOSURE.
4. PHOTOELECTIRIC CONTROL UNIT 15 AMP SHUNT SWITCH IN 2" X 4" HANDY BOX OR EQUIVALENT.
5. WEATHERPROOF, 20A DUPLEX RECEPTICAL GROUND FAULT.
6. IF METER IS NOT REQUIRED, INSTALL 1 ¼" I.D. SEALTITE FLEX CONDUIT AND 1 ¼" I.D. NIPPLE FROM REDUCER COUPLING TO MAIN BREAKER PANEL.
7. FOR METER CABINET TYPE "L", PHOTOELECTRIC CONTROL AND MAGNETIC CONTACTOR FURNISHED AND INSTALLED.
8. THE TOTAL NUMBER OF CIRCUIT BREAKERS ALLOWED IS SIX.

## METER CABINET DETAIL

- ALUMINUM ALLOY, COMMERCIAL DESIGNATION 356 A.S.T.M. DESIGNATION B26-56T, ALLOY SG 70A.
- THE CABINET SHALL BE FREE OF BURRS, SHARP EDGES, DENTS, PINHOLES, AND PARTING LINES AND SHALL HAVE A UNIFORM #30 GRIT FINISH.
- FOR ALTERNATE FABICATED METER CABINET SEE DWG. T-35.

## METER CABINET TYPE "L"

120/240 VOLT 40 AMP MAX. LOAD

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

N.T.S.

METER CABINET DETAILS TYPE "L"
ELECTRICAL INSTALLATION

L-0907

REFERENCE

BDC07D-03

REFERENCE

| TABLE I | | | | | | |
|---|---|---|---|---|---|---|
| SIGN SUPPORT NUMBER | GO SIGN NUMBER | NUMBER OF FIXTURES | DIMENSIONS | | | |
| | | | SPACE "A" | SPACE "B" | SIZE OF SIGN | |
| | | | | | WIDTH | HEIGHT |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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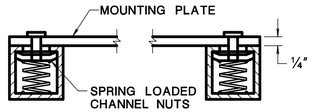
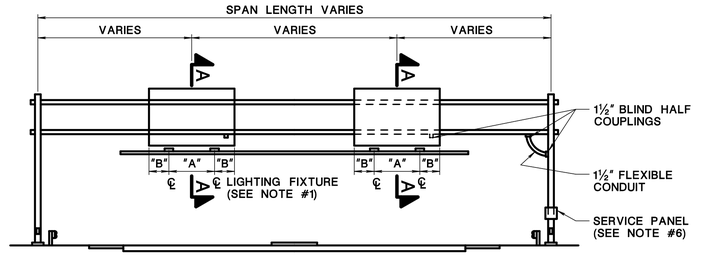
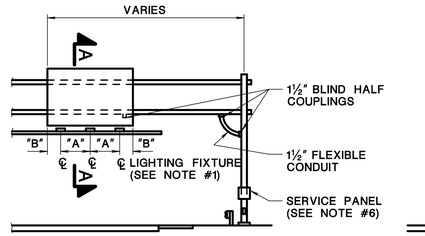
| PHOTOMETRIC DATA TABLE II<br>ILLUMINATION REQUIREMENTS | | | | | |
|---|---|---|---|---|---|
| MIN. INITIAL AVG. FOOT CANDLES | MAX. FOOT CANDLES | MIN. FOOT CANDLES | UNIFORMITY RATIO MAX.-MIN. | SIZE OF SIGN | |
| | | | | WIDTH | HEIGHT |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |



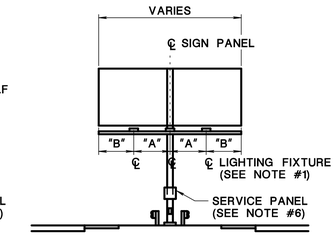

DETAIL "A"



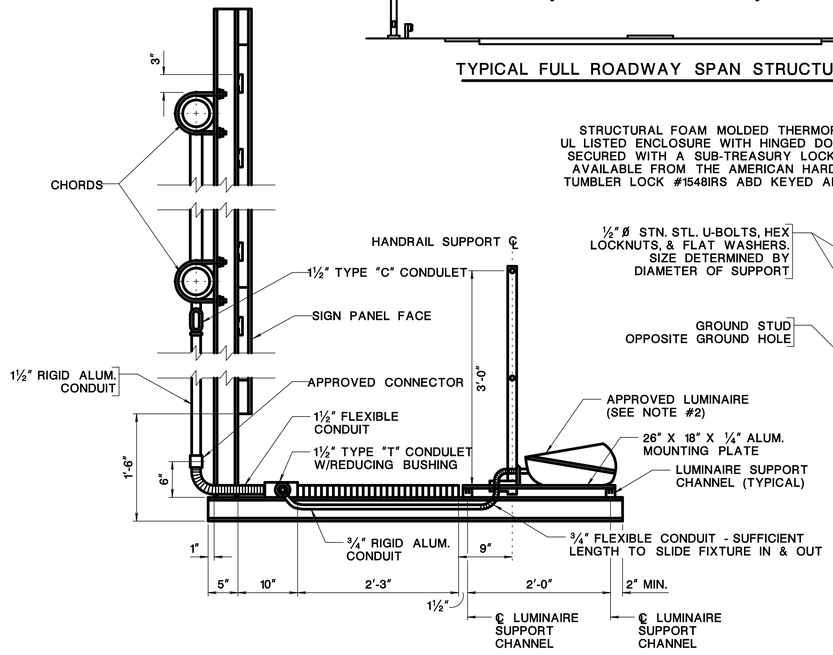

TYPICAL FULL ROADWAY SPAN STRUCTURE




TYPICAL CANTILEVER OR HALF ROADWAY SPAN STRUCTURE




TYPICAL BUTTERFLY STRUCTURE

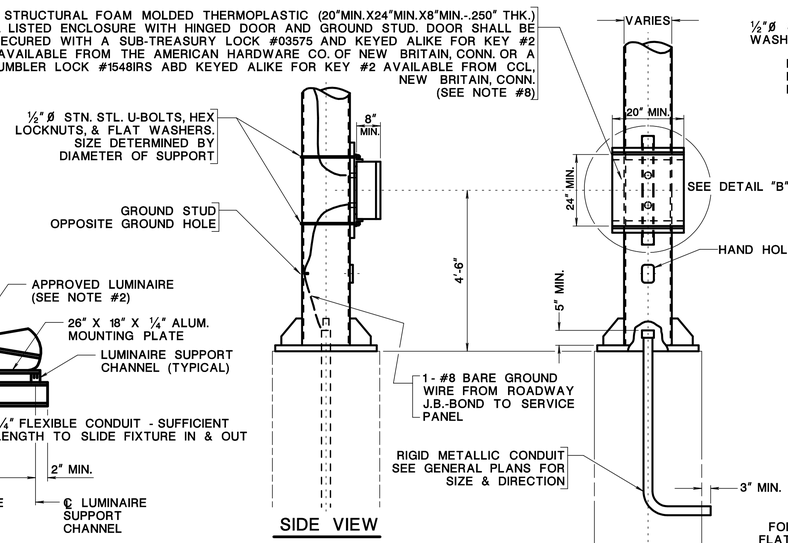



TYPICAL MAINTENANCE WALKWAY DETAILS

SECTION A-A

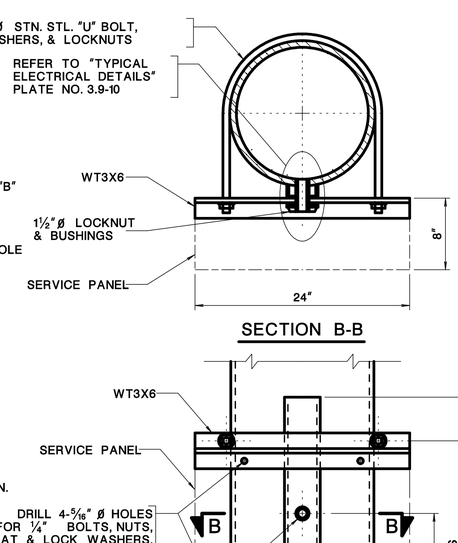
(REFER TO "MAINTENANCE WALKWAY" PLATE NO. 3.9-9)

STRUCTURAL FOAM MOLDED THERMOPLASTIC (20"MIN.X24"MIN.X8"MIN.-.250" THK.) UL LISTED ENCLOSURE WITH HINGED DOOR AND GROUND STUD. DOOR SHALL BE SECURED WITH A SUB-TREASURY LOCK #03575 AND KEYED ALIKE FOR KEY #2 AVAILABLE FROM THE AMERICAN HARDWARE CO. OF NEW BRITAIN, CONN. OR A TUMBLER LOCK #1548IRS ABD KEYED ALIKE FOR KEY #2 AVAILABLE FROM CCL, NEW BRITAIN, CONN. (SEE NOTE #8)

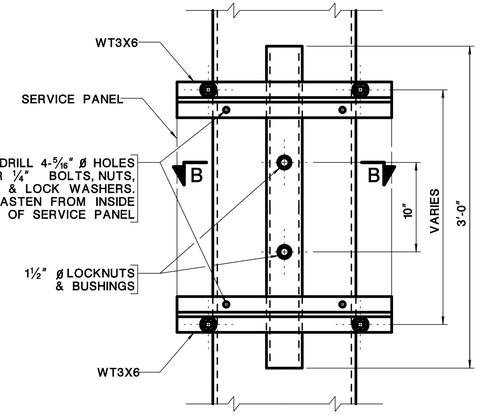



SIDE VIEW

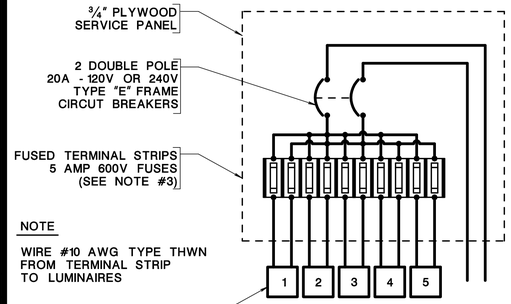
ELEVATION - SERVICE PANEL AT SIGN STRUCTURE



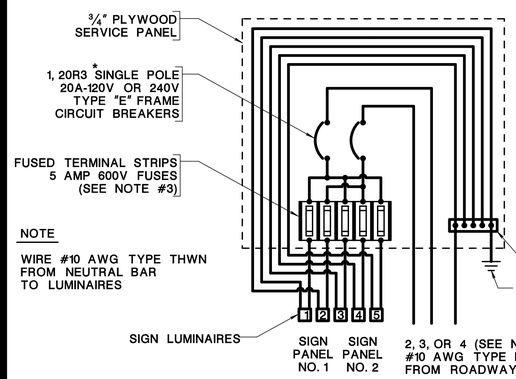

SECTION B-B



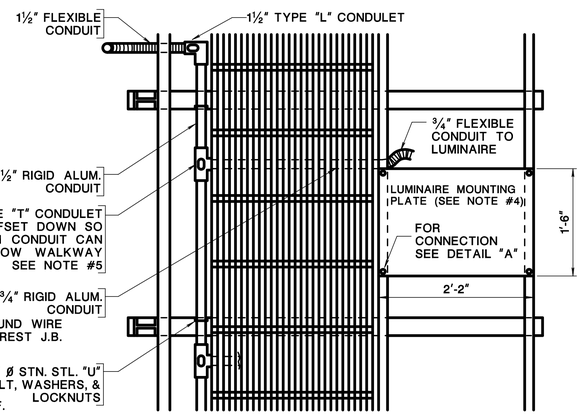

DETAIL "B"




TYPICAL WIRING DIAGRAM FOR CIRCUITS WITHOUT NEUTRAL WIRE




TYPICAL WIRING DIAGRAM FOR CIRCUITS WITH NEUTRAL WIRE




WALKWAY LIGHTING PLAN

NOTES:

1. LIGHTING FIXTURE DIMENSIONS "A" & "B" SHOWN ON TABLE I.
2. PHOTOMETRIC REQUIREMENTS: 250 WATT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, H37-5KC/DX, MOUNTED ONE FOOT BELOW BOTTOM EDGE AND FOUR AND ONE HALF FEET IN FRONT OF SIGN BOARD. THE PHOTOMETRIC DATA CALCULATED FOLLOWING THE AASHTO STANDARDS FOR ROADWAY SIGN LIGHTING FOR VARIOUS SIZE SIGNS AND RECORDED IN THE PHOTOMETRIC DATA TABLE II.
3. TERMINAL STRIP SHALL BE THE TYPE WHICH ACCEPTS 13⁄32" X 1½" FERRULE TYPE CARTRIDGE FUSES.
4. LUMINAIRE MOUNTING PLATES ARE PART OF THE LUMP SUM ELECTRICAL ITEM, "SIGN LIGHTING ASSEMBLY", AND SHALL BE PAID FOR AS SAME. MOUNTING PLATES MUST BE FIELD DRILLED TO CONFORM TO MOUNTING BOLT CIRCLES OF LUMINAIRES.
5. SUBMIT ALTERNATE CONDUIT ARRANGEMENTS TO THE DEPARTMENT FOR APPROVAL.
6. REFER TO GENERAL PLANS FOR LOCATION AND DIRECTION OF SERVICE PANELS.
7. AS REQUIRED
8. DOOR FRAME TO HAVE A CONTINUOUS NEOPREAN GASKET SECURED TO DOOR GROOVE PROVIDING A WATER RESISTANT AND DUST-TIGHT ENCLOSURE.

THIS SHEET REQUIRES THAT DESIGN SPECIFIC INFORMATION BE ADDED.IT THEREFORE WILL ALWAYS BE SUPERSEDED IN THE CONSTRUCTION PLANS.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

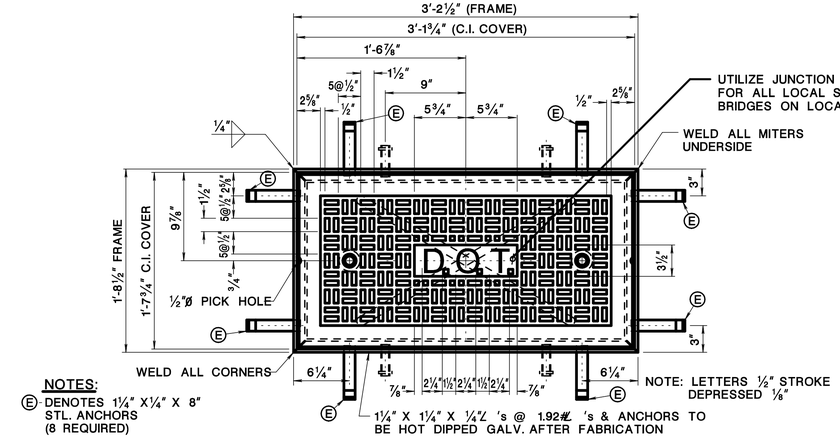
ELECTRICAL DETAILS

N.T.S.

SIGN LIGHTING FOR "GO" SIGNS

L-1007

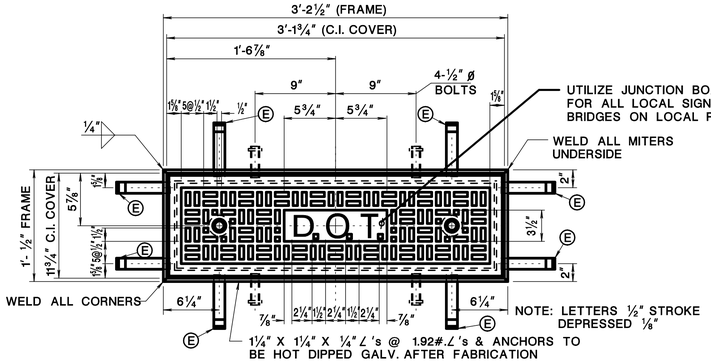
BDC07D-03



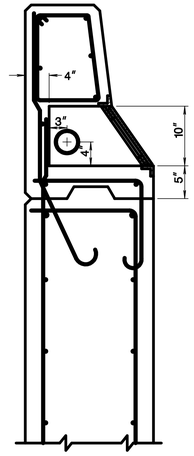

NOTES:
(E) DENOTES 1¼" X¼" X 8" STL. ANCHORS (8 REQUIRED)

FRAME AND ANCHORS SHALL BE STRUCTURAL STEEL

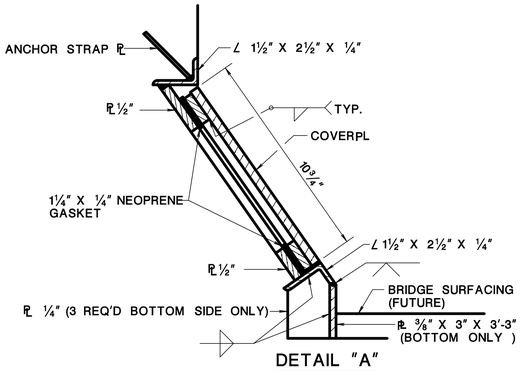
## PLAN-FRAME AND COVER FOR 18" X 36" JUNCTION BOX




## PLAN-FRAME AND COVER FOR 10" X 36" JUNCTION BOX

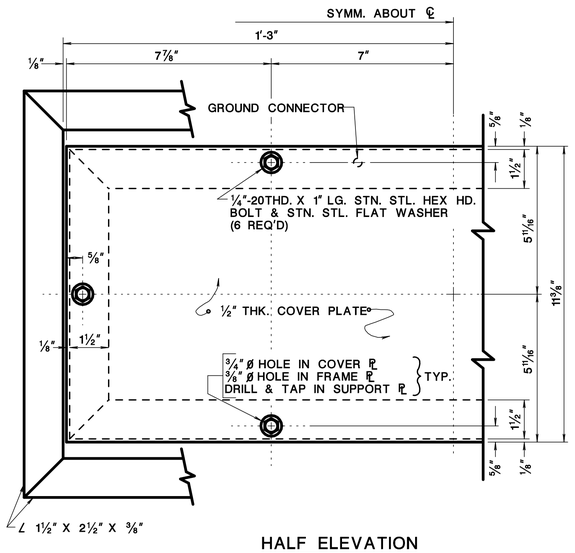



## CROSS SECTION



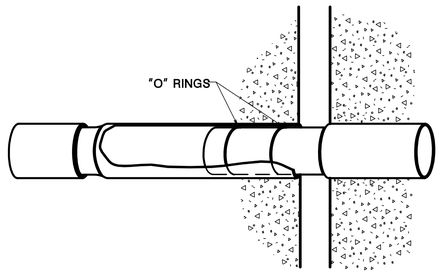

## DETAIL "A"

NOTES:
1. BOLT LOCATION ARE SYMMETRICAL ABOUT CENTER LINES.
2. NEOPRENE GASKET SHALL BE CONTINUOUS AND SINGLE PIECE.
3. ALL WELDS SHALL BE ⅜" CONTINUOUS WELDS.



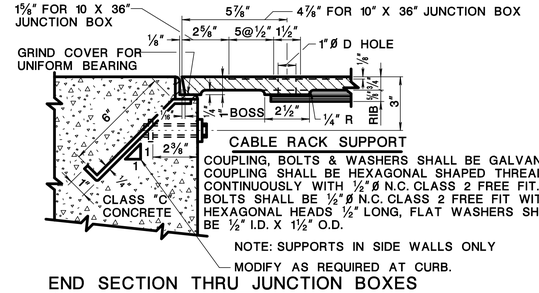

## HALF ELEVATION JUNCTION BOX COVER

NOTE:
1. MATERIAL-ASTM A36-HOT DIP GALVANIZED AFTER FABRICATION.
2. FOR LIGHTING BOSS DETAILS SEE BRIDGE PLANS.




## TYPICAL RIGID NON-METALLIC EXPANSION FITTING

NOTES:
1. EXPANSION FITTING TO BE INSTALLED AT ALL EXPANSION JOINTS.
2. EXPANSION FITTING TO BE WEATHERPROOF WITH 6" MIN. MOVEMENT.
3. EXPANSION FITTING SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.




## CABLE RACK SUPPORT

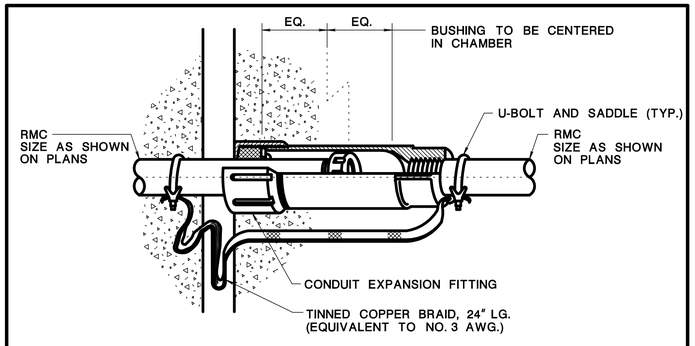
COUPLING, BOLTS & WASHERS SHALL BE GALVANIZED. COUPLING SHALL BE HEXAGONAL SHAPED THREADED CONTINUOUSLY WITH ½"ø N.C. CLASS 2 FREE FIT. BOLTS SHALL BE ½"ø N.C. CLASS 2 FREE FIT WITH HEXAGONAL HEADS ⅛" LONG, FLAT WASHERS SHALL BE ½" I.D. X 1½" O.D.

NOTE: SUPPORTS IN SIDE WALLS ONLY

MODIFY AS REQUIRED AT CURB.

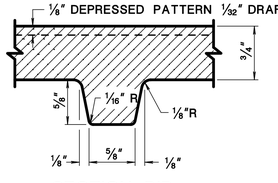
## END SECTION THRU JUNCTION BOXES

18" X 36" SHOWN. 10" X 36" SIMILAR EXCEPT AS NOTED




## TYPICAL DETAIL CONDUIT EXPANSION FITTING

NOTES:
1. EXPANSION FITTING TO BE INSTALLED AT ALL EXPANSION JOINTS.
2. RIGID METALLIC CONDUIT AND FITTING SHALL BE HOT-DIPPED GALVANIZED.
3. EXPANSION FITTING TO BE WEATHERPROOF WITH 4" MIN. MOVEMENT.




## SECTION RIB

CONSTRUCTION REQUIREMENTS
1. UTILIZE RIGID METALLIC CONDUIT UNLESS OTHERWISE SPECIFIED.
2. INSTALL CONDUITS PITCHED TO DRAIN AT OPEN ENDS OR AT "T" DRAINS AS SHOWN ON DRAWING OR AS SET FORTH IN THE SPECIFICATIONS OR AS DIRECTED BY THE DEPARTMENT.
3. A NYLON CORD 500 LB. MIN. TEST SHALL BE INSTALLED IN ALL CONDUITS.
4. INSTALLATION SHALL CONFORM WITH APPLICABLE REQUIREMENT OF N.E.C. AND LOCAL UTILITY COMPANY

PAINTING REQUIREMENTS

JUNCTION BOX FRAME AND COVER SHALL BE PAINTED AS SPECIFIED FOR STRUCTURAL STEEL EXCEPT THAT THE FINAL FIELD COAT SHALL MATCH THE COLOR OF THE ADJACENT CONCRETE.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

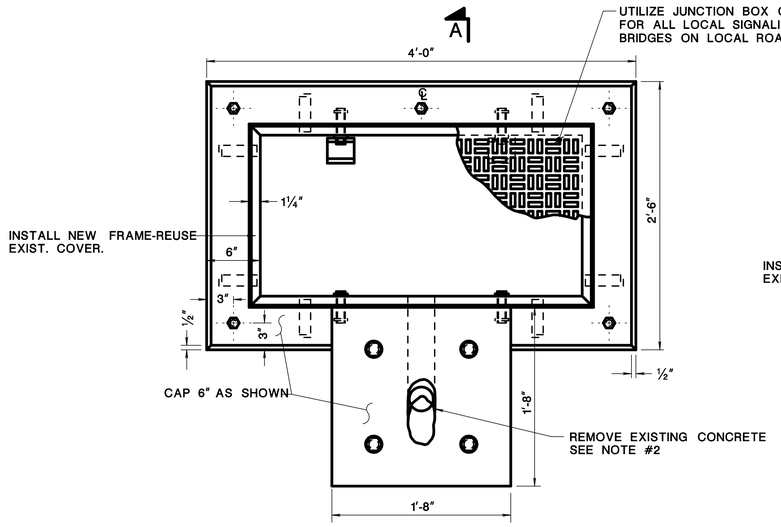
N.T.S.

BRIDGE DETAILS

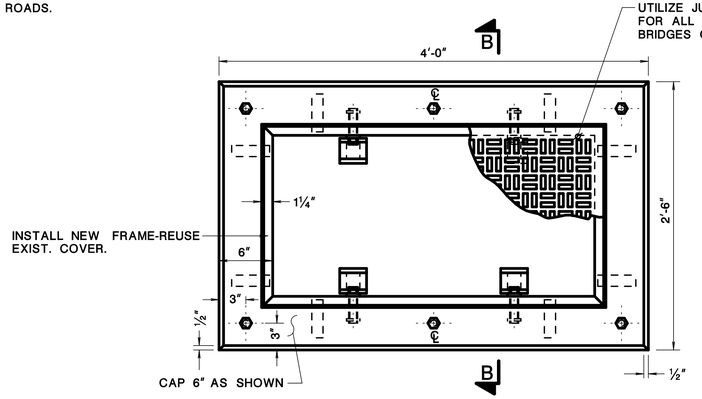
L-1107

REFERENCE

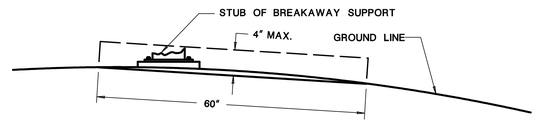
BDC07D-03




JUNCTION BOX FOUNDATION - "JBF"

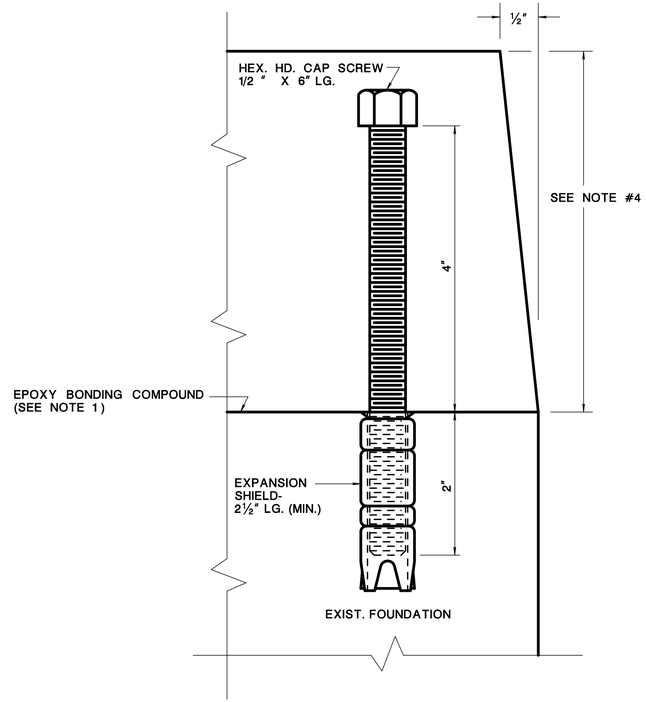



18" X 36" JUNCTION BOX - "JB"

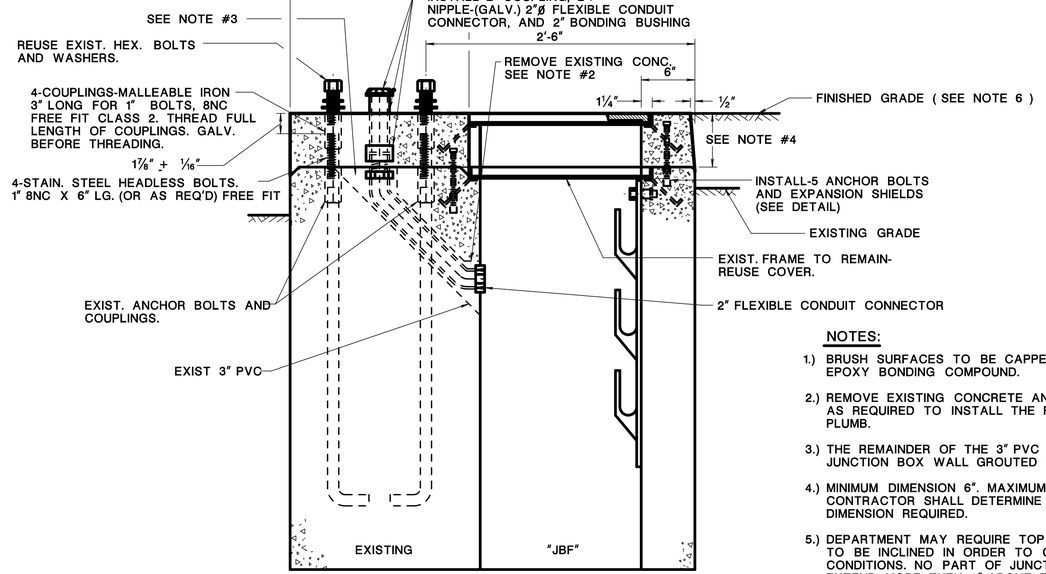



BREAKAWAY SUPPORT HEIGHT MEASUREMENT

DETAIL "A"




DETAIL FOR ANCHOR BOLTS




SECTION A-A

NOTES:

1.) BRUSH SURFACES TO BE CAPPED WITH EPOXY BONDING COMPOUND.

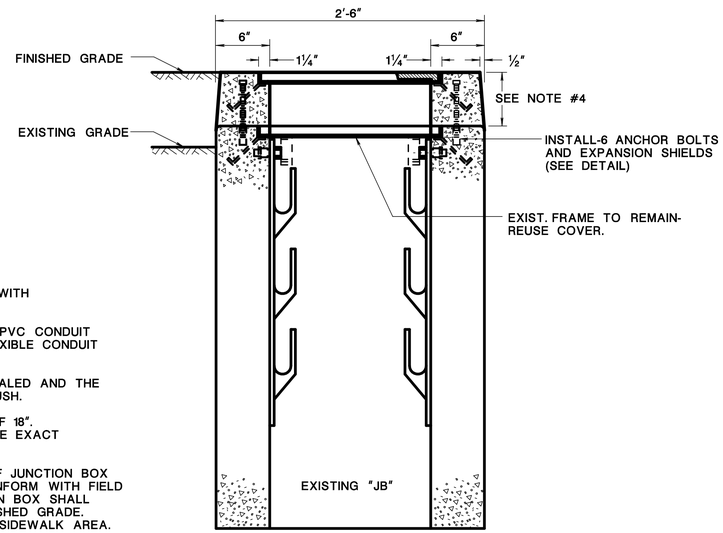
2.) REMOVE EXISTING CONCRETE AND PVC CONDUIT AS REQUIRED TO INSTALL THE FLEXIBLE CONDUIT PLUMB.

3.) THE REMAINDER OF THE 3" PVC SEALED AND THE JUNCTION BOX WALL GROUTED FLUSH.

4.) MINIMUM DIMENSION 6". MAXIMUM OF 18". CONTRACTOR SHALL DETERMINE THE EXACT DIMENSION REQUIRED.

5.) DEPARTMENT MAY REQUIRE TOP OF JUNCTION BOX TO BE INCLINED IN ORDER TO CONFORM WITH FIELD CONDITIONS. NO PART OF JUNCTION BOX SHALL EXTEND MORE THEN 2" ABOVE FINISHED GRADE. JUNCTION BOX SET TO GRADE IN SIDEWALK AREA.

6.) JUNCTION BOX FOUNDATION IN DIRT OR GRASS AREAS SHALL MEET THE CRITERIA AS PER DETAIL "A".




SECTION B-B

CAPPING DETAILS FOR EXTENSIONS OF EXISTING JUNCTION BOX FOUNDATION - ("JBF") AND 18" X 36" JUNCTION BOX - ("JB")

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

N.T.S.

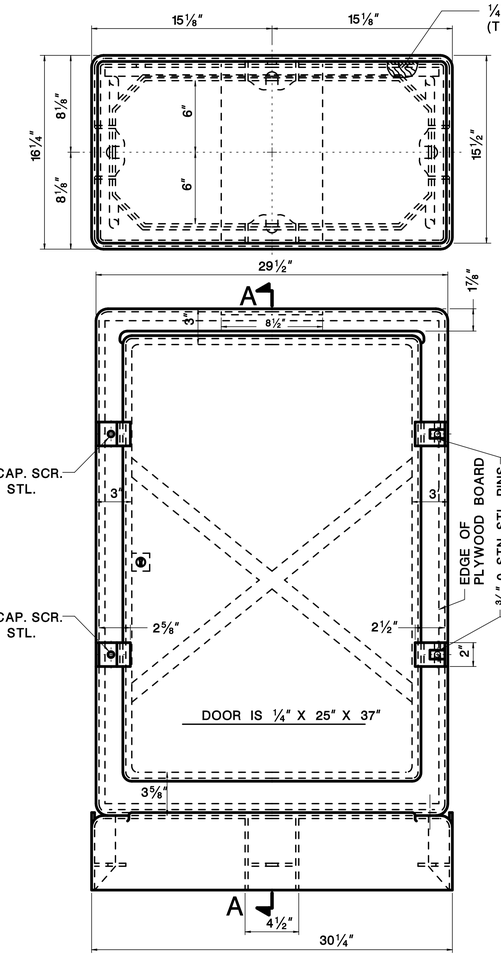
CAPPING DETAILS FOR JBF & 18" X 36" JB

L-1307

REFERENCE

BDC07D-03

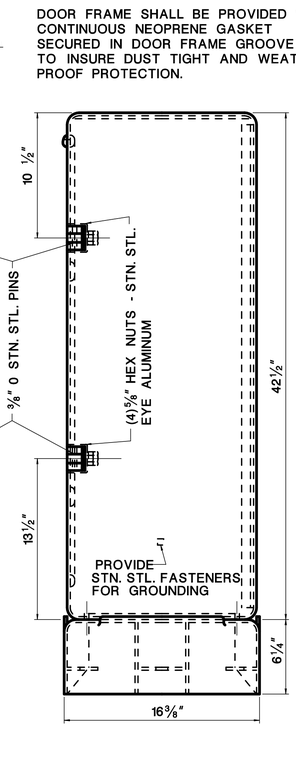
REFERENCE


15⅛"
15⅛"
¼" FULL LENGTH SPACER (TYPICAL 3 PLACES)
16¼"
8⅛"
8⅛"
6"
6"
15½"
29½"
1⅞"
A
3"
8½"
½" CAP. SCR. STN STL.
3"
3"
½" CAP. SCR. STN STL.
2⅝"
2½"
EDGE OF PLYWOOD BOARD
⅜" 0 STN. STL. PINS
2"
DOOR IS ¼" X 25" X 37"
3⅝"
4½"
30¼"
A

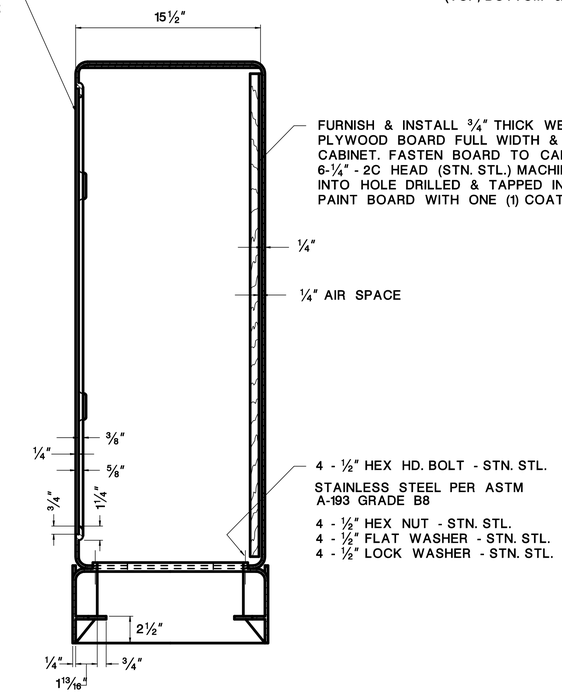
ALUMINUM ALLOY 356 AS CAST

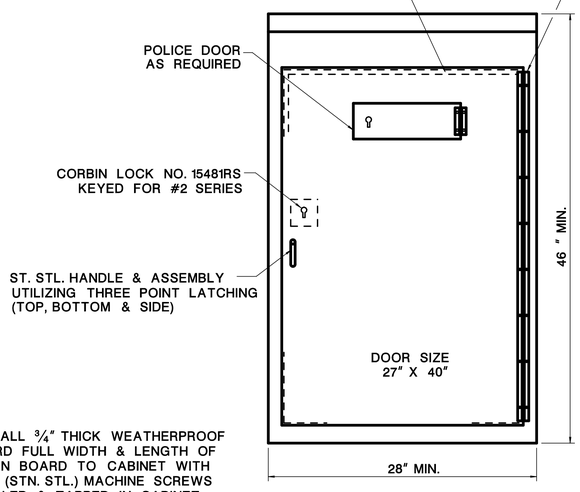
## NOTES:

1. DOOR SHALL BE SECURED WITH A SUB-TREASURY LOCK No. 0357S AND KEYED ALIKE FOR KEY No. 5 AVAILABLE FROM THE AMERICAN HARDWARE CO. NEW BRITAIN, CONN., OR A TUMBLER LOCK No. 15481 ARS AND KEYED ALIKE FOR KEY No. 2 AVAILABLE FROM CORBIN LOCK CO. NEW BRITAIN, CONN.
2. LOCK HELD TO DOOR BY #10-24 X 1⅛" LG. ROUND HEAD (STN. STL.) MACHINE SCREWS.

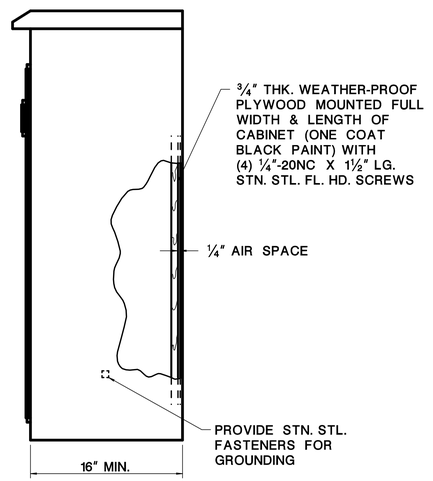



SECTION A-A

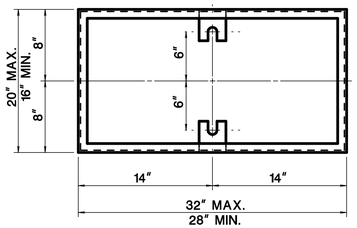



FRONT ELEVATION




SIDE ELEVATION




BOTTOM VIEW & ANCHOR BOLT LAYOUT

## NOTES:

1. SUPPLIED WITH EACH CABINET, (2) ANCHOR BOLTS ¾"-10NC X 15" LG. STL. WITH GALV. 3" COUPLING. (2) STN. STL. 1½" O.D. X ⅛" THK. FLAT WASHERS & (2) ¾"-10NC X 3" LG. STN. STL. CAP SCR.
2. CABINET AND CABINET DOOR TO BE SHEET ALUMINUM .125" THICK, 5052-H32 ALLOY, UNPAINTED.

## METER CABINET TYPE "M" - FABRICATED

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

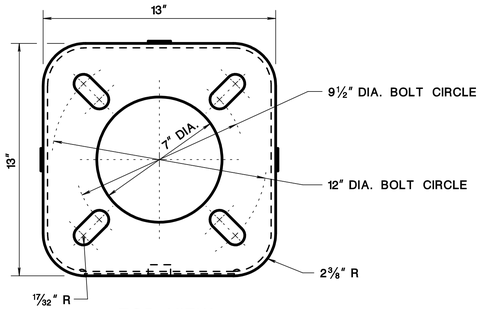
N.T.S.

METER CABINET
CAST AND FABRICATED

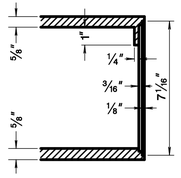
L-1407

BD-0070-03

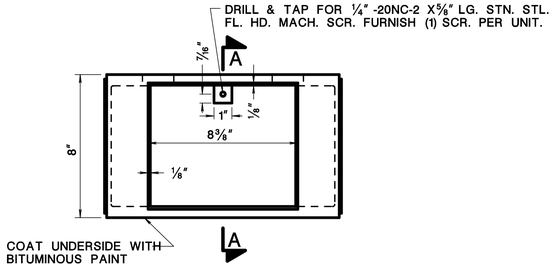
REFERENCE



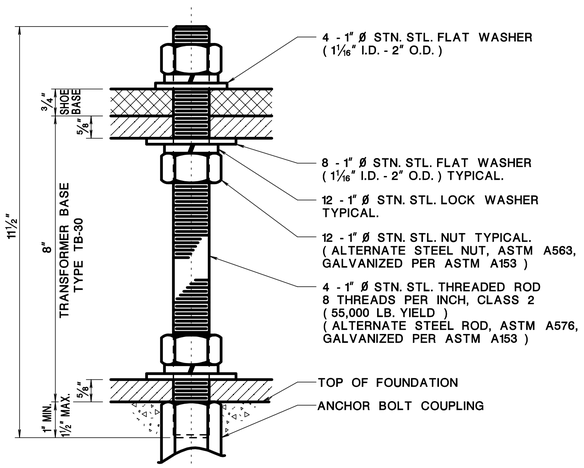

TOP VIEW




SECTION A-A

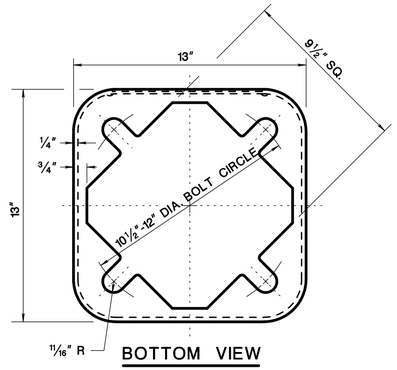



FRONT VIEW DOOR SIDE

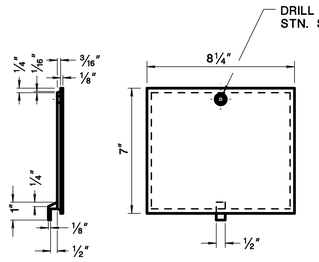



THROUGH BOLT DETAIL
FOR THROUGH BOLTING

ALUMINUM ALLOY CASTING
356-T6-PERMANENT MOLD
OR SAND CASTING




BOTTOM VIEW




END VIEW




DOOR

ALUMINUM TRANSFORMER BASE
PART NO. NJTB - 30

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS
N.T.S.

ALUMINUM TRANSFORMER BASE DETAILS
PART No. NJTB - 30

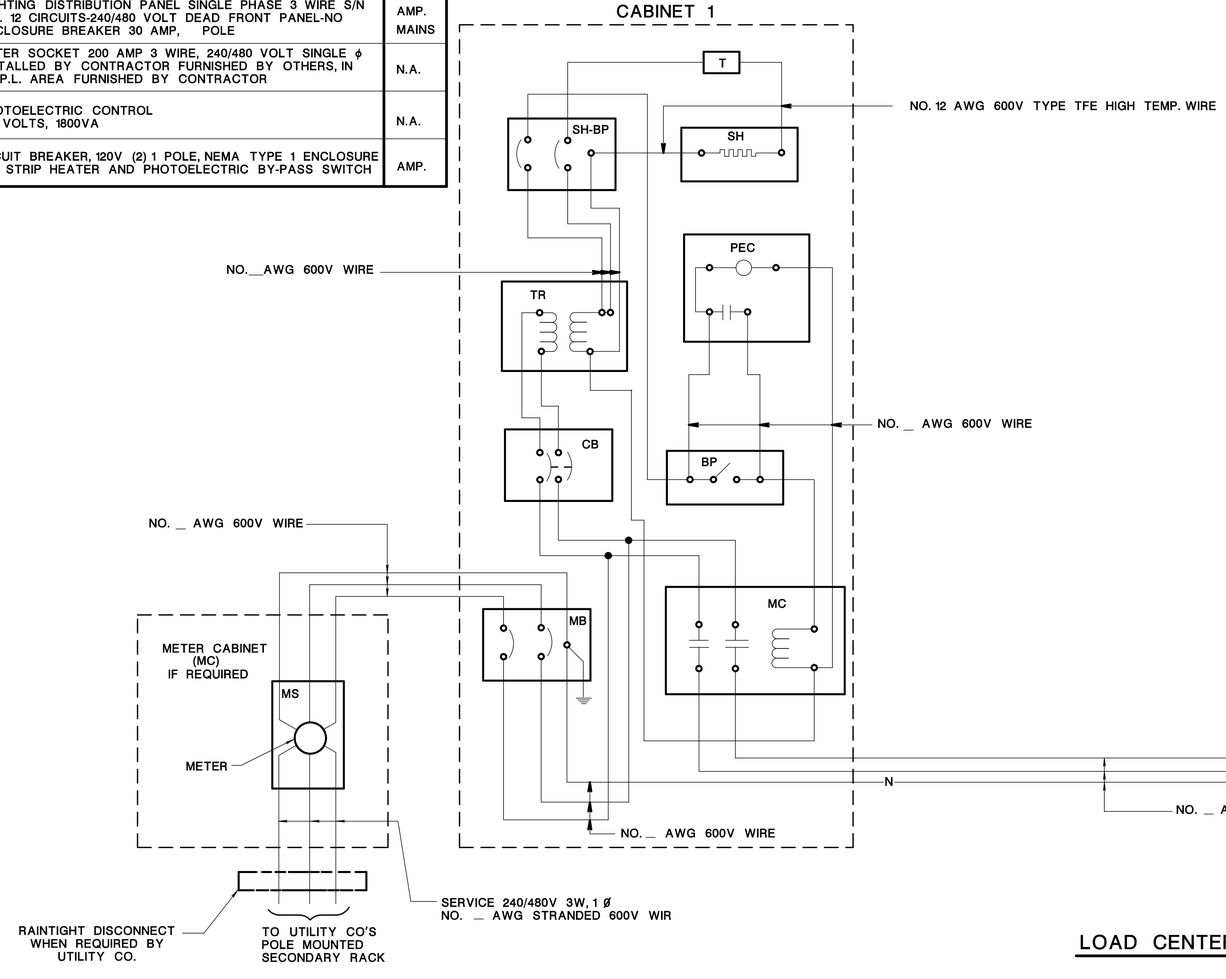
L-1507

BDC07D-03

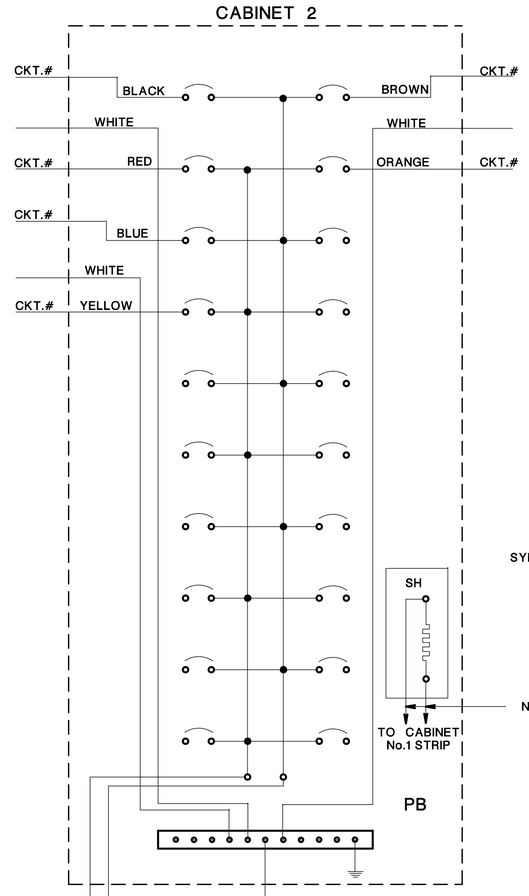
REFERENCE

| METER CABINET TYPE | | |
|---|---|---|
| SYMBOL | APPARATUS DESCRIPTION | RATING |
| MB | MAIN BREAKER<br>2 POLE 480 VOLT S/N<br>NEMA TYPE 1 ENCLOSURE | AMP. |
| CB | CONTROL DISCONNECT AIR CIRCUIT BREAKER<br>2 POLE 480 VOLT S/N<br>NEMA TYPE 1 ENCLOSURE | AMP. |
| BP | PHOTOELECTRIC CONTROL BY-PASS SWITCH<br>BUILT INTO CONTACTOR ENCLOSURE | AMP. |
| MC | MAGNETIC CONTACTOR 2 POLE 480 VOLT<br>WITH 120 VOLT COIL, NEMA TYPE 1 ENCLOSURE | AMP. |
| SH | STRIP HEATER 400W 120V WITH STAINLESS STEEL OR<br>CHROME SHEATH MOUNTED ON PORCELAIN STAND-OFF | N.A. |
| T | THERMOSTAT LINE VOLTAGE OPERATING RANGE 50° F. TO<br>70° F. 120V RATING 2000 WATTS SINGLE POLE | N.A. |
| TR | CONTROL TRANSFORMER PRIMARY 240/480V<br>SECONDARY 120V | N.A. |
| PB | LIGHTING DISTRIBUTION PANEL SINGLE PHASE 3 WIRE S/N<br>MIN. 12 CIRCUITS-240/480 VOLT DEAD FRONT PANEL-NO<br>ENCLOSURE BREAKER 30 AMP, POLE | AMP.<br>MAINS |
| MS | METER SOCKET 200 AMP 3 WIRE, 240/480 VOLT SINGLE ϕ<br>INSTALLED BY CONTRACTOR FURNISHED BY OTHERS, IN<br>N.J.P.L. AREA FURNISHED BY CONTRACTOR | N.A. |
| PEC | PHOTOELECTRIC CONTROL<br>120 VOLTS, 1800VA | N.A. |
| SH-BP | CIRCUIT BREAKER, 120V (2) 1 POLE, NEMA TYPE 1 ENCLOSURE<br>FOR STRIP HEATER AND PHOTOELECTRIC BY-PASS SWITCH | AMP. |

THIS SHEET REQUIRES THAT DESIGN SPECIFIC INFORMATION BE ADDED. IT THEREFORE WILL ALWAYS BE SUPERSEDED IN THE CONSTRUCTION PLANS.




LOAD CENTER




LUMINAIRE LEGEND

| SYMBOL | DESCRIPTION |
|---|---|

NOTE:

1. ALL TERMINALS TO BE SOLDERLESS CONNECTORS FOR NO. 2 AWG WIRE.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

N.T.S.

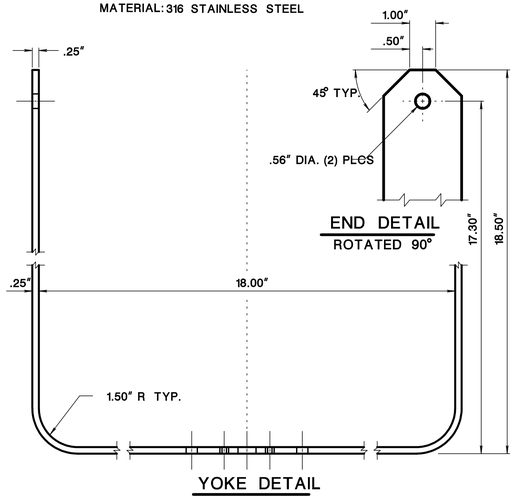
SCHEMATIC WIRING DIAGRAM

L-1707

BDC07D-03

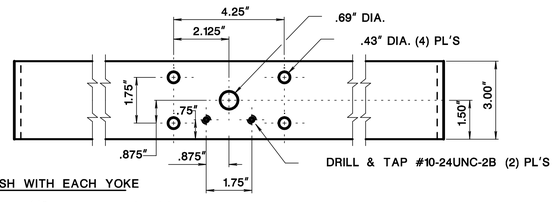
REFERENCE

MATERIAL: 316 STAINLESS STEEL



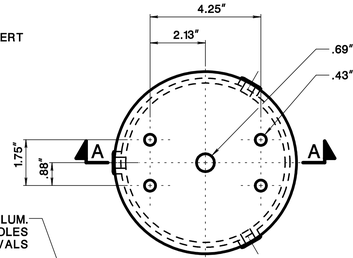

END DETAIL
ROTATED 90°

YOKE DETAIL

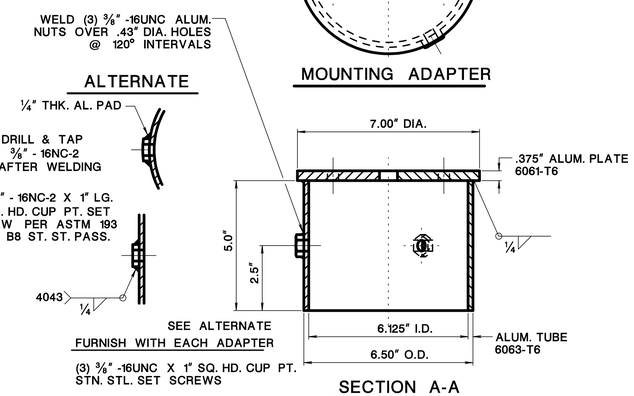



FURNISH WITH EACH YOKE

3/8" -16 X 1 1/4" HEX HD. MACH. SCR. 18-8 STN. STL. FULL THD.
13/32" I.D. X 13/16" O.D. X 16 GA. 18-8 STN. STL.
3/8" -16 HEX STOP NUT, NYLON INSERT 18-8 STN. STL.




MOUNTING ADAPTER




SECTION A-A

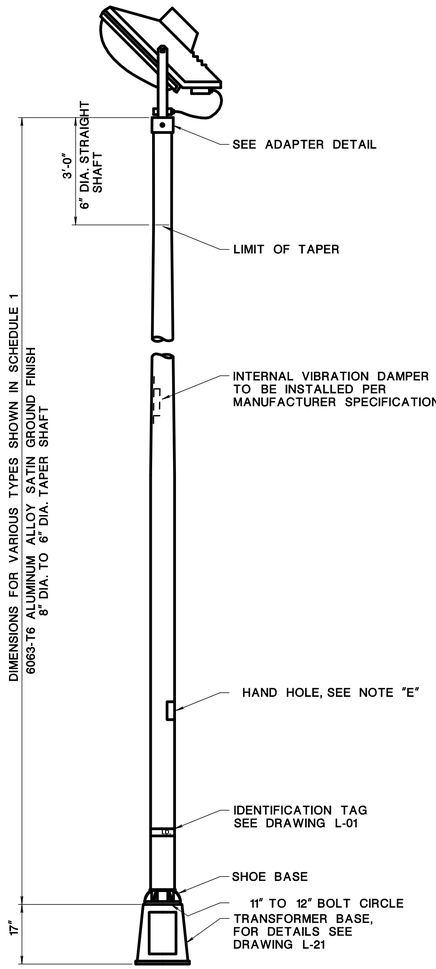
FURNISH WITH EACH ADAPTER

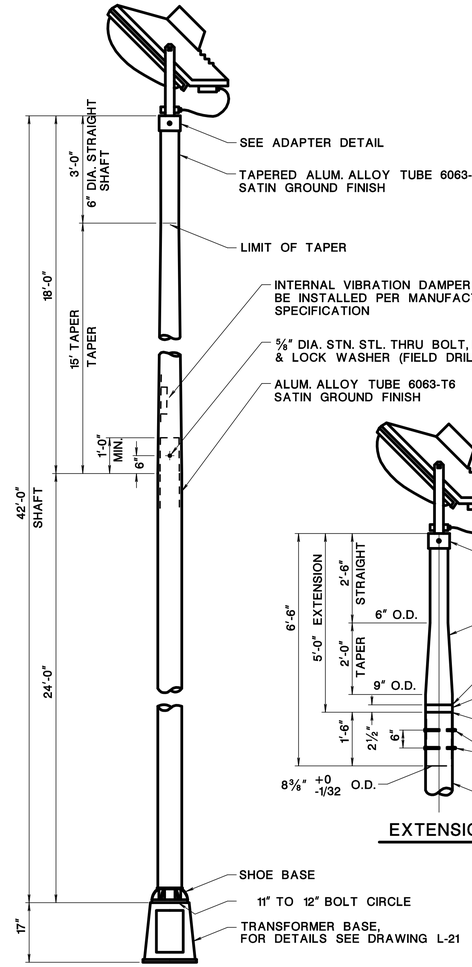
(3) 3/8" -16UNC X 1" SQ. HD. CUP PT. STN. STL. SET SCREWS

(3) 3/8" -16UNC STN. STL. JAM NUTS

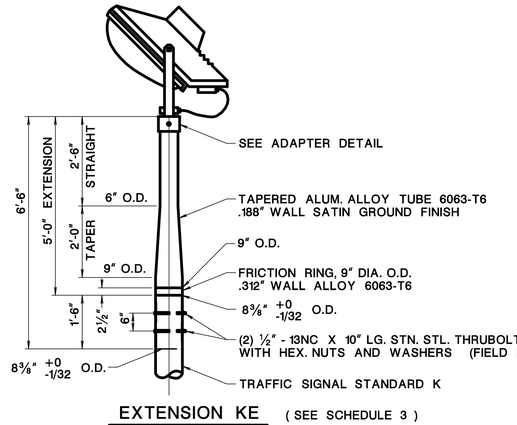
NOTE:

THE YOKE SHALL BE DESIGNED TO BE INSTALLED ON MOUNTING ADAPTER. A POSITIVE LOCKING DEVICE SHALL BE PROVIDED FOR VERTICAL ADJUSTMENT SUCH THAT WIND LOAD OF 80 MPH WITH A 1.3 GUST FACTOR WILL NOT AFFECT THE VERTICAL POSITION OF THE LUMINAIRE.




LIGHTING STANDARD




EXTENSION KE ( SEE SCHEDULE 3 )

## NOTES:

A. FURNISH CERTIFICATIONS THAT ALUMINUM ALLOY AND TEMPER SHOWN MEET REQUIREMENTS AS SET FORTH BELOW OR AS OTHERWISE INDICATED ON DRAWING.

ALUMINUM CASTINGS, PERMANENT OR SAND MOLD FOR CLAMPS,AND SHOE BASE,TRADE DESIGNATION 356-T6.

B. FURNISH WITH EACH POLE: (EXCEPT FOR SCHEDULE 3)
(4) 1"DIA. X 3 3/4" LONG HEX HEAD BOLTS, ASTM A-193, GRADE B8,8THREADS PER INCH, CLASS 2 FREE FIT., STAINLESS STEEL
(4)- 2 1/2" O.D.X 1 1/16"I.D.X 3/8"THICK OR 2 3/4" O.D. X 1 1/16 "I.D. X 1/2"THICK LARGE HEAVY STEEL FLATWASHERS GALVANIZED PER ASTM B695,CLASS 50.
(4) 1" DIA. PLAIN WASHERS, STAINLESS STEEL
(4) 1" DIA. LOCK WASHERS, STAINLESS STEEL
(4) 1"-8NC-2 HEX NUTS, STAINLESS STEEL
(4) BOLT COVERS ALUMINUM ALLOY 443.0 OR 360 WITH STAINLESS STEEL SCREWS.

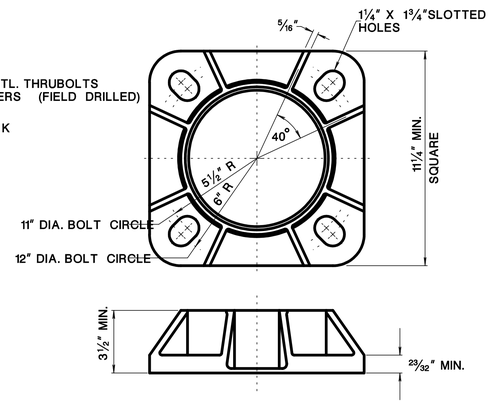
C. ALUMINUM LIGHTING STANDARD SHALL BE DESIGNED TO ADEQUATLY SUPPORT A LUMINAIRE OF THE WEIGHT AND PROJECTED AREA AS CALLED FOR IN SCHEDULE 1 OR 2 ON THIS SHEET.

D. UNTAPERED 8" DIA. SECTION ON THE 37' SHAFT WILL BE PERMITTED, BUT UNTAPERED SECTION SHALL NOT EXCEED 25' MAXIMUM FROM BASE OF THE SHAFT.

E. A REINFORCED FLUSH HANDHOLE IS REQUIRED ON ALL S.B. LIGHTING STANDARDS AND SHALL BE LOCATED TWO FEET FROM BASE OF SHAFT. WHEN LOCATED BEHIND CHAIN LINK FENCE, THE HAND HOLE SHALL BE LOCATED ONE FOOT ABOVE THE FENCE. A FIBERGLASS HANDHOLE COVER SHALL BE USED. IT MUST BE MODIFIED FOR UV RESISTANCE. GROUND STUD (SEE L-01) SHALL BE INSTALLED OPPOSITE HAND HOLE.

F. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. FOR FATIGUE IS WAVED.

G. DO NOT INSTALL STANDARD WITHOUT ARM.




SHOE BASE DETAIL

SCHEDULE 1

| N.J. STANDARD SHAFT DIMENSIONS | | | MAX. LUMINAIRE SIZE | |
|---|---|---|---|---|
| TAPER | MIN. WALL THICKNESS | LENGTH | WEIGHT | PROJ. AREA SQ. FT. |
| 8 X 6 | .250" | 37' | 100# | 3.8 |
| 8 X 6 | .250" | 37' | 100# | 3.8 |
| 8 X 6 | .188" | 22' | 60# | 3.0 |
| 8 X 6 | .188" | 22' | 60# | 3.0 |

SCHEDULE 2

| N.J. STANDARD SHAFT DIMENSIONS | | | MAX. LUMINAIRE SIZE | |
|---|---|---|---|---|
| TAPER | MIN. WALL THICKNESS | LENGTH | WEIGHT | PROJ. AREA SQ. FT. |
| 8 X 6 | .250" | 42' | 100# | 3.8 |

SCHEDULE 3

| N.J. STANDARD SHAFT DIMENSIONS | | | MAX. LUMINAIRE SIZE | |
|---|---|---|---|---|
| TAPER | MIN. WALL THICKNESS | LENGTH | WEIGHT | PROJ. AREA SQ. FT. |
| 9 X 6 | .188" | 6'-6" | 60# | 3.0 |
| 9 X 6 | .188" | 6'-6" | 60# | 3.0 |

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

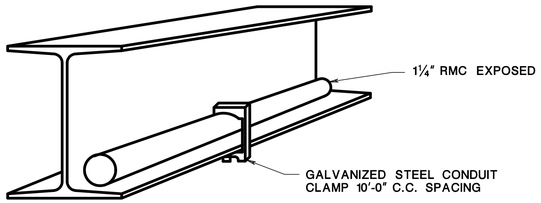
N.T.S.

LIGHTING STANDARD ALUMINUM

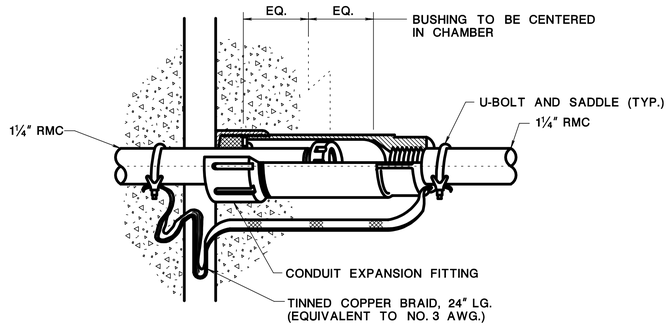
L-1807

BDC07D-03

REFERENCE



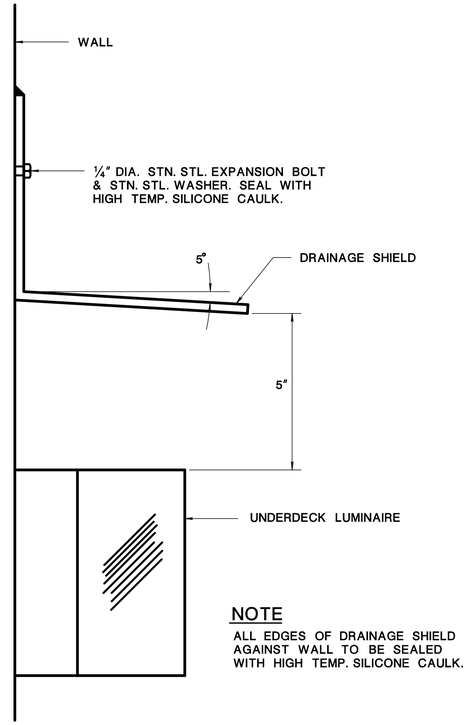

CONDUIT MOUNTING ON BRIDGE MEMBER




TYPICAL DETAIL
CONDUIT EXPANSION FITTING

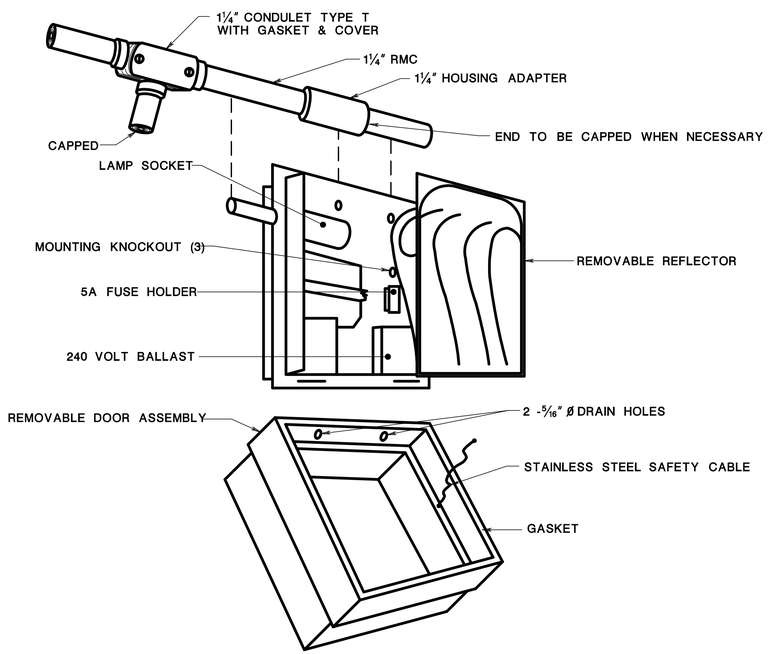
NOTES:

1. EXPANSION FITTING TO BE INSTALLED AT ALL EXPANSION JOINTS
2. RIGID METALLIC CONDUIT AND FITTING SHALL BE HOT-DIPPED GALVANIZED.

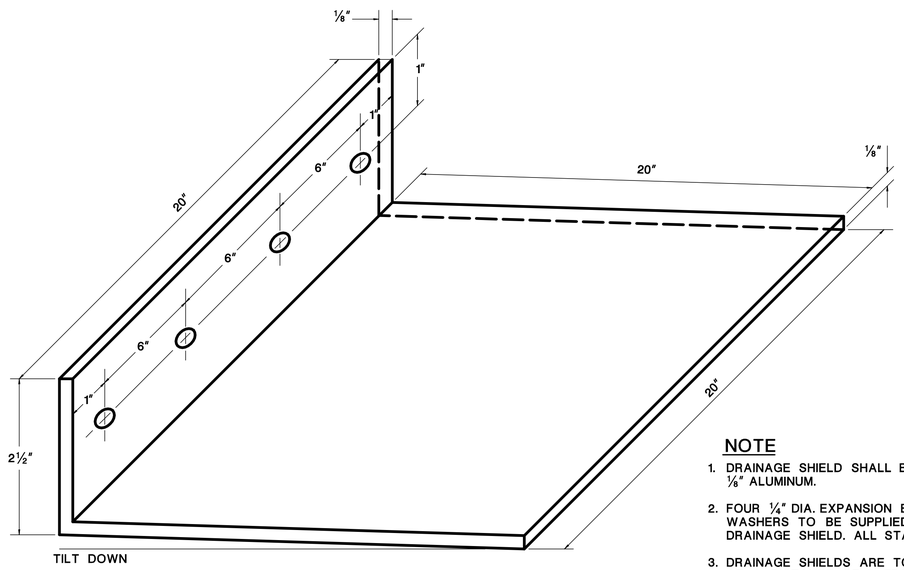



NOTE
ALL EDGES OF DRAINAGE SHIELD AGAINST WALL TO BE SEALED WITH HIGH TEMP. SILICONE CAULK.

TYPICAL DRAINAGE SHIELD INSTALLATION




TYPICAL ULA MOUNTING




DRAINAGE SHIELD DETAIL

NOTE
1. DRAINAGE SHIELD SHALL BE MADE OF ⅛" ALUMINUM.
2. FOUR ¼" DIA. EXPANSION BOLTS AND WASHERS TO BE SUPPLIED WITH EACH DRAINAGE SHIELD. ALL STAINLESS STEEL.
3. DRAINAGE SHIELDS ARE TO BE INSTALLED AT A DISTANCE OF 5" FROM TOP OF UNDERDECK LUIMINAIRE.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

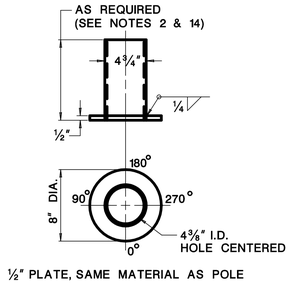
ELECTRICAL DETAILS
N.T.S.

DETAIL OF TYPICAL UNDERDECK LIGHTING INSTALLATION

L-1907

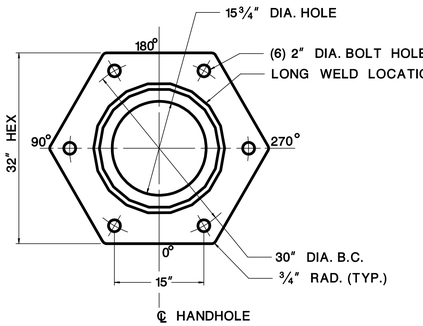
BDC07D-03

REFERENCE

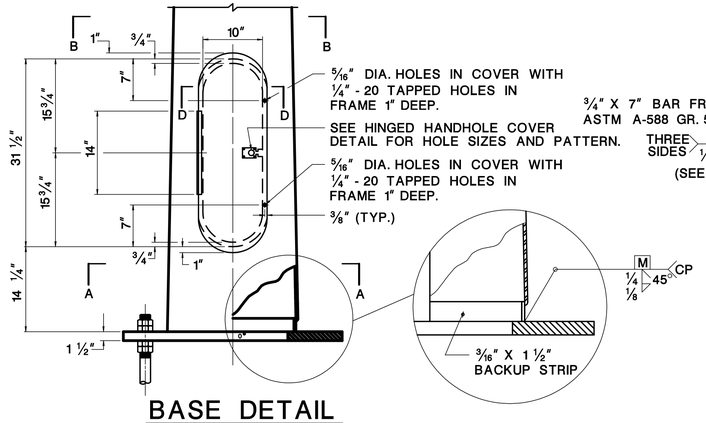



½" PLATE, SAME MATERIAL AS POLE

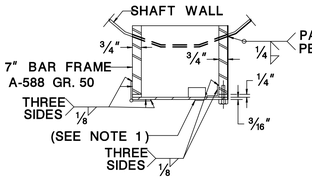
SKETCH "B"




SECTION A-A



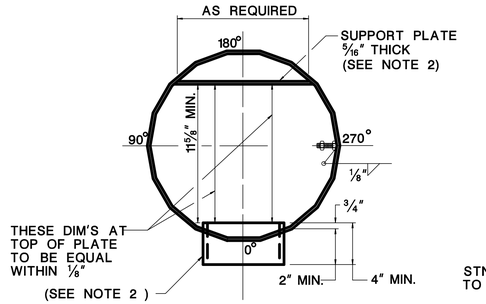

BASE DETAIL



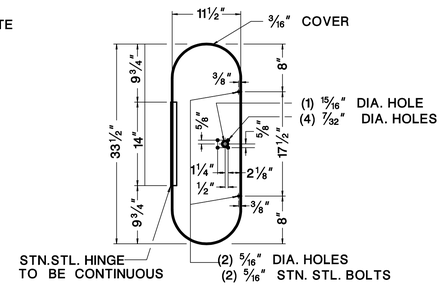

SECTION D-D

NOTES:

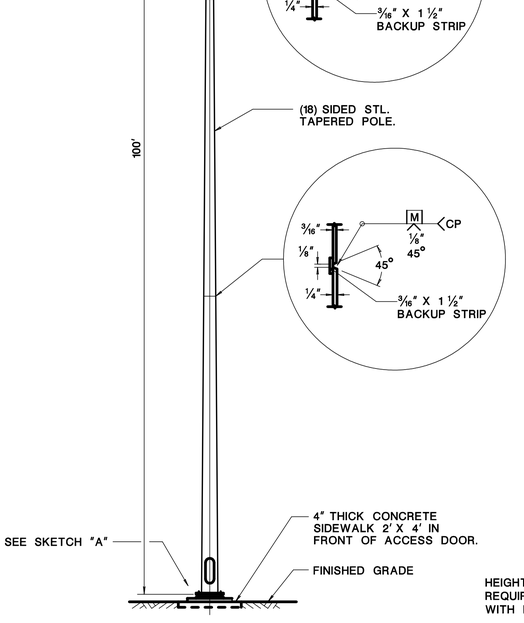
1. LOCK SHALL BE SUB-TREASURY LOCK NO. 03575 AND KEYED ALIKE FOR KEY NO.5 AVAILABLE FROM THE AMERICAN HARDWARE CO. OF NEW BRITAIN, CONN. OR A TUMBLER LOCK NO. 15481 ARS AND KEYED ALIKE FOR KEY NO.2 AVAILABLE FROM CORBIN LOCK CO. NEW BRITAIN, CONN.
2. DETAILS ARE SCHEMATIC. MODIFICATIONS ARE PERMITTED. ALL COMPONENTS MUST BE APPROVED BY THE NEW JERSEY DEPARTMENT OF TRANSPORTATION BEFORE ACCEPTANCE OF ONE UNIT.
3. NEOPRENE DOOR GASKET IS REQUIRED.
4. TOWER LIGHTING INSTALLED IN THE AREA BEYOND RECOVERY DISTANCE OR BEHIND THE GUIDE RAIL.
5. A GALVANIZED SCREEN, DOUBLE RAP AROUND THE BASE OF POLE IS REQUIRED.
6. THE GALVANIZED SCREEN SHALL HAVE NO MORE THAN ½" OPENINGS AND HELD TOGETHER WITH STAINLESS STEEL NUTS, BOLTS AND FLAT WASHERS.
7. ALL WELDING IS TO BE DONE WITH E-80T-1 WIRE.
8. THE PIPE TENON SHALL BE WEATHERING STEEL COMPOSITION CONFORMING TO ASTM A588.
9. SLIP JOINTS ARE NOT PERMITTED IN THE MANUFACTURE OF THE UNIT.
10. ALL MISCELLANEOUS HARDWARE INCLUDING NUTS AND BOLTS ARE STAINLESS STEEL CONFORMING TO AISI 300 SERIES.
11. BOLT HEADS AND NUTS ARE HEXAGONAL.
12. 2 LEVELING HEX NUTS, 2 HOLD DOWN HEX NUTS AND ONE FLATWASHER PER ANCHOR BOLT.
13. GROUTING UNDER THE POLE IS NOT PERMITTED.
14. MANUFACTURER SHALL DETERMINE THE PROPER LENGTH TO PROVIDE A POSITIVE SEAT OF THE HEAD FRAME ASSEMBLY.
15. EACH SECTION SHALL HAVE ONLY ONE LONGITUDINAL SEAM.
16. ANCHOR BOLT MATERIAL SHALL BE ASTM A36, M55, WITH A 55,000 YIELD MIN.



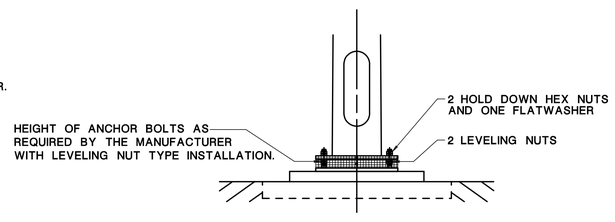

SECTION B-B



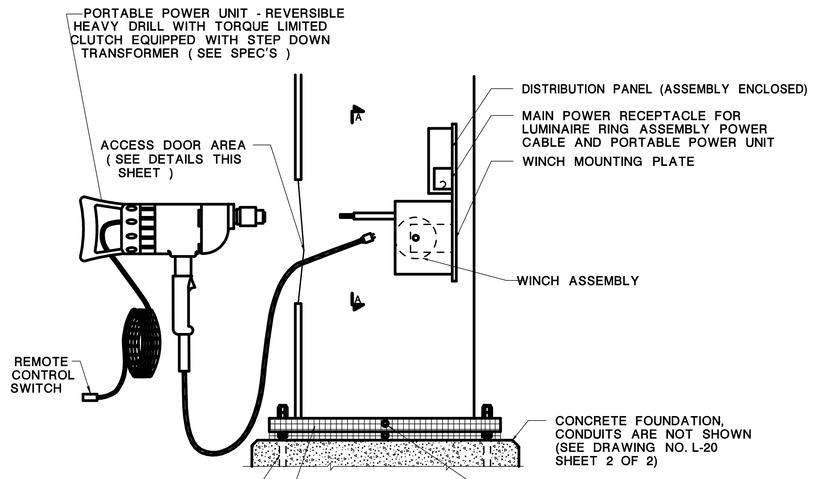

HINGED HANDHOLE COVER



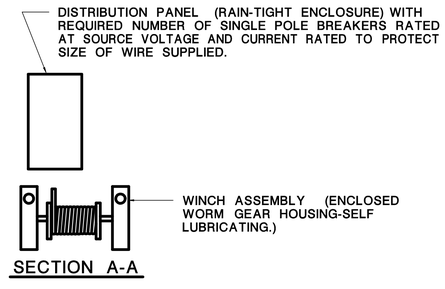

ELEVATION




SKETCH "A"




TOWER BASE DETAIL




SECTION A-A

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

N.T.S.

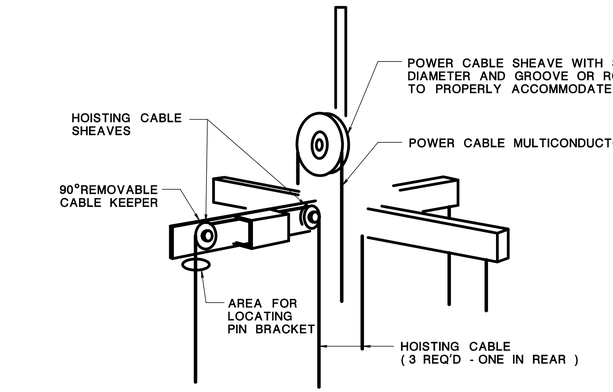
TOWER LIGHTING

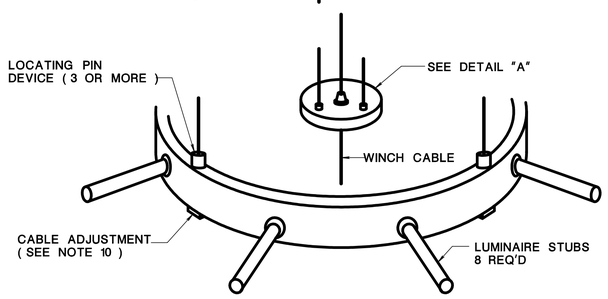
L-2007

SHEET 1 OF 2

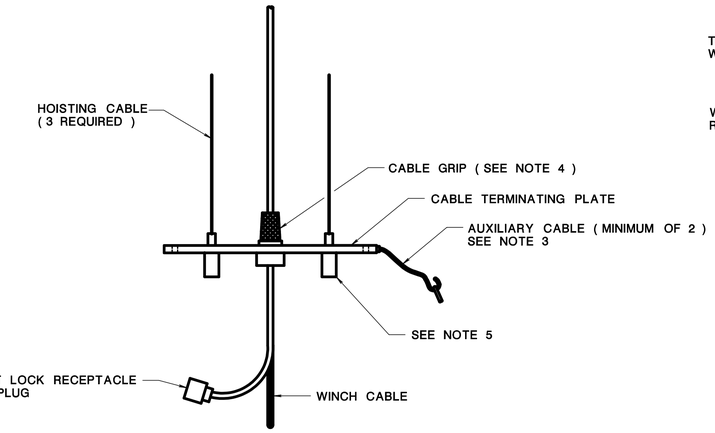
BDC07D-03

REFERENCE



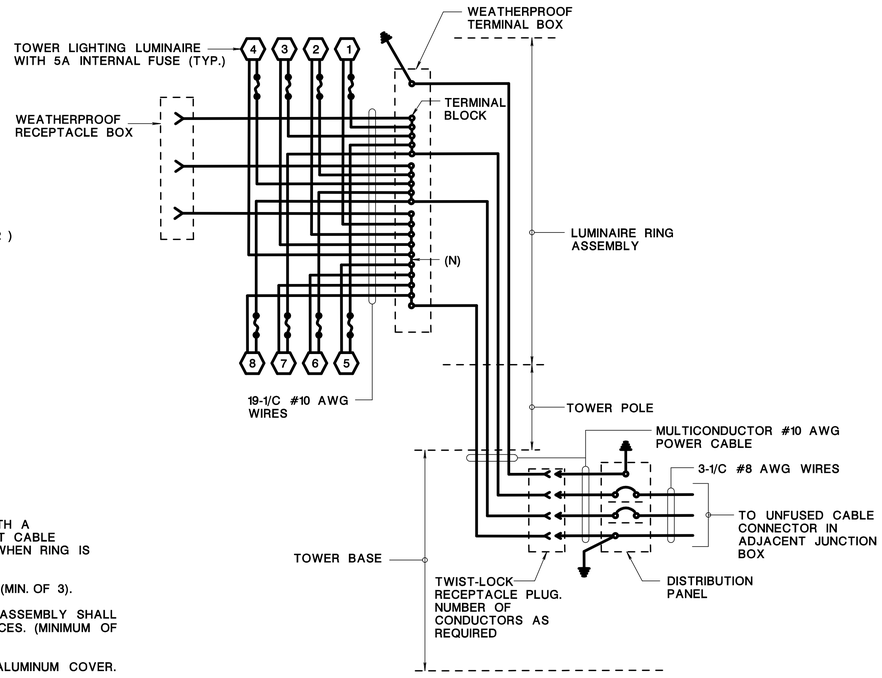

## LUMINAIRE RING ASSEMBLY



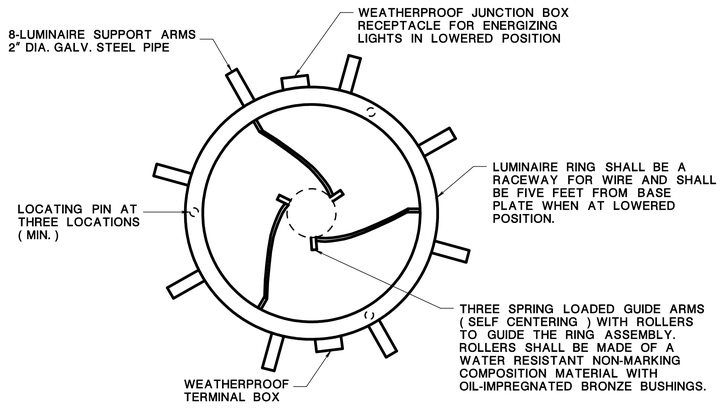

## DETAIL "A"

NOTES:

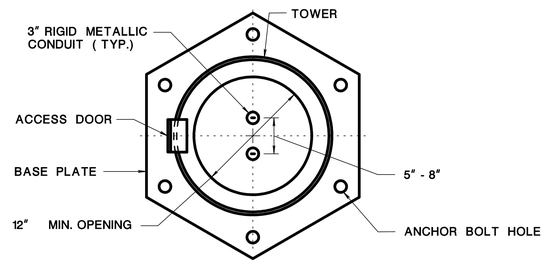
1. LIGHTING DISTRIBUTION MUST BE PER NEW JERSEY DEPARTMENT OF TRANSPORTATION SPECIFICATION EB-LHPS-4 AND MUST BE APPROVED BY THE DEPARTMENT
2. ARROW ON GENERAL PLANS DENOTES ORIENTATION OF LIGHTING DISTRIBUTION REQUIRED FOR POSITIONING OF LUMINAIRES. ARROW DIRECTIONS ARE SHOWN FOR EACH TOWER ASSEMBLY ON RESPECTIVE PLAN SHEET.
3. A BOTTOM LOCKING DEVICE WILL BE PROVIDED TO REMOVE TENSION FROM THE WINCH SUBJECT TO THE DEPARTMENT APPROVAL.
4. THE POWER CABLE SHALL BE PROVIDED WITH AN APPROVED STRAIN RELIEF DEVICE.
5. EACH HOISTING CABLE SHALL BE PROVIDED WITH A SPRING LOADED SHOCK ABSORBER TO PREVENT CABLE STRETCH DUE TO MOVEMENT OF THE TOWER WHEN RING IS IN THE UPPER POSITION.
6. THERE SHALL BE SPRING LOADED GUIDE ARMS (MIN. OF 3).
7. THE LUMINAIRE RING ASSEMBLY AND SUPPORT ASSEMBLY SHALL BE PROVIDED WITH SUITABLE POSITIONING DEVICES. (MINIMUM OF THREE (3) LOCATING PINS.)
8. HEAD ASSEMBLY WILL BE PROVIDED WITH AN ALUMINUM COVER.
9. THE ONLY OPENINGS ON THE HEAD ASSEMBLY SHALL BE THE HOLES THROUGH WHICH THE LUMINAIRE RING HOISTING CABLES AND POWER CABLE PASS.
10. ALL CABLES SHALL BE ADJUSTED FROM THE ACCESS DOOR.



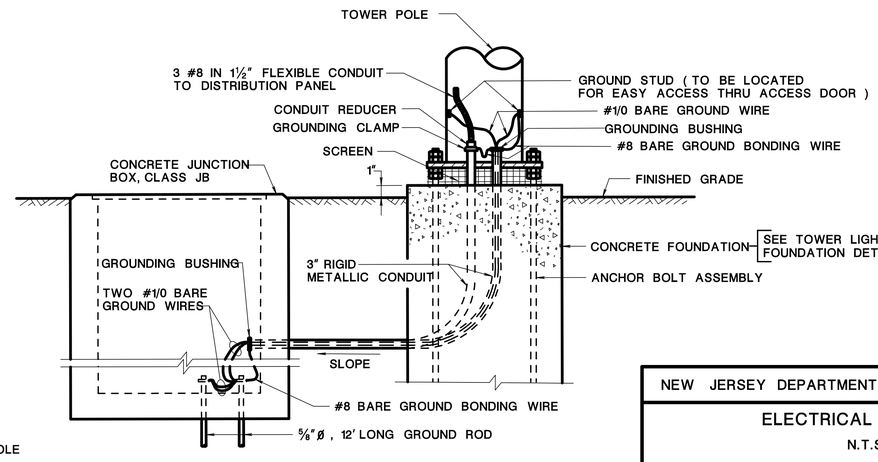

## TYPICAL TOWER LIGHTING STANDARD DIAGRAM




## LUMINAIRE RING ASSEMBLY DETAIL




## BASE PLATE AND CONDUIT INSTALLATION DETAILS




## TOWER INSTALLATION AND DETAILS

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ELECTRICAL DETAILS

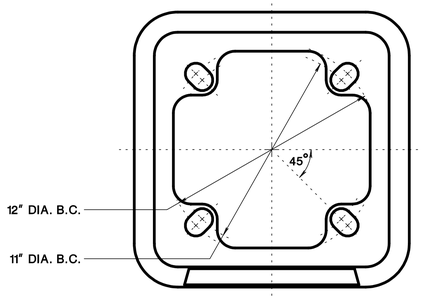
N.T.S.

TOWER LIGHTING

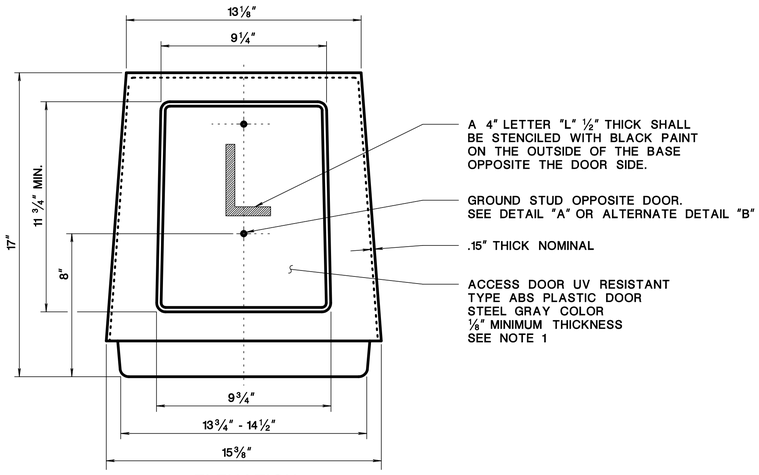
L-2007

SHEET 2 OF 2

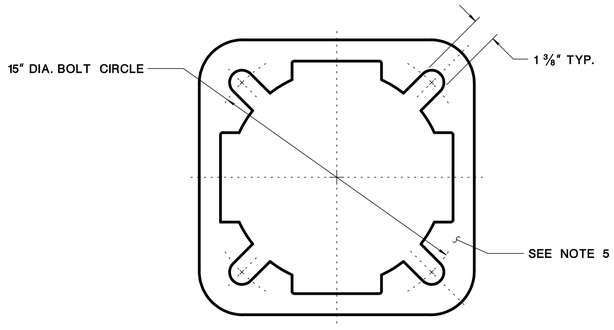
BDC07D-03



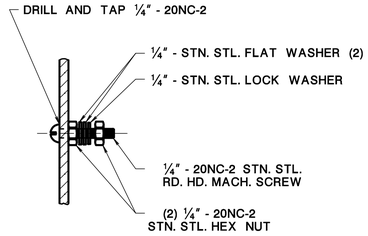

TOP VIEW




ELEVATION



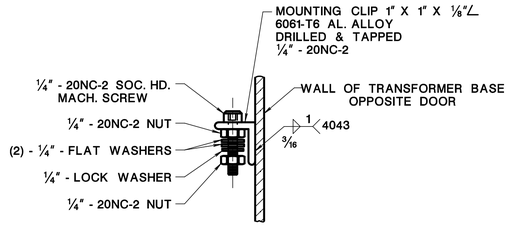

PLAN VIEW OF BASE




DETAIL "A"

GROUND STUD DETAIL

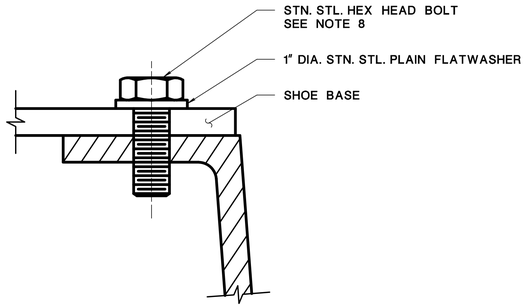
OPPOSITE DOOR OPENING




ALTERNATE DETAIL "B"

GROUND STUD DETAIL

OPPOSITE DOOR OPENING




BOLTING DETAIL

## NOTES

1. ATTACH DOOR TO BASE WITH AN APPROVED VANDAL RESISTANT LOCKING DEVICE USING A ¼" OR ⅜" STN. STL. GRADE B8 SOCKET HD. CAP SCREW. AS AN ALTERNATE, A FIBERGLASS DOOR WITH UV INHIBITERS MAY BE UTILIZED.
2. HOLE SHALL BE OF SUFFICIENT DIAMETER TO ACCEPT 1" DIAMETER BOLTS.
3. FURNISH CERTIFICATIONS THAT ALUMINUM ALLOY AND TEMPER SHOWN MEET REQUIREMENTS AS SET FORTH BELOW OR AS OTHERWISE INDICATED ON DRAWING. ALUMINUM CASTINGS, PERMANENT OR SAND MOLD FOR TRANSFORMER BASE TRADE DESIGNATION 356-T6.
4. ALL DIMENSIONS OF CASTINGS SHALL BE ±1/32".
5. UNDERSIDE OF TRANSFORMER BASE SHALL BE COATED WITH BITUMINIOUS PAINT.
6. DESIGN AND MANUFACTURE ACCORDING TO THE 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS. UTILIZE APPENDIX C OF THE SPECIFICATIONS FOR IDENTIFICATION OF LOADING CRITERIA. DESIGN WIND SPEED IS 80 MPH. DESIGN FOR FATIGUE IS WAVED.
7. THE LIGHTING STANDARD ASSEMBLY MUST BE CERTIFIED TO MEET 1985 AASHTO BREAKAWAY CRITERIA FOR STRUCTURAL SUPPORTS UTILIZING A TYPE APPROVED TRANSFORMER BASE.
8. DIAGRAM IS FOR METHOD OF INSTALLATIOIN.
9. THE MANUFACTURER SHALL SUPPLY ALL OTHER HARDWARE WHICH HE DEEMS NECESSARY TO INSTALL THE BASE AS WELL AS INSTRUCTION FOR INSTALLATION.

REFERENCE

NEW JERSEY DEPARTMENT OF TRANSPORTATION

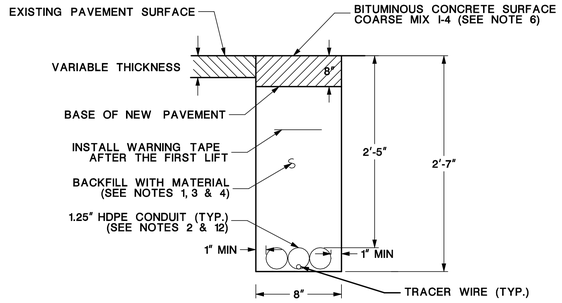
ELECTRICAL DETAILS

N.T.S.

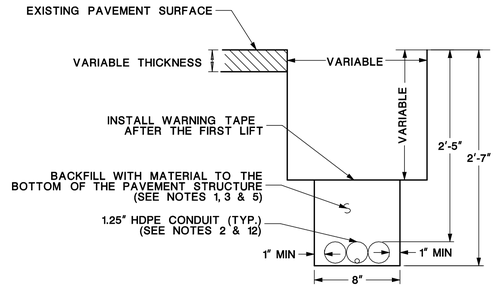
LIGHTING ALUMINUM TRANSFORMER BASE PART No. TB-17 (BREAKAWAY)

L-2107

RDC070-03



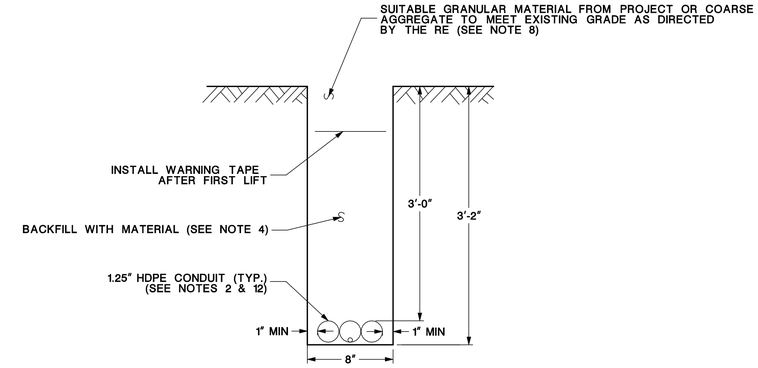

IN BITUMINOUS SHOULDER, TRAVELED WAY OR RAMP AREA



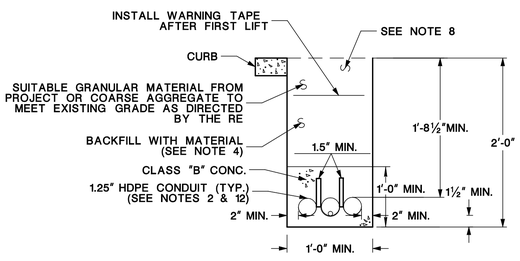

IN REHABILITATED/RECONSTRUCTED CONCRETE SHOULDER OR BITUMINOUS SHOULDER, TRAVELED WAY OR RAMP AREA

## NOTES:

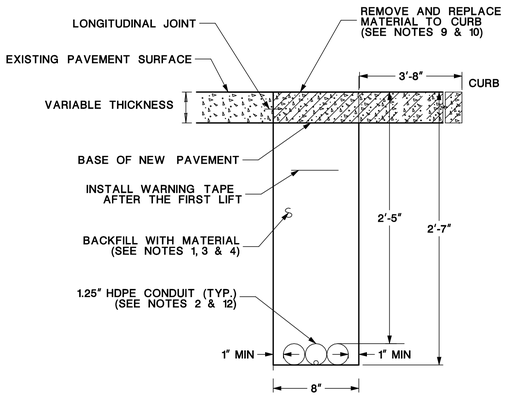
1. BEFORE BACK FILLING TRENCH, REMOVE ALL CUT DEBRIS FROM SITE.
2. CENTER THE THREE 1.25" HDPE CONDUITS IN THE TRENCH AND HOLD FIRMLY IN PLACE WHILE THE TRENCH IS BACK FILLED.
3. ENSURE THE BACK FILL MATERIAL IS COARSE AGGREGATE SIZE No. 8 OR No. 9 BROKEN STONE OR WASHED GRAVEL.
4. COMPACT THE BACK FILL MATERIAL IN EQUAL LIFTS TO A MAXIMUM OF 12" EACH MODIFIED VIBRATORY PLATE COMPACTOR, (MINIMUM OF THREE PASSES PER LIFT).
5. COMPACT THE BACK FILL MATERIAL IN ONE LIFT WITH A MODIFIED VIBRATORY PLATE COMPACTOR (MINIMUM OF THREE PASSES PER LIFT).
6. MOUND UP THE BITUMINOUS CONCRETE SURFACE COARSE MIX I-4 ABOVE THE EXISTING PAVEMENT SURFACE AND AFTER THOROUGH COMPACTION, ENSURE FINISHED GRADE IS ½" 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.




AT INTERSTATE IN GRASS AREA




BEHIND THE EDGE OF PAVEMENT IN LANDSERVICE AREA




IN CONCRETE SHOULDER

# FLEXIBLE NONMETALLIC CONDUIT INSTALLATION

BDC 07D-03

ITSD-704-01

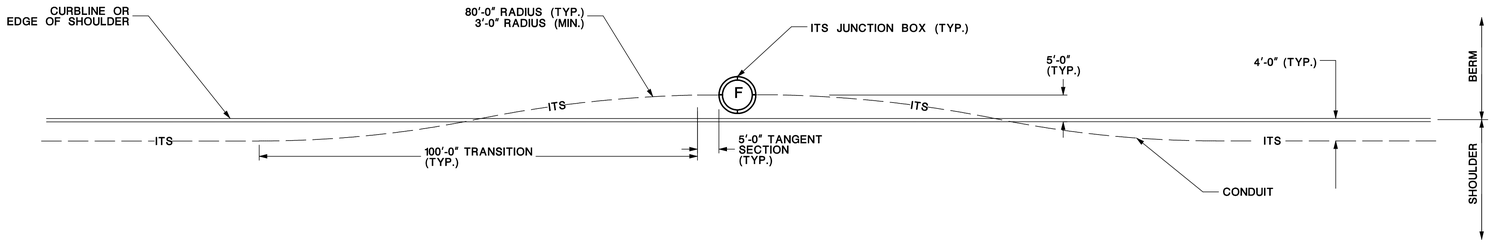
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS

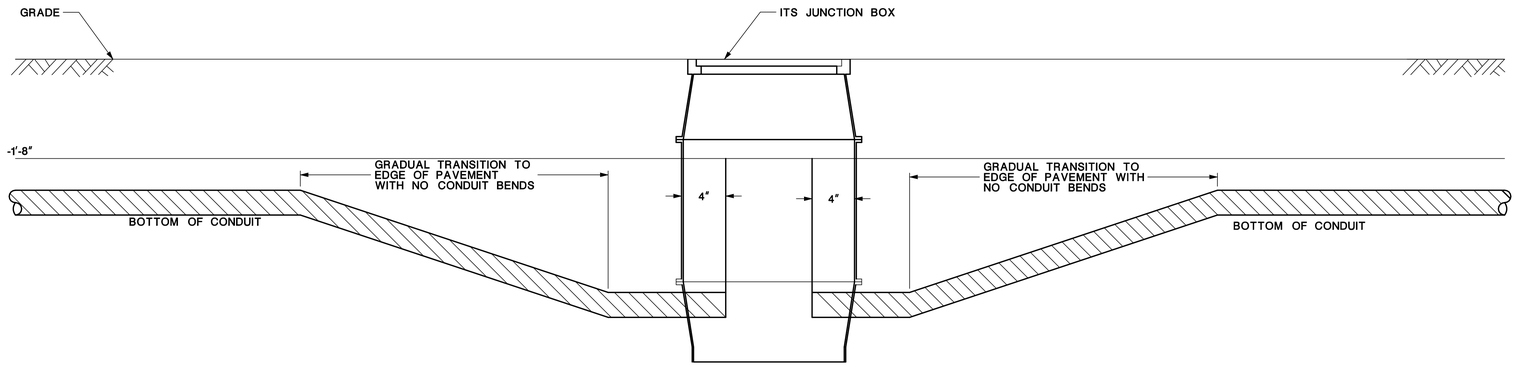
GENERAL SYSTEMS

TYPICAL FLEXIBLE NONMETALLIC CONDUIT INSTALLATION

SCALE:
NOT TO SCALE




TYPICAL CONDUIT TRANSITION




ELEVATION OF CONDUIT TRENCH AND FIBER OPTIC JUNCTION BOX

NOTES:

1. BACKFILL THE TRENCH WITHIN THE SAME DAY.

ITSD-704-02

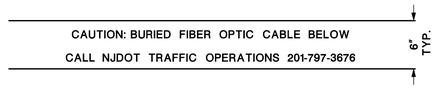
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
GENERAL SYSTEMS

TYPICAL UNDERGROUND CONDUIT, TRANSITION

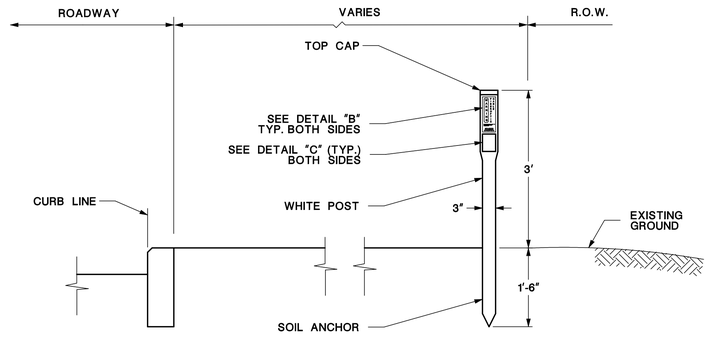
SCALE:
NOT TO SCALE

BDC 07D-03



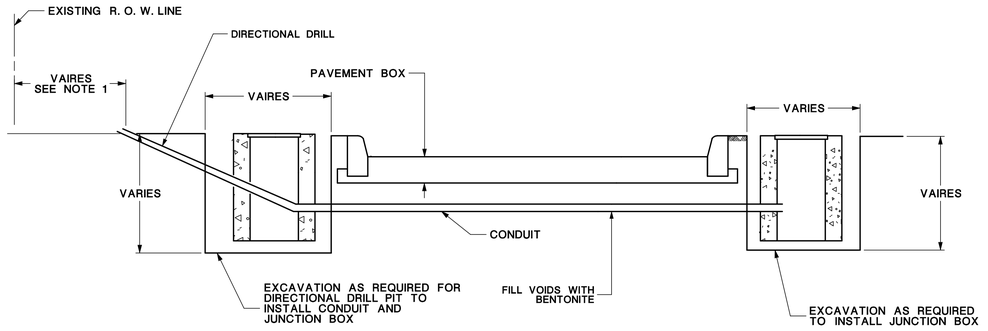

WARNING TAPE

(BLACK LETTERS ON ORANGE BACKGROUND)




DETAIL "A"

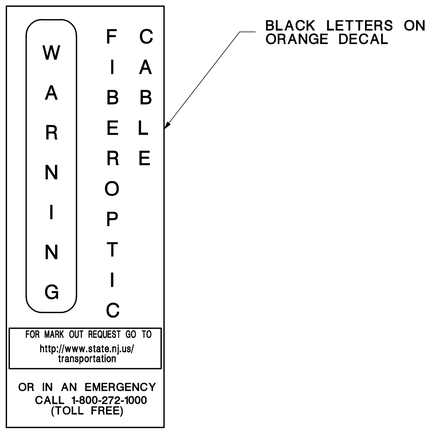
FIBER OPTIC CABLE MARKER
SPACE MARKERS 500' APART



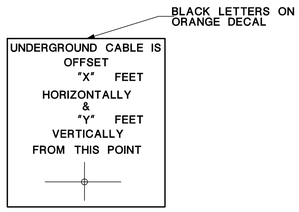

DIRECTIONAL DRILL DETAIL (NO R.O.W. RESTRICTIONS)

NOTE:

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.

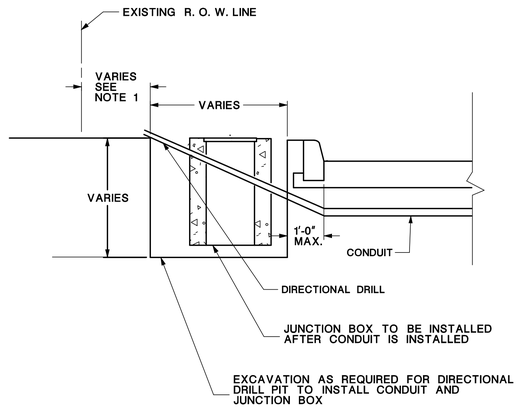



DETAIL "B"
3"x9" WARNING DECAL




DETAIL "C"

3"x9" WARNING DECAL




DIRECTIONAL DRILL (WITH R.O.W. RESTRICTIONS)

FIBER OPTIC WARNING TAPE, DECAL AND MARKER

ITSD-704-03

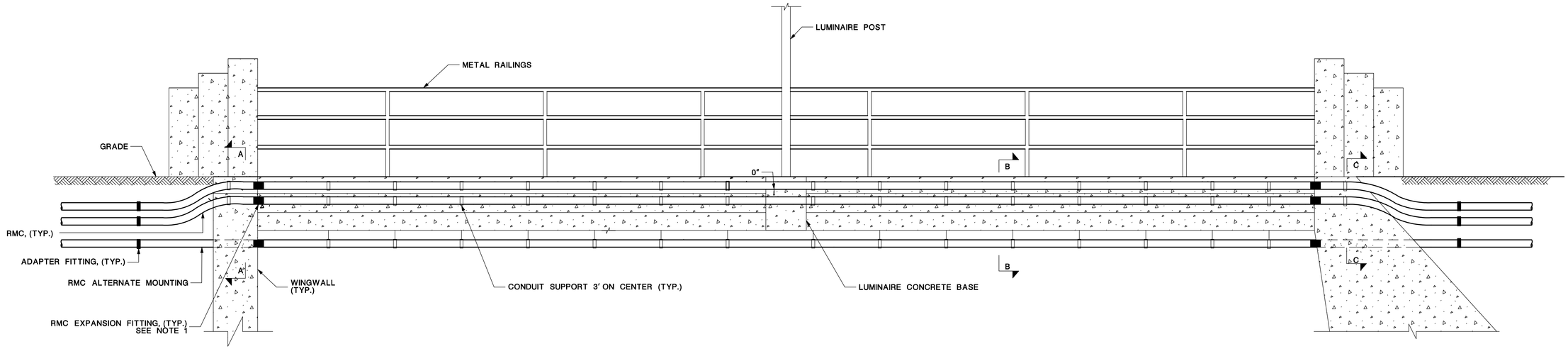
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
GENERAL SYSTEMS

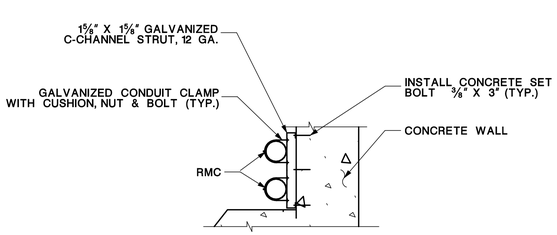
DIRECTIONAL DRILL / WARNING TAPE

SCALE:
NOT TO SCALE

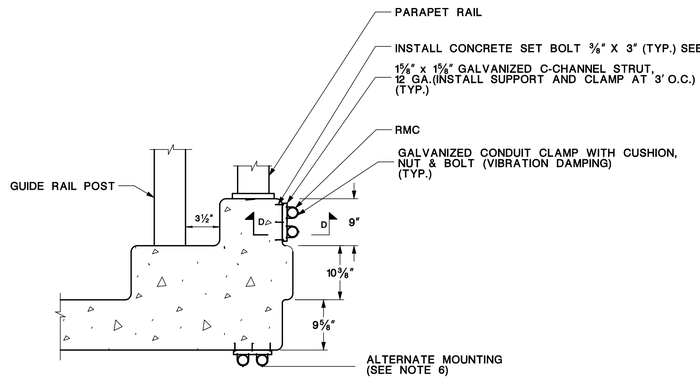
BDC 07D-03



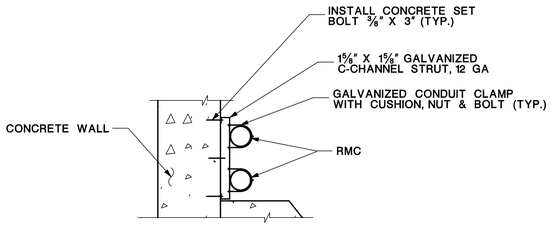

TYPICAL ELEVATION - CONDUIT INSTALLATION ON EXISTING BRIDGE / OVERPASS



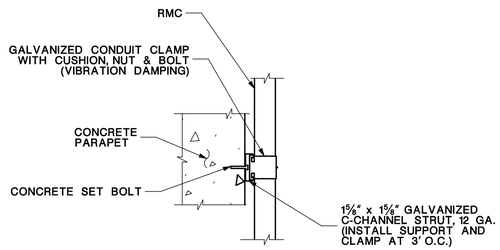

SECTION A-A




SECTION B-B




SECTION C-C




SECTION D-D

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 MANUFACTURES 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 CONFORMS TO GSA SPECIFICATION FF S-325, GROUP VII, TYPE 2.
6. UTILIZE ALTERNATE MOUNTING AT LOCATIONS, WHERE MINIMUM CLEARANCE REQUIREMENTS ARE NOT COMPROMISE.

BDC 07D-03

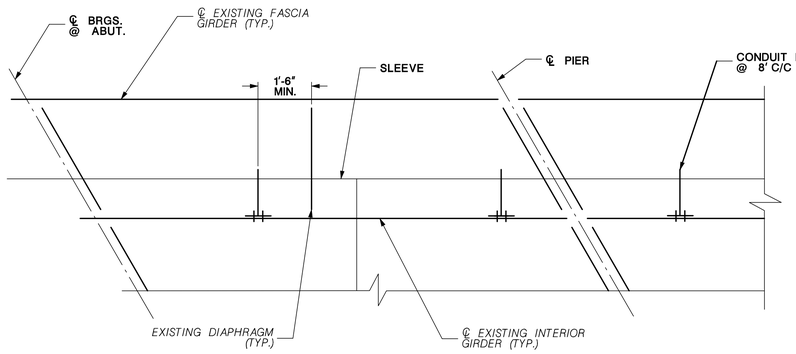
ITS- 701 - 04

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.
GENERAL SYSTEMS

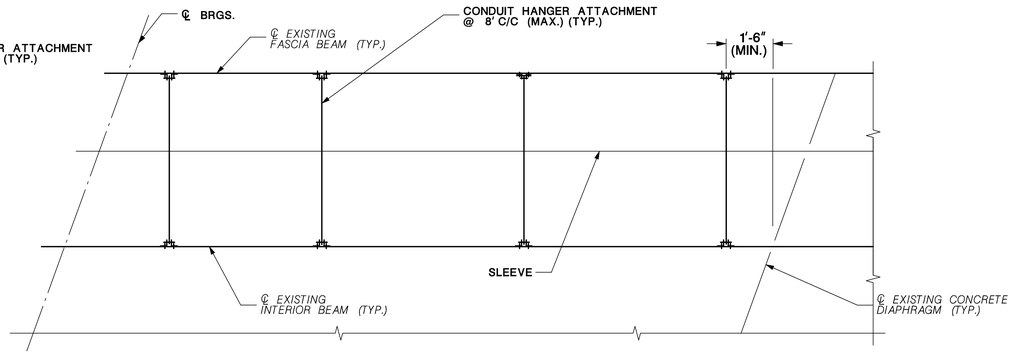
TYPICAL CONDUIT HANGER ATTACHMENTS

SHEET 1 OF 3




TYPICAL FRAMING PLAN STEEL STRUCTURE

CONDUIT HANGER ATTACHMENT ON EXISTING STRUCTURE

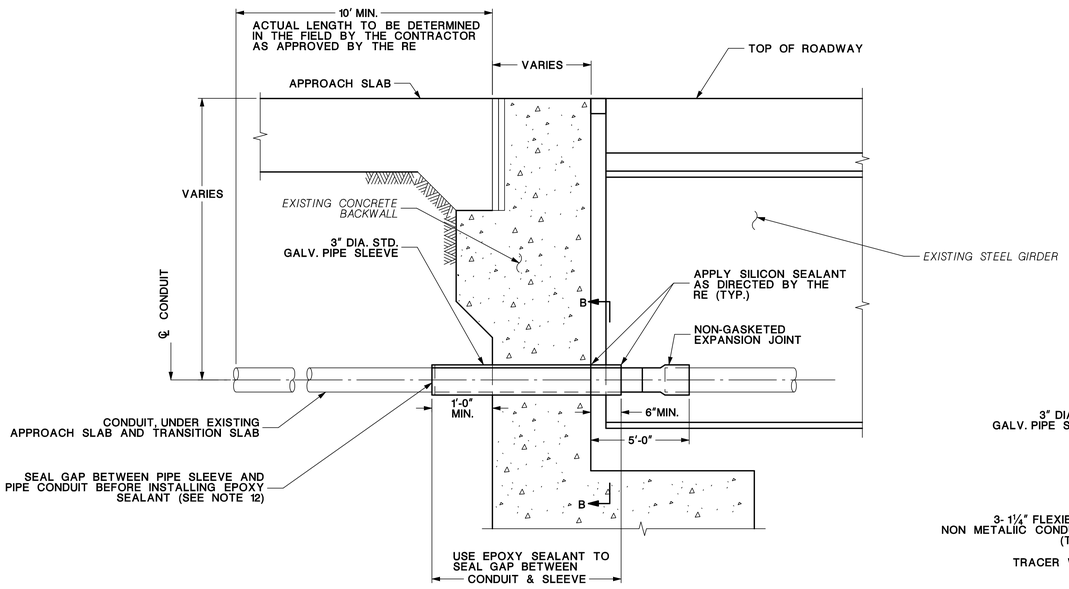



TYPICAL FRAMING PLAN PRESTRESSED CONCRETE STRUCTURE

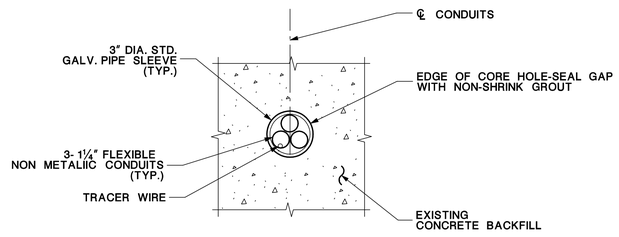
CONDUIT HANGER ATTACHMENT ON EXISTING STRUCTURE

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.




SECTION THROUGH EXISTING ABUTMENT BACKWALL




SECTION B-B

ITS- 701 - 05

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.
GENERAL SYSTEMS

TYPICAL CONDUIT HANGER ATTACHMENTS

SHEET 2 OF 3

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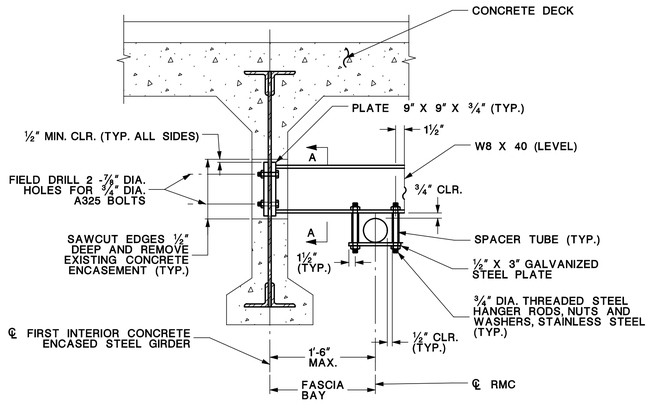
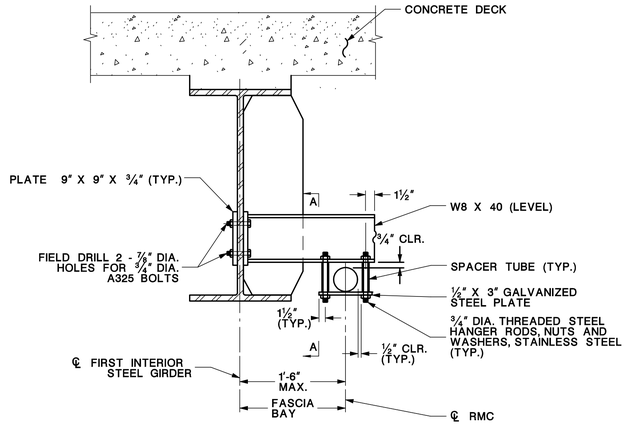
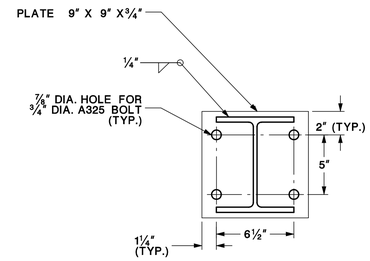


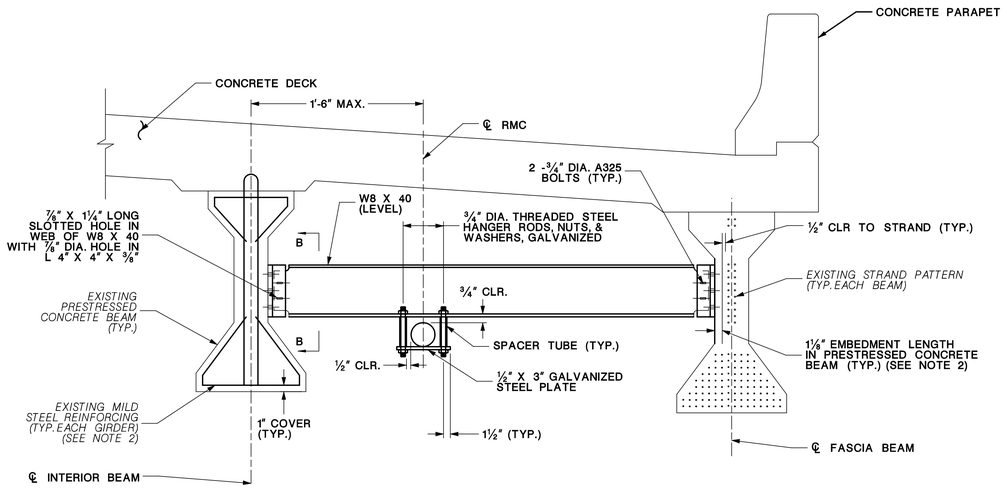

ATTACHMENT TO CONCRETE ENCASED STEEL GIRDER



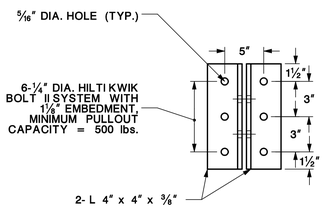

ATTACHMENT TO STEEL GIRDER




SECTION A-A




ATTACHMENT TO PRESTRESSED CONCRETE BEAM




SECTION B-B

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.

# TYPICAL EXPOSED CONDUIT ATTACHMENTS

ITS- 701 - 06

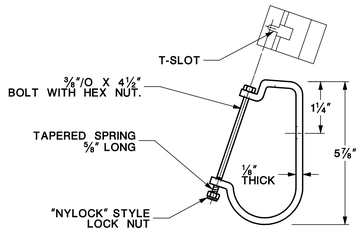
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.
GENERAL SYSTEMS

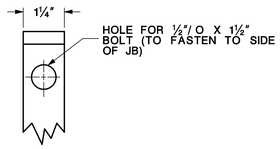
TYPICAL CONDUIT HANGER ATTACHMENTS

SHEET 3 OF 3

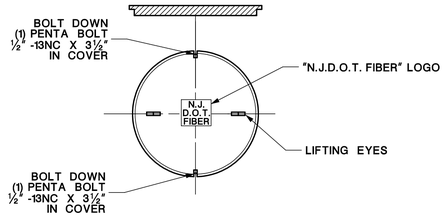
BDC 07D-03




SIDE VIEW

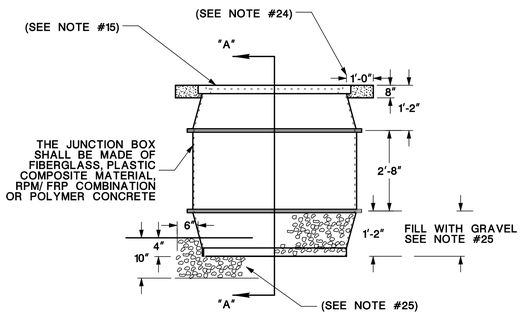



PARTIAL TOP VIEW

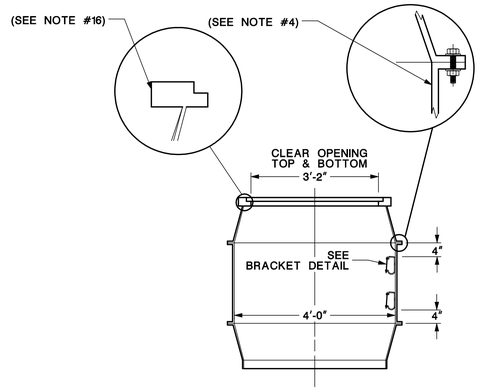



POLYMER CONCRETE COVER

COILING BRACKETS (STAINLESS STEEL)
6 EACH FOR JUNCTION BOX




FRONT




SECTION "A-A"

JUNCTION BOX ITS TYPE A

DO NOT INSTALL THIS BOX IN THE TRAVEL WAY AND SHOULDERS.

NOTES:

1. ENSURE ALL HARDWARE IS STAINLESS STEEL.
2. MOUNT THREE PAIRS OF COILING BRACKETS AT 120 DEGREES APART.
3. FASTEN EACH COILING BRACKET WITH A½" O X 1½" BOLT AND (1) HEX NUT, (2) FLAT WASHERS.
4. FACTORY ASSEMBLE THE JUNCTION BOX AND USE SILICON CAULKING FOR ALL FLANGE JOINTS.
5. AS A MINIMUM, DESIGN THE BOX ASSEMBLY FOR TIER 22 LOADING AS SPECIFIED IN ANSI / SCTE 77 2002 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY".
6. 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.
7. ENSURE THE COVER SURFACE IS SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5.
8. PERMANENTLY MOLD IDENTIFICATION OF THE COVER ON THE TOP SURFACE WITH "N.J.D.O.T. FIBER".
9. ENSURE THE COLOR OF THE COVER AND THE PART OF THE BOX THAT IS VISIBLE WHEN IT IS INSTALLED IS "CONCRETE GREY".
10. 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. PERFORM TESTING ACCORDING TO CURRENT WESTERN UNDERGROUND COMMITTEE GUIDE NO. 3.6 NON-CONCRETE ENCLOSURES.
11. ENSURE ANY POINT ON THE COVER OR BOX WITHSTANDS A 70 FT. LBS. IMPACT ADMINISTERED WITH A C-TUP ACCORDING TO ASTM D-2444.
12. ENSURE THE MATERIALS 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.
13. ENSURE THE MATERIALS ARE RESISTANT TO DIRECT FLAME AND HEAT IN ACCORDANCE WITH ASTM D635.
14. SET THE TOP OF THE POLYMER CONCRETE COVER FLUSH WITH THE TOP OF THE JUNCTION BOX AT GRADE.
15. PROVIDE A CONCRETE LOCK-IN FEATURE AROUND THE TOP OF THE BOX.
16. LIMIT THE GAP FROM THE EDGE OF THE COVER TO THE INSIDE EDGE OF THE BOX TO A MAXIMUM OF ⅛" +1/16".
17. AS AN ALTERNATE, A SINGLE SECTION OR TWO SECTION JUNCTION BOX MAY BE SUPPLIED.
18. VIBRATE AND COMPACT SOIL THOROUGHLY AROUND ENTIRE JB UP TO GRADE PER SECTION 203.03.02D.
19. 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.
20. 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.
21. INSTALL A CONCRETE COLLAR AROUND THE TOP OF THE JUNCTION BOX OF CLASS "C" CONCRETE 4" THICK.
22. 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.
23. SAND ALL CONDUIT OPENINGS AFTER THE CONDUITS ARE INSTALLED AND SEAL ALL CONDUIT ENTRANCES WITH AN EPOXY OR SILICON CAULK.
24. PROVIDE PROTECTIVE COVER WITH THE BOLT ASSEMBLY.
25. COMPACTED ¾" GRAVEL OR BROKEN STONE REQUIRED.

BDC 07D-03

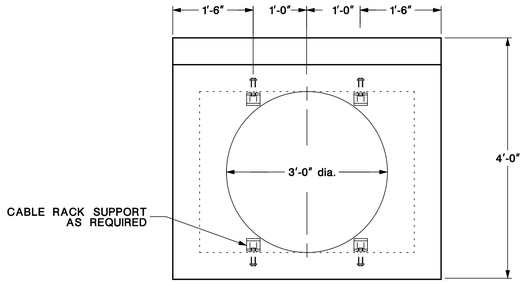
ITS- 704 - 07

NEW JERSEY DEPARTMENT OF TRANSPORTATION

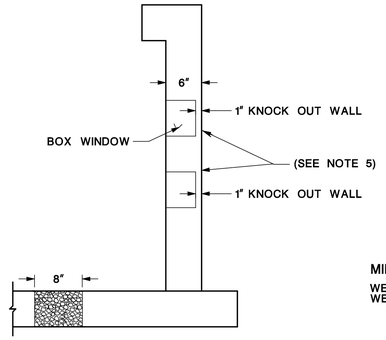
ITS DETAILS
N.T.S.

GENERAL SYSTEMS

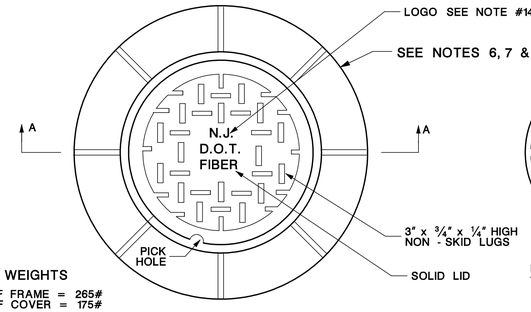
JUNCTION BOX ITS, TYPE A




TOP VIEW

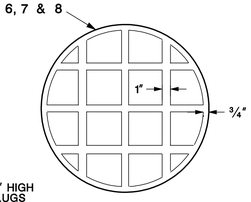



KNOCK-OUT WALL

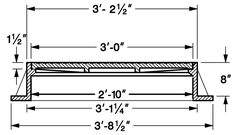



MINIMUM WEIGHTS

WEIGHT OF FRAME = 265#
WEIGHT OF COVER = 175#

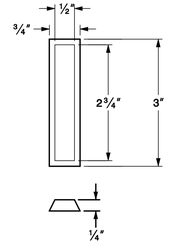



UNDERSIDE OF COVER




SECTION A-A

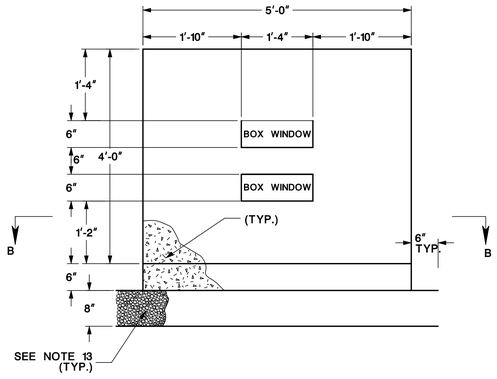
RING AND COVER



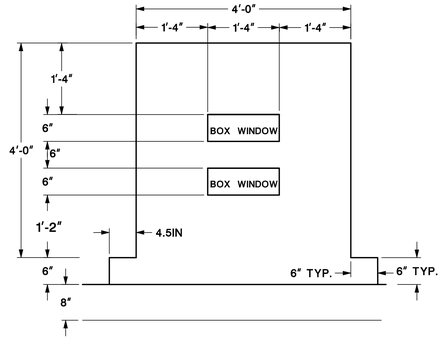

NON-SKID LUG

NOTES:

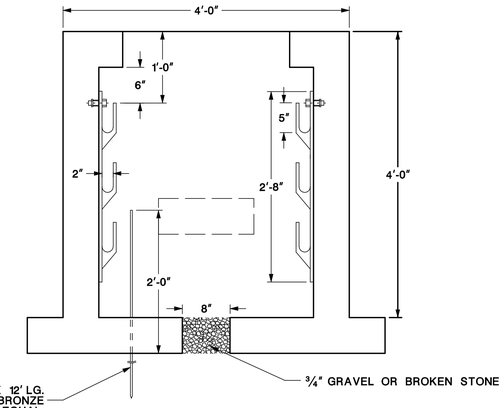
1. ENSURE THE ROADWAY JUNCTION BOX COMPLIES WITH AASHTO HS20-44 OR TANDEM 24 KIP AXLES AT 4 FOOT CENTERS, WHICHEVER GOVERNS, FOR LIVE LOADING.
2. PROVIDE SUFFICIENT STEEL REINFORCEMENT PER ASTM-A615 (GRADE 60) (FS) = 24,000 psi. TO MEET THE LOADING REQUIREMENTS.
3. CONCRETE DESIGN STRESSES: CLASSA
   a. SPECIFIED DESIGN COMPRESSIVE STRENGTH (F'C).....4,000psi
   b. CLASS DESIGN STRENGTH .....4,600psi
   (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 BRICKED AND GROUTED 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 RACKS 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.




FRONT VIEW

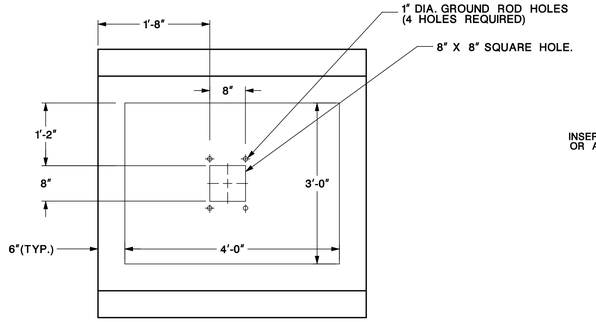



SIDE VIEW



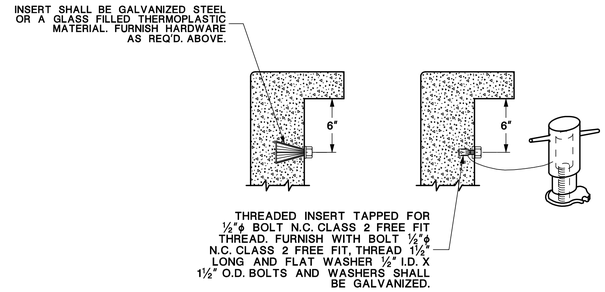

SECTION

CABLE RACK

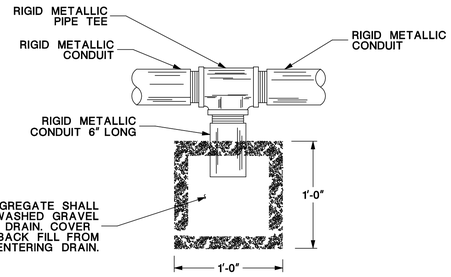



SECTION B-B

JUNCTION BOX ITS, TYPE B




CABLE RACK SUPPORTS




TYPICAL TEE DRAIN

THIS JUNCTION BOX IS FOR INSTALLATION IN THE TRAVELWAY AND SHOULDER.

BDC 07D-03

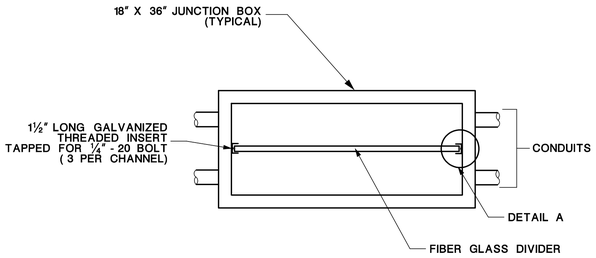
ITS- 704 - 08

NEW JERSEY DEPARTMENT OF TRANSPORTATION

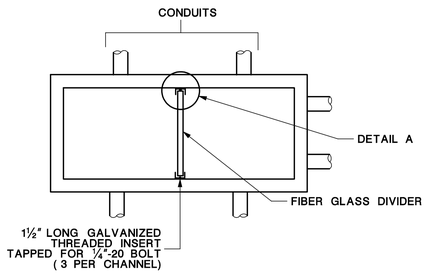
ITS DETAILS
N.T.S.

GENERAL SYSTEMS

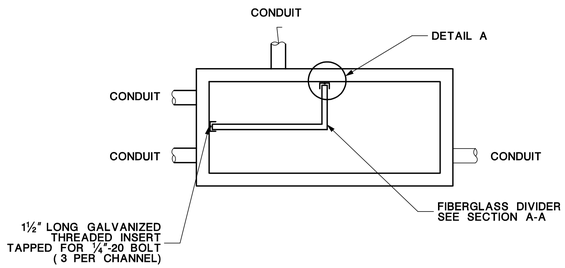
JUNCTION BOX ITS, TYPE B



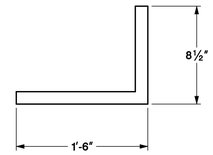

JUNCTION BOX WITH DIVIDER
(LONGITUDINAL INSTALLATION)



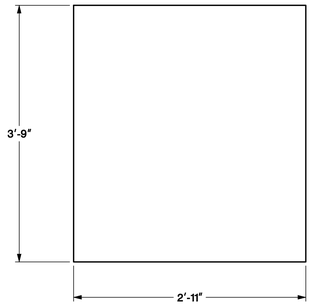

JUNCTION BOX WITH DIVIDER
(TRAVERSE INSTALLATION)



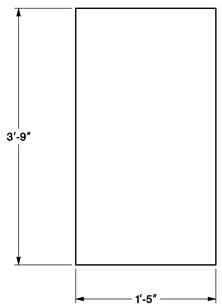

JUNCTION BOX WITH DIVIDER
(RIGHT ANGLE INSTALLATION)



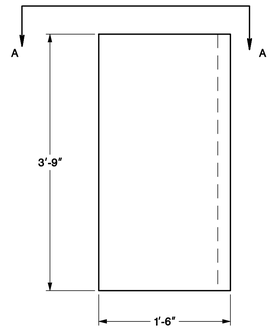

SECTION A-A



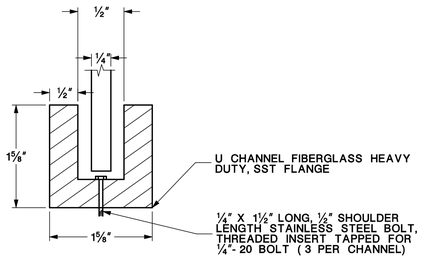

LONGITUDINAL DIVIDER




TRAVERSE DIVIDER




RIGHT ANGLE DIVIDER




DETAIL A

FIBERGLASS DIVIDER

BDC 07D-03

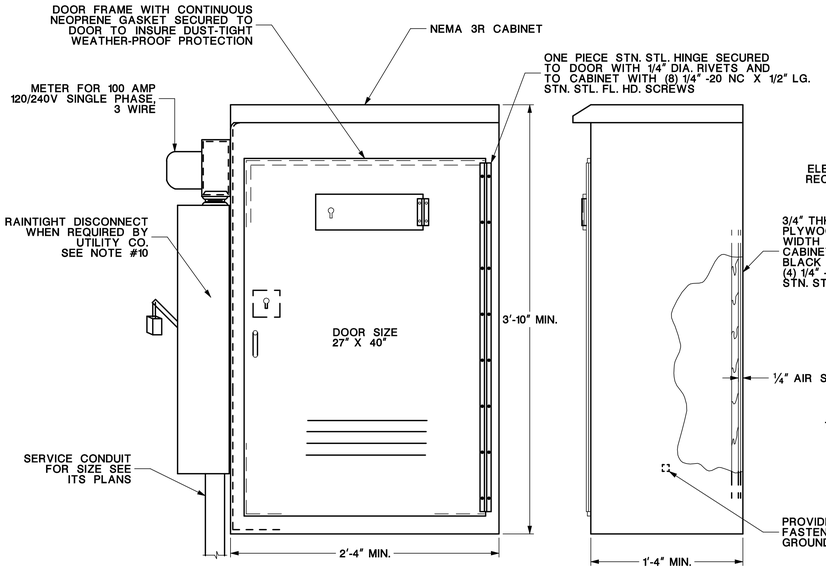
ITS- 704 - 09

NEW JERSEY DEPARTMENT OF TRANSPORTATION

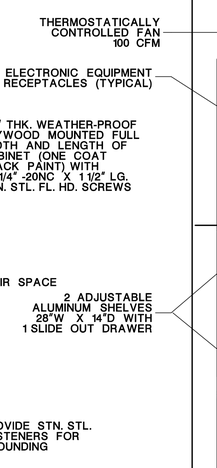
ITS DETAILS
N.T.S.

GENERAL SYSTEMS

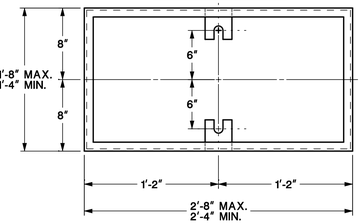
JUNCTION BOX DIVIDER




FRONT ELEVATION




SIDE ELEVATION

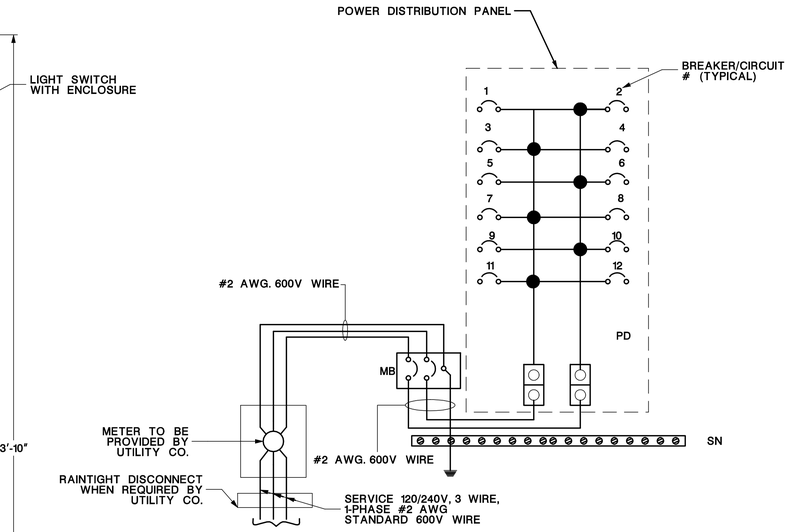



BOTTOM VIEW & ANCHOR BOLT LAYOUT

CABINET TYPE "M" - FABRICATED




CABINET EQUIPMENT LAYOUT




POWER DISTRIBUTION DIAGRAM

| BREAKERS # | BREAKER RATING FUNCTION | TRIP RATING (AMPS) |
|---|---|---|
| MB | MAIN BREAKER 60 AMP | 60 |
| 1 | RECEPTACLE INSIDE CAMERA POLE BASE | 15 |
| 2 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 3 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 4 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 5 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 6 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 7 | CONVENIENCE RECEPTACLE (GFCI) | 15 |
| 8 | FAN | |
| 9 | HEATER | |
| 10 | LIGHT | |
| 11 | SPARE | 15 |
| 12 | SPARE | 15 |

NOTES:

1. ENSURE CABINET AND CABINET DOOR IS SHEET ALUMINUM ⅛" THICK, 5052-H32 ALLOY, UNPAINTED.
2. SUPPLY WITH EACH CABINET (2) ANCHOR BOLTS ¾"- 10NC X 15" LG. STL. WITH GALVANIZED 3" COUPLING (2) STAINLESS STEEL 1½" O.D. X ⅛" THK. FLAT WASHERS AND (2) ¾" - 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 ⅛" 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.

BDC 07D-03

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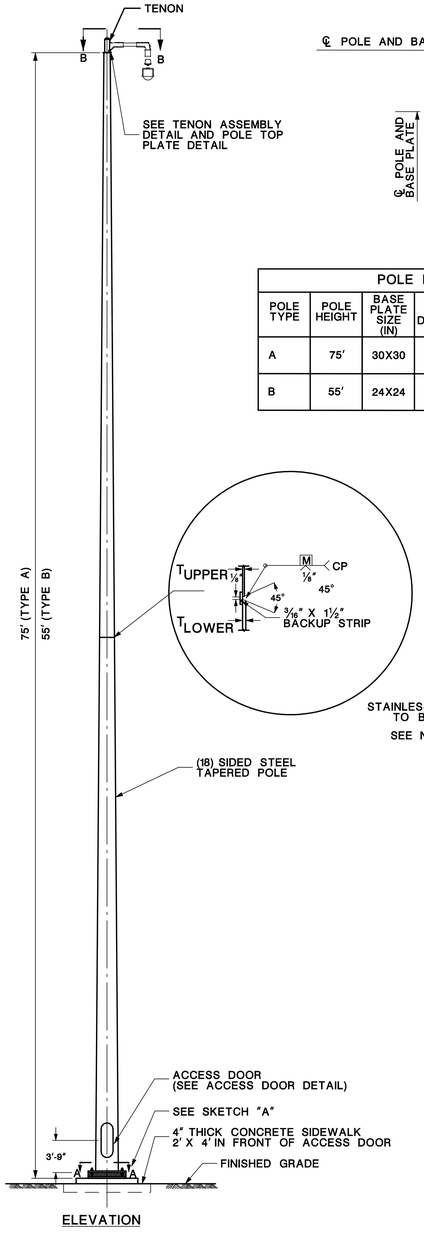
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.
GENERAL SYSTEM

CONTROLLER ITS

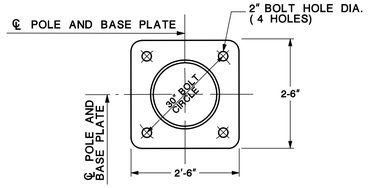



ELEVATION

## CAMERA STANDARD TYPE A, B

(SEE NOTES 3 & 6)

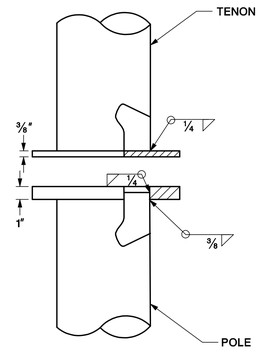


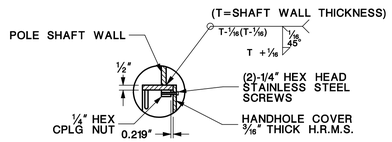




POLE BASE

SECTION A-A

| POLE BASE | | | | | |
|---|---|---|---|---|---|
| POLE TYPE | POLE HEIGHT | BASE PLATE SIZE (IN) | BOLT CIRCLE DIAMETER (IN) | BASE PLATE THICKNESS (IN) | BOLT HOLE DIAMETER (IN) |
| A | 75' | 30X30 | 30 | 2 | 2 |
| B | 55' | 24X24 | 24 | 2 | 2 |

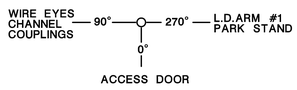


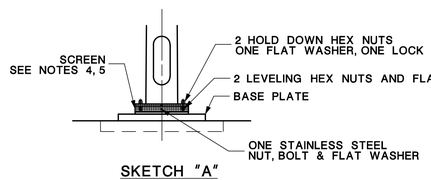

SECTION C-C



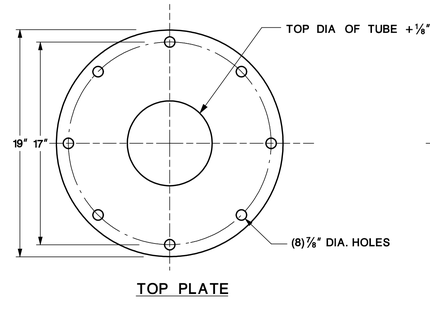

ACCESS DOOR DETAIL



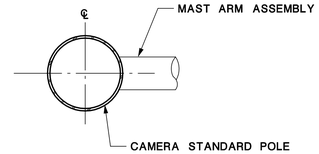

ORIENTATION VIEW



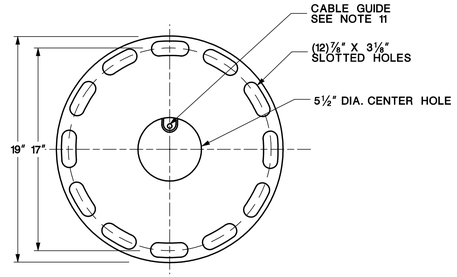

SKETCH "A"



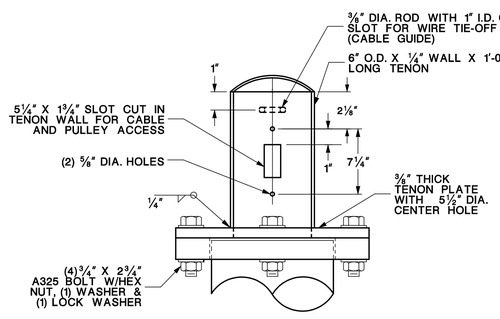

TOP PLATE



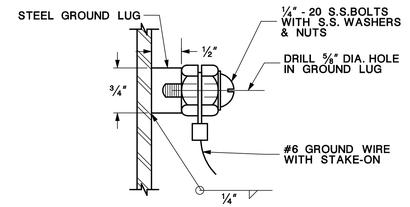

SECTION B-B



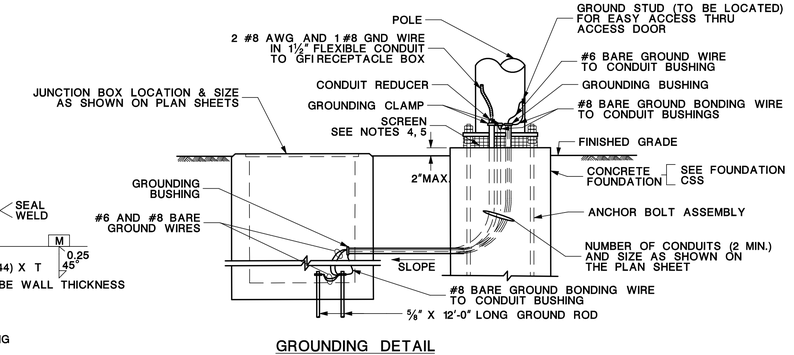

TENON PLATE



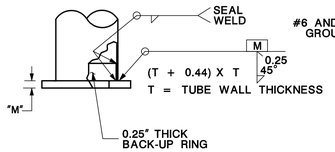

TENON ASSEMBLY DETAIL




GROUND LUG DETAIL




GROUNDING DETAIL




BASE PLATE

## DESIGN SPECIFICATIONS:

UTILIZE 2001 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS WITH THE LATEST INTERIM.

| | |
|---|---|
| DESIGN WIND VELOCITY | 80 M.P.H. (APPENDIX C) |
| DESIGN ICE LOAD | 3 P.S.F. |
| FATIGUE CATEGORY | 2 |

ENSURE ALL LOADS APPLIED TO ALL MEMBERS HAVE BEEN TAKEN INTO ACCOUNT FOR STRENGTH DESIGN, AND ALL WELDED STRUCTURAL DETAILS HAVE BEEN ANALYZED AGAINST FATIGUE.

ENSURE MAXIMUM HORIZONTAL DEFLECTION AT THE TOP OF THE POLE COMPLETELY ASSEMBLED WITH CCTV CAMERA AND ALL FIXTURES ATTACHED DOES NOT EXCEED 4 INCHES FROM THE CENTER LINE DUE TO A 40 MPH FASTEST-MILE WIND SPEED (APPENDIX C WIND PRESSURE FORMULA).

SUBMIT DETAIL PLANS AND DESIGN CALCULATIONS OF CAMERA STANDARD POLES, CAMERA WEIGHT AND PROJECTION AREA AND ANCHOR BOLT ASSEMBLY FOR APPROVAL. ENSURE THE DESIGN CALCULATIONS AND WORKING DRAWINGS ARE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY.

## MATERIALS:

TAPER THE STEEL POLE. ENSURE THE POLE AND TENON MATERIAL CONFORMS TO ASTM SPECIFICATIONS A595, GRADE A (MIN. YIELD POINT 55 KSI) OR GRADE B (MIN. YIELD POINT 60 KSI), AND ALL OTHER STEEL CONFORMS TO ASTM SPECIFICATION A709 (AASTHO M270) GRADE 36 OR GRADE 50. ENSURE ALL STEEL PLATES MEET THE REQUIREMENTS FOR NOTCH TOUGHNESS (CHARPY TESTING) ZONE 2. GALVANIZE THE ENTIRE UNIT OF POLE AND TENON PER ASTM A123 AFTER FABRICATION.

ENSURE ANCHOR BOLT MATERIALS CONFORM TO ASTM F1554, GRADE 36 OR 55. GALVANIZE THE ANCHOR BOLTS PER ASTM A153, CLASS C AFTER THREADING FOR THE FULL LENGTH OF THE BOLT.

PROVIDE STAINLESS STEEL FASTENERS (INCLUDING BOLTS, NUTS AND WASHERS) CONFORMING TO CURRENT ASTM A320, GRADE B8, CLASS 2 (ANSI TYPE 304) AND STRAIN HARDENED. ENSURE ALL NUTS LOCK TYPE WITH SEALING ALL THREADS.

ALL CONCRETE SHALL BE "CLASS B" AS DEFINED IN THE NJDOT STANDARD SPECIFICATIONS, UNLESS OTHERWISE SPECIFIED BY THE DESIGNER.

## NOTES:

1. ENSURE STEEL POLE CONSISTS OF A MAXIMUM OF TWO INDIVIDUAL STEEL SECTIONS WITH EACH SECTION A MINIMUM OF 35 FT. LONG AND CONTAIN ONLY ONE LONGITUDINAL SEAM WELD. SLIP JOINTS AND LAMINATED TUBES ARE NOT PERMITTED.
2. PROVIDE NEOPRENE DOOR GASKET.
3. INSTALL CAMERA STANDARD IN THE AREA BEYOND RECOVERY DISTANCE OR BEHIND THE GUIDE RAIL.
4. PROVIDE A GALVANIZED SCREEN, DOUBLE RAP AROUND THE BASE OF POLE.
5. ENSURE THE GALVANIZED SCREEN IS NO MORE THAN ½" OPENINGS AND IS HELD TOGETHER WITH STAINLESS STEEL NUTS, BOLTS AND FLAT WASHERS.
6. ENSURE ALL WELDING IS TO BE DONE WITH E-80T-1 WIRE.
7. DO NOT GROUT UNDER THE POLE .
8. PROVIDE TWO (2) LEVELING HEX NUTS, TWO (2) HOLD DOWN HEX NUTS AND ONE (1) FLAT WASHER PER ANCHOR BOLT. DETERMINE THE PROPER LENGTH OF THE ANCHOR BOLT FOR POSITIVE SEAT OF THE HEAD FRAME ASSEMBLY.
9. ENSURE WELDING CONFORMS TO THE ANSI/AWS D1.1 STRUCTURAL WELDING CODE-STEEL, WITH NJDOT AMENDMENTS IN NJDOT STANDARD SPECIFICATIONS, WELDING INSPECTION AND FULL PENETRATION WELD NONDESTRUCTIVE TESTING CONFORM TO AWS D1.1.
10. LOCATE TOP, CENTER AND BOTTOM ELECTRICAL CABLE GUIDES WITHIN THE POLE AND ALIGN WITH EACH OTHER. POSITION THE BOTTOM CABLE GUIDE 2 INCHES BELOW THE HANDHOLE AND THE TOP CABLE GUIDE 1 INCH DIRECTLY BELOW THE TOP OF TENON. POSITION TWO PARKING STANDS A MAXIMUM OF 2¾" INCHES BELOW THE TOP OF THE HANDHOLE AND LOCATED AT 90° AND 270° FROM THE HANDHOLE. ENSURE EACH CABLE GUIDE IS ⅜" WIRE EYE BOLT HAVING 1" INTERNAL DIA. FOR WIRE TIE OFF.
11. REFER TO MANUFACTURER'S SPECIFICATIONS FOR CCTV CAMERA WEIGHT AND PROJECTION AREA.

ITSD-704- 11

NEW JERSEY DEPARTMENT OF TRANSPORTATION

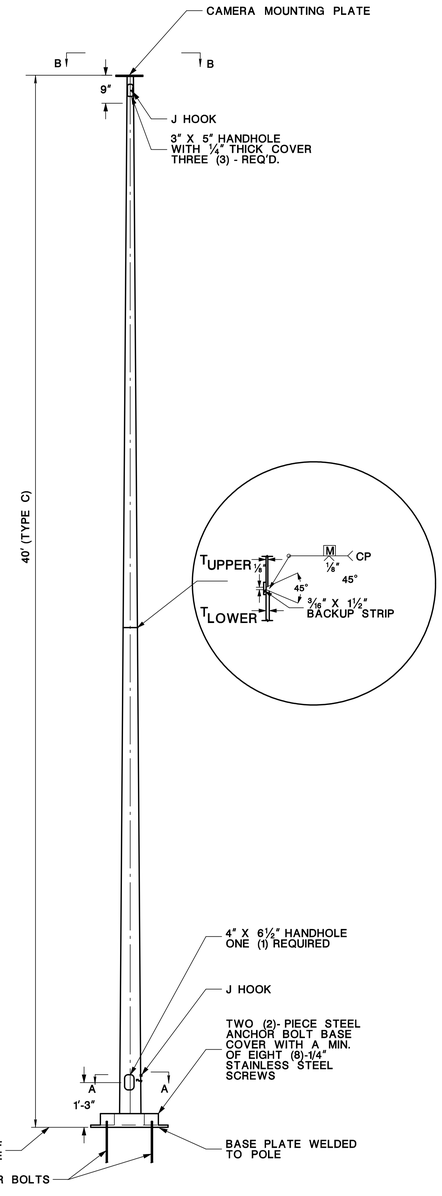
# ITS DETAILS

## CAMERA SURVEILLANCE SYSTEM

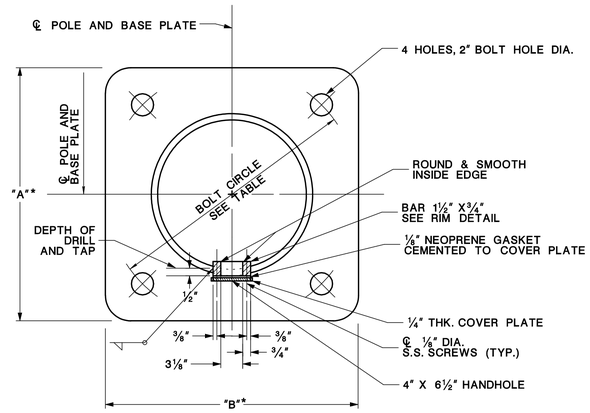
CAMERA STANDARD TYPE A AND B

SCALE:
NOT TO SCALE

BDC 07D-03




CAMERA STANDARD TYPE C

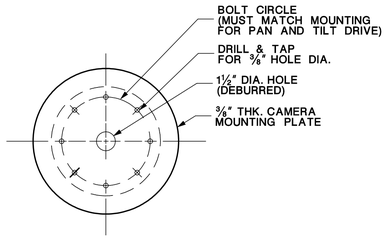



POLE BASE

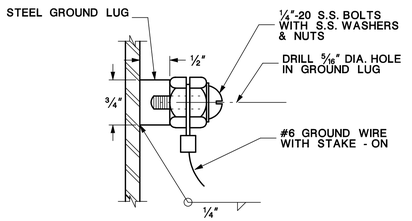
SECTION A-A

* FOR DIMENSIONS "A" AND "B", SEE POLE BASE TABLE.

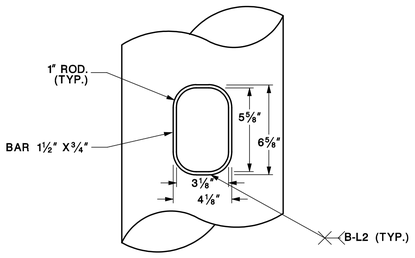
| POLE BASE | | | | | |
|---|---|---|---|---|---|
| POLE TYPE | POLE HEIGHT | BASE PLATE SIZE(AXB) (IN) | BOLT CIRCLE DIAMETER (IN) | BASE PLATE THICKNESS (IN) | BOLT HOLE DIAMETER (IN) |
| C | 40' | 20X20 | 17 | 2 | 2 |



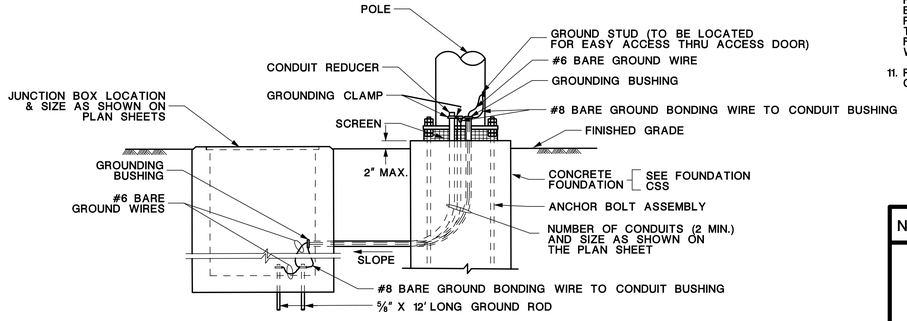

SECTION B-B




GROUND LUG DETAIL




HAND HOLE DETAIL




GROUNDING DETAIL

## DESIGN SPECIFICATIONS:

UTILIZE 2001 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS WITH THE LATEST INTERIM.

| | |
|---|---|
| DESIGN WIND VELOCITY | 80 M.P.H. (APPENDIX C) |
| DESIGN ICE LOAD | 3 P.S.F. |
| FATIGUE CATEGORY | 2 |

ENSURE ALL LOADS APPLIED TO ALL MEMBERS HAVE BEEN TAKEN INTO ACCOUNT FOR STRENGTH DESIGN, AND ALL WELDED STRUCTURAL DETAILS HAVE BEEN ANALYZED AGAINST FATIGUE.

ENSURE MAXIMUM HORIZONTAL DEFLECTION AT THE TOP OF THE POLE COMPLETELY ASSEMBLED WITH CCTV CAMERA AND ALL FIXTURES ATTACHED DOES NOT EXCEED 4 INCHES FROM THE CENTER LINE DUE TO A 40 MPH FASTEST-MILE WIND SPEED(APPENDIX C WIND PRESSURE FORMULA).

SUBMIT DETAIL PLANS AND DESIGN CALCULATIONS OF CAMERA STANDARD POLES, CAMERA WEIGHT AND PROJECTION AREA AND ANCHOR BOLT ASSEMBLY FOR APPROVAL. ENSURE THE DESIGN CALCULATIONS AND WORKING DRAWINGS ARE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY.

## MATERIALS:

ENSURE TAPERED POLE MATERIAL CONFORMS TO ASTM SPECIFICATION A595, GRADE A (MIN. YIELD POINT 55 KSI) OR GRADE B (MIN. YIELD POINT 60 KSI), AND ALL OTHER STEEL CONFORMS TO ASTM SPECIFICATION A709 (AASTHO M270) GRADE 36 OR GRADE 50. ENSURE ALL STEEL PLATES MEET THE REQUIREMENTS FOR NOTCH TOUGHNESS (CHARPY TESTING) ZONE 2. GALVANIZE THE ENTIRE UNIT OF POLE PER ASTM A123 AFTER FABRICATION.

AS AN ALTERNATE, ENSURE SEAMLESS TUBE POLES CONFORMS TO ASTM A53, TYPE S OR TYPE E, GRADE B OR ASTM A252, GRADE 2 WITH MINIMUM YIELD STRENGTH OF 35 KSI.

ENSURE ANCHOR BOLT MATERIALS CONFORM TO ASTM F1554, GRADE 36 OR 55. GALVANIZE THE ANCHOR BOLTS PER ASTM A153, CLASS C AFTER THREADING FOR THE FULL LENGTH OF THE BOLT.

PROVIDE STAINLESS STEEL FASTENERS (INCLUDING BOLTS, NUTS AND WASHERS) CONFORMING TO CURRENT ASTM A320, GRADE B8, CLASS 2 (ANSI TYPE 304) AND STRAIN HARDENED. ENSURE ALL NUTS LOCK TYPE WITH SEALING ALL THREADS.

ALL CONCRETE SHALL BE "CLASS B" AS DEFINED IN THE NJDOT STANDARD SPECIFICATIONS, UNLESS OTHERWISE SPECIFIED BY THE DESIGNER.

## NOTES:

1. ENSURE STEEL POLE CONSISTS OF A MAXIMUM OF TWO INDIVIDUAL STEEL SECTIONS AND CONTAIN ONLY ONE LONGITUDINAL SEAM WELD. SLIP JOINTS AND LAMINATED TUBES ARE NOT PERMITTED.
2. PROVIDE NEOPRENE DOOR GASKET.
3. INSTALL CAMERA STANDARD IN THE AREA BEYOND RECOVERY DISTANCE OR BEHIND THE GUIDE RAIL.
4. PROVIDE A GALVANIZED SCREEN, DOUBLE RAP AROUND THE BASE OF POLE.
5. ENSURE THE GALVANIZED SCREEN IS NO MORE THAN ½" OPENINGS AND IS HELD TOGETHER WITH STAINLESS STEEL NUTS, BOLTS AND FLAT WASHERS.
6. ENSURE ALL WELDING IS TO BE DONE WITH E-80T-1 WIRE.
7. DO NOT GROUT UNDER THE POLE.
8. PROVIDE TWO (2) LEVELING HEX NUTS, TWO (2) HOLD DOWN HEX NUTS AND ONE (1) FLAT WASHER PER ANCHOR BOLT. DETERMINE THE PROPER LENGTH OF THE ANCHOR BOLT FOR POSITIVE SEAT OF THE HEAD FRAME ASSEMBLY.
9. ENSURE WELDING CONFORMS TO THE ANSI/AWS D1.1 STRUCTURAL WELDING CODE-STEEL, WITH NJDOT AMENDMENTS IN NJDOT STANDARD SPECIFICATIONS, WELDING INSPECTION AND FULL PENETRATION WELD NONDESTRUCTIVE TESTING CONFORM TO AWS D1.1.
10. LOCATE TOP, CENTER AND BOTTOM ELECTRICAL CABLE GUIDES WITHIN THE POLE AND ALIGN WITH EACH OTHER. POSITION THE BOTTOM CABLE GUIDE 2 INCHES BELOW THE HANDHOLE AND THE TOP CABLE GUIDE 1 INCH DIRECTLY BELOW THE TOP OF CAMERA PLATE. POSITION TWO PARKING STANDS A MAXIMUM OF 2¾" INCHES BELOW THE TOP OF THE HANDHOLE AND LOCATED AT 90° AND 270° FROM THE HANDHOLE. ENSURE EACH CABLE GUIDE IS ¾" WIRE EYE BOLT HAVING 1" INTERNAL DIA. FOR WIRE TIE OFF.
11. REFER TO MANUFACTURER'S SPECIFICATIONS FOR CCTV CAMERA WEIGHT AND PROJECTION AREA.

ITSD-704-12

NEW JERSEY DEPARTMENT OF TRANSPORTATION

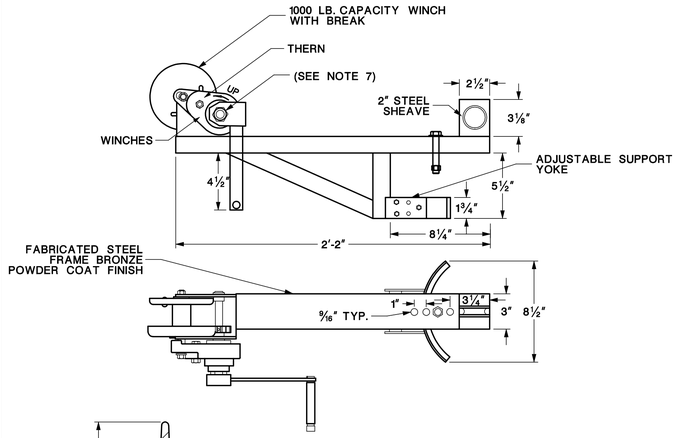
# ITS DETAILS

## CAMERA SURVEILLANCE SYSTEM

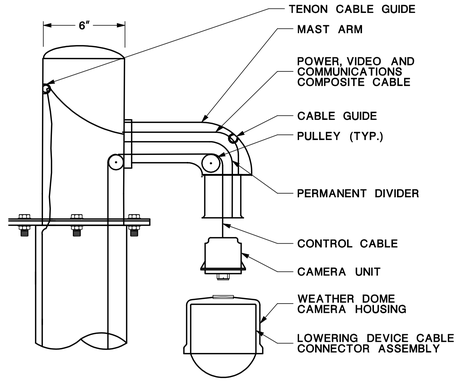
CAMERA STANDARD TYPE C

SCALE:
NOT TO SCALE

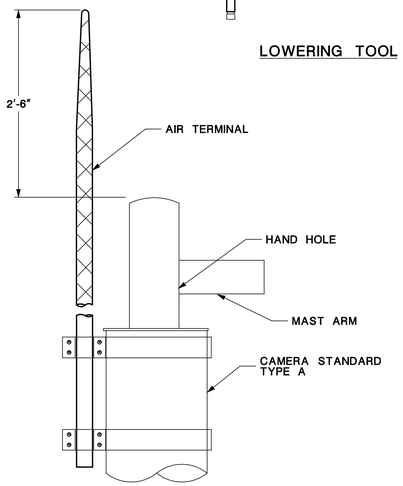
BDC 07D-03



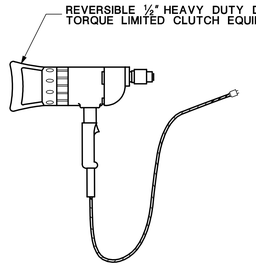

LOWERING TOOL

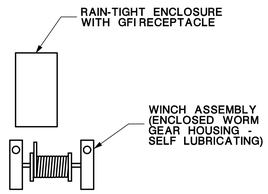



DETAIL A

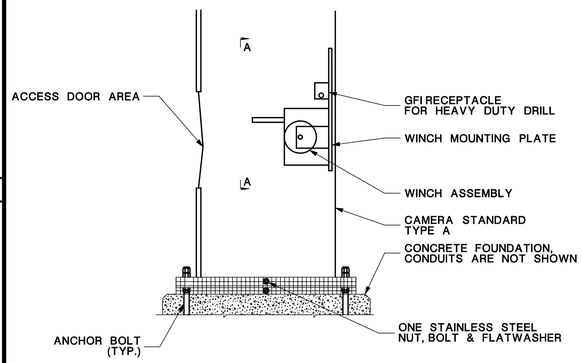



AIR TERMINAL




SECTION A-A

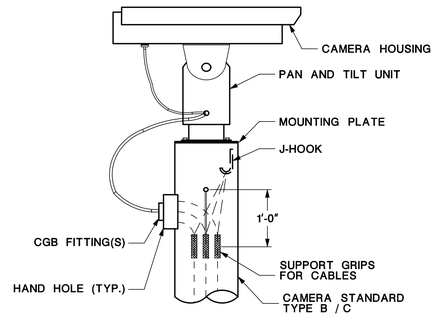



WINCH ASSEMBLY MOUNTING DETAIL

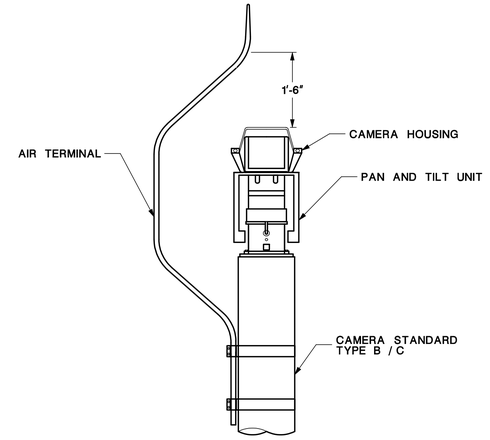
NOTES:

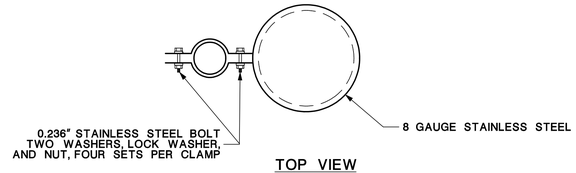
1. PROVIDE SEALED, SELF LUBRICATED BEARINGS, OIL TIGHT BRONZE BEARINGS OR SINTERED BRONZE BUSHINGS WITH ALL PULLEYS FOR THE CAMERA LOWERING DEVICE AND PORTABLE LOWERING TOOL.
2. ENSURE THE LOWERING CABLE HAS A MINIMUM OF ⅛" DIAMETER STAINLESS STEEL AIRCRAFT CABLE WITH A MINIMUM BREAKING STRENGTH OF 1740 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 ½" ELECTRIC DRILL.
8. SUBMIT WINCH ASSEMBLY AND GFI RECEPTACLE BOX MOUNTING DETAILS TO THE RE FOR APPROVAL.

## DOME CAMERA AND LOWERING DEVICE

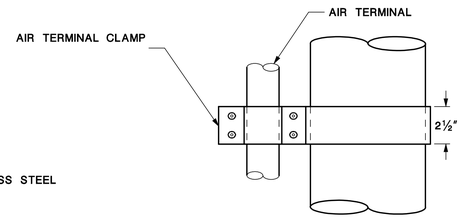



CAMERA MOUNTING AND CABLE DETAILS



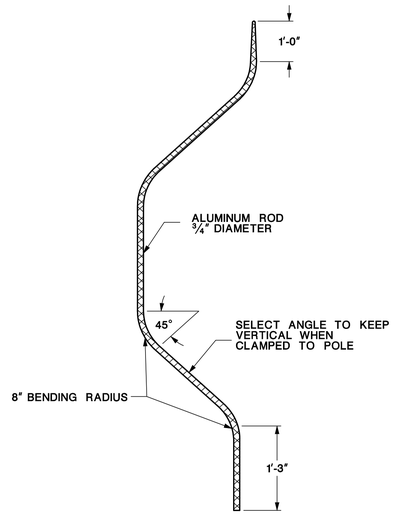




TOP VIEW




SIDE VIEW

AIR TERMINAL CLAMP




AIR TERMINAL DETAILS

NOTES:

1. INSTALL ALL WIRING INSIDE THE POLE AND PROVIDE STRAIN RELIEF FOR ALL CAMERA CABLES.
2. SUPPORT ELECTRICAL AND COMMUNICATION CABLES WITH SEPARATE GRIPS.

## POSITIONAL CAMERA

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.

CAMERA SURVEILLANCE SYSTEM

CAMERA AND LOWERING DEVICE

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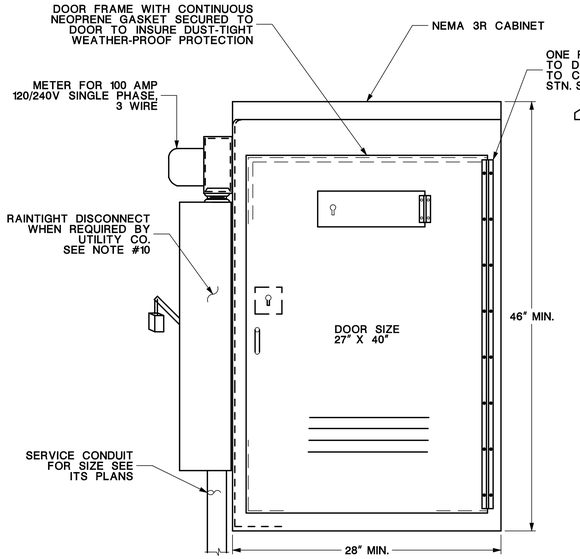
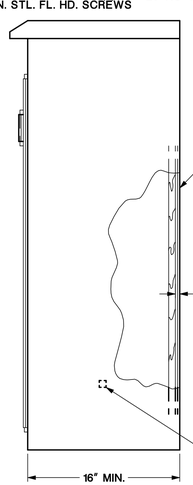
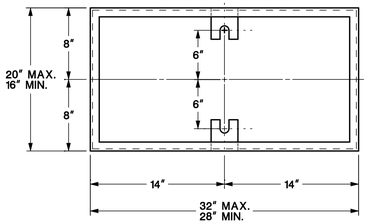


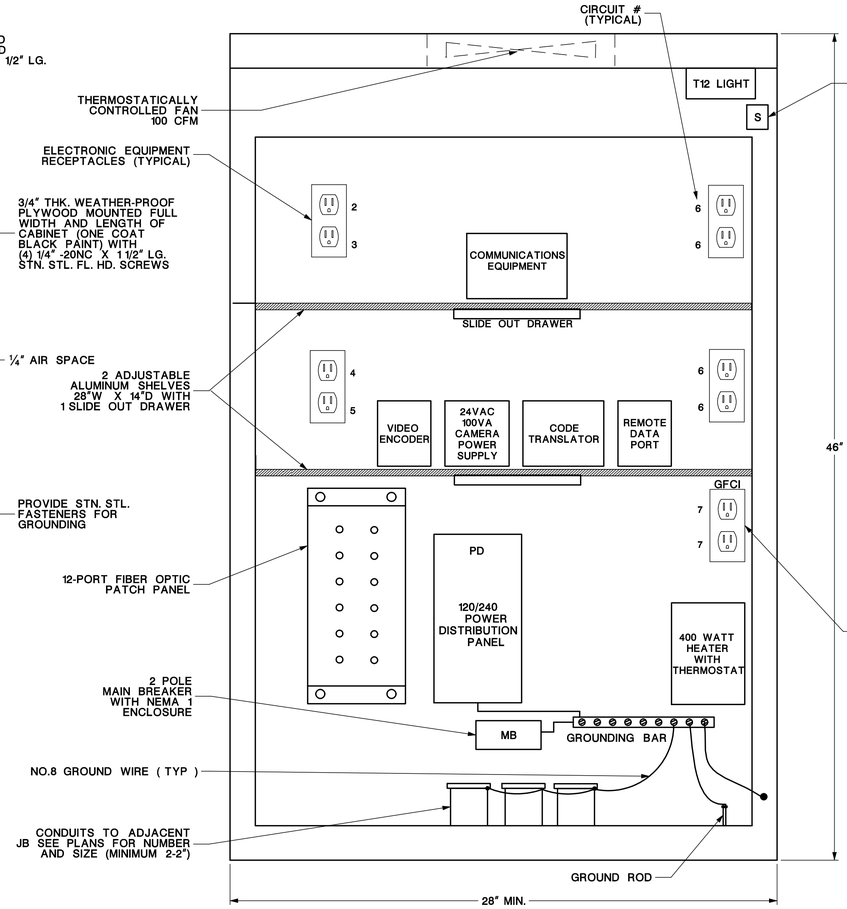

FRONT ELEVATION



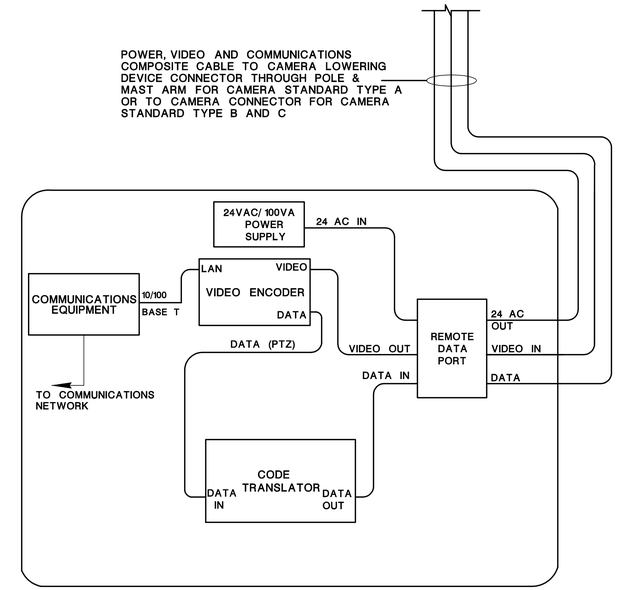

SIDE ELEVATION



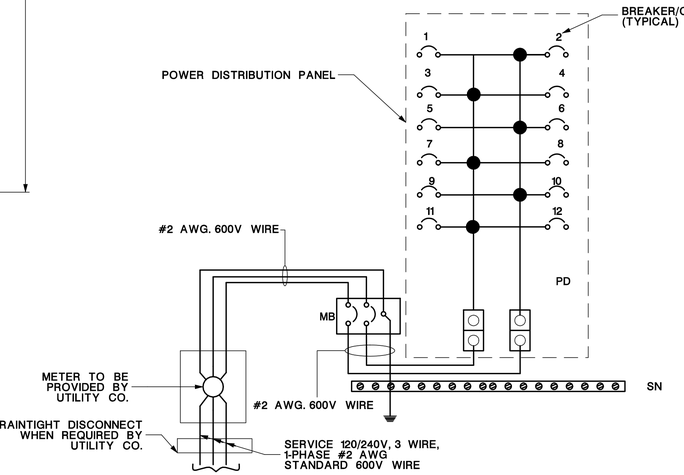

BOTTOM VIEW & ANCHOR BOLT LAYOUT




EQUIPMENT LAYOUT




COMMUNICATIONS BLOCK DIAGRAM




POWER DISTRIBUTION DIAGRAM

NOTES:

1. ENSURE CABINET AND CABINET DOOR IS SHEET ALUMINUM ⅛" THICK, 5052-H32 ALLOY, UNPAINTED.
2. SUPPLY WITH EACH CABINET (2) ANCHOR BOLTS ¾"- 10NC X 15" LG. STL. WITH GALVANIZED 3" COUPLING (2) STAINLESS STEEL 1½" O.D. X ⅛" THK. FLAT WASHERS AND (2)¾" - 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 1⅛" 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 AS "CONVENIENCE RECEPTACLE".
8. FOR BREAKER RATINGS, SEE TABLE A.
9. PROVIDE SURGE SUPPRESSION TO THE DATA LINES.
10. METER, RAIN TIGHT DISCONNECT SWITCH AND SERVICE CONDUIT ARE NOT REQUIRED IF ELECTRIC SERVICE IS CONNECTED TO ANOTHER LOAD CENTER AND NOT TO UTILITY COMPANY POWER SOURCE.

| BREAKER RATING | | |
|---|---|---|
| BREAKERS # | FUNCTION | TRIP RATING (AMPS) |
| MB | MAIN BREAKER 60 AMP | 60 |
| 1 | RECEPTACLE INSIDE CAMERA POLE BASE | 15 |
| 2 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 3 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 4 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 5 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 6 | ELECTRONIC EQUIPMENT RECEPTACLE | 15 |
| 7 | CONVENIENCE RECEPTACLE (GFCI) | 15 |
| 8 | FAN | |
| 9 | HEATER | |
| 10 | LIGHT | |
| 11 | SPARE | 15 |
| 12 | SPARE | 15 |

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.
CAMERA SURVEILLANCE SYSTEM

CONTROLLER CAMERA

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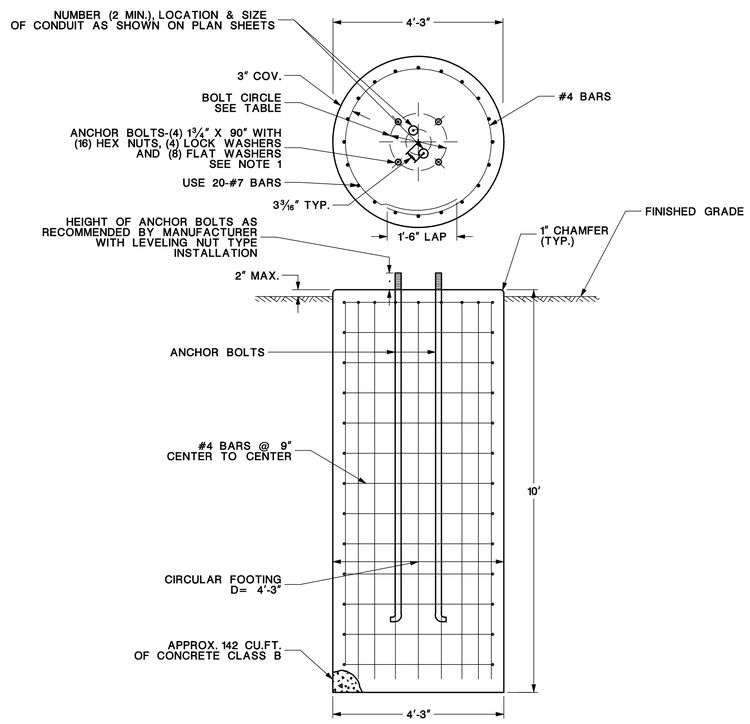
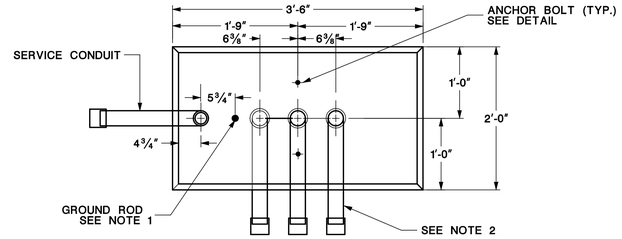



FOUNDATION CSS

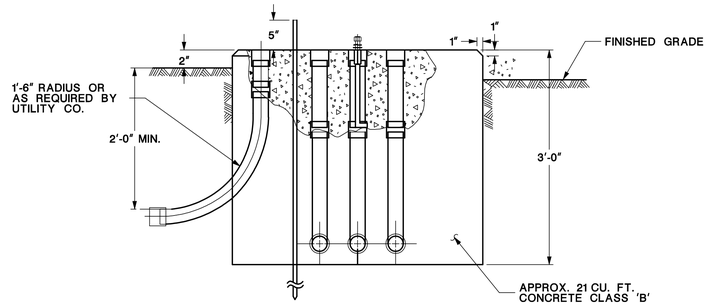
| "BOLT CIRCLE TABLE" | | | |
|---|---|---|---|
| FOUNDATION TYPE | POLE HEIGHT | ANCHOR BOLT CIRCLE DIAMETER | ANCHOR BOLT SPECIFICATION |
| C | 40' | 17" | ASTM F1554 GRADE 36 OR 55 |
| B | 55' | 24" | ASTM F1554 GRADE 36 OR 55 |
| A | 75' | 30" | ASTM F1554 GRADE 36 OR 55 |

NOTE:

1. HOT DIPPED GALVANIZE ANCHOR BOLTS AFTER THREADING PER ASTM A153 FOR THE FULL LENGTH OF THE BOLT.




PLAN




ELEVATION

CONTROLLER FOUNDATION

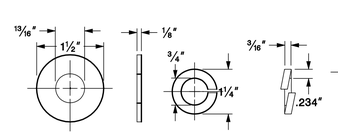
GENERAL DESIGN SPECIFICATIONS:

CONCRETE DESIGN STRESS:

SPECIFIED COMPRESSIVE STRENGTH (f'c) (CLASS B).....3,000 PSI
EXTREME FIBER COMPRESSIVE STRESS (fc).....1,200 PSI

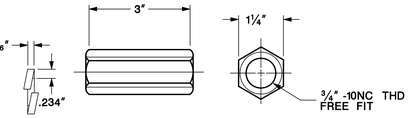
REINFORCEMENT STEEL DESIGN STRESS:

YIELD STRENGTH (fy) (A615, GRADE 60).....60 KSI
TENSILE STRENGTH (ts).....24 KSI



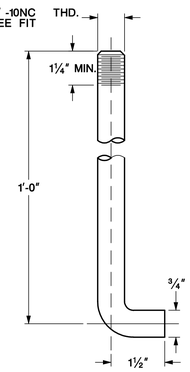

FLAT & LOCK WASHER

MAT'L - STAINLESS STEEL



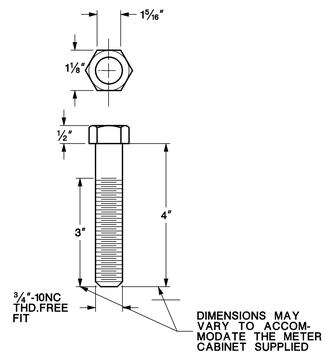

COUPLING

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




ANCHOR BOLT

MAT'L -STEEL PER ASTM A-576




CAP SCREW

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

NOTES:

1. ⅝" DIA. X 12 FT. LONG GROUND ROD.
2. FOR NUMBER & SIZE OF CONDUITS, SEE PLANS.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS

CAMERA SURVEILLANCE SYSTEM

FOUNDATIONS

SCALE:
NOT TO SCALE

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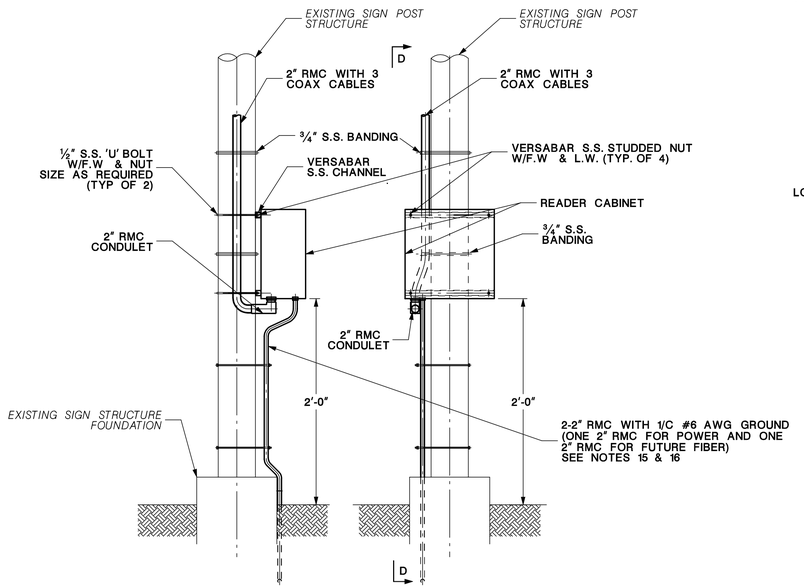
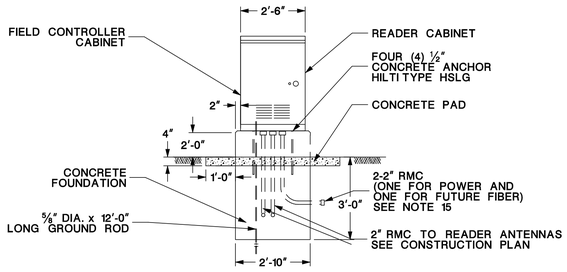
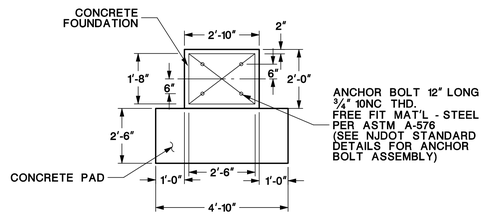



SECTION 'D-D'

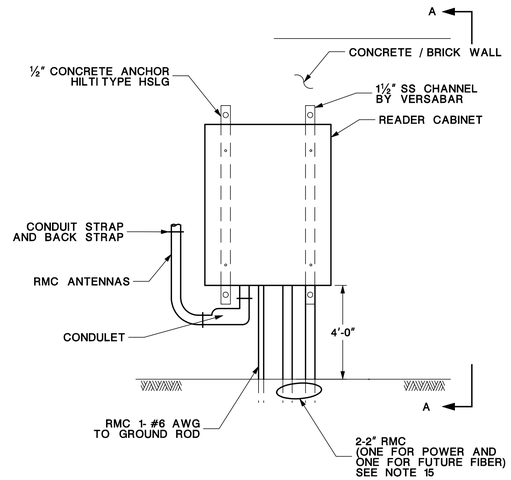



ELEVATION




PLAN

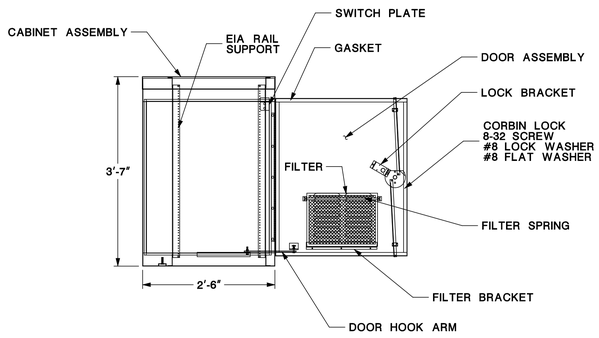
TYP. DETAILS FOR GROUND MOUNTED READER CABINET



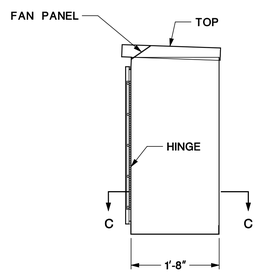

TYPICAL READER CABINET MOUNTING ON CONCRETE / BRICK WALL

NOTES:

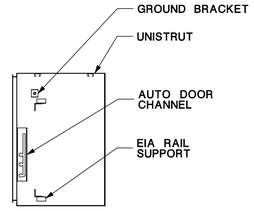
1. FABRICATE CABINET WITH 14 GAUGE TYPE 304 STAINLESS STEEL.
2. ENSURE DOOR IS NEMA TYPE 3R WITH CELLUAR NEOPRENE GASKET, AND HINGES ARE 14 GAUGE S.S., TYPE PIANO (CONTINUOUS).
3. PROVIDE CORBIN TYPE LOCK WITH 2 KEYS AND A THREE POINT LOCKING SYSTEM, THAT SECURES THE TOP, BOTTOM AND CENTER.
4. PROVIDE VENT HOLES ON THE UNDER SIDE OF THE COVER AND SLOTS ON THE DOOR TO CREATE A NATURAL FLOW OF AIR THAT HAS A COOLING EFFECT ON ELECTRICAL EQUIPMENT. COVER THE SLOTS WITH A FILTER ON THE INSIDE OF THE DOOR TO PREVENT DUST FROM ENTERING THE CABINET.
5. PROVIDE COOLING FAN AND HEATER WITH ADEQUATE CAPABILITIES.
6. PROVIDE ONE REMOVABLE ½" ALLEN KEY.
7. ENSURE DOOR CATCH HOLDS THE DOOR OPENS AT 90° AND 180°.
8. ENSURE CONTINUOUS HINGE, LEAVES DOES NOT EXPOSED EXTERNALLY WHEN DOOR IS CLOSED.
9. FURNISH AND INSTALL GROUND RODS, GROUND WIRE AND FITTINGS IN ACCORDANCE WITH NEC AND STANDARD SPECIFICATIONS.
10. ENSURE RACK IS RS-310-C EIA STANDARD.
11. TERMINATE THE RG-58 RIGHT ANGLE CONNECTORS WITH 50 OHM TERMINATORS.
12. ENSURE CONDUIT PENETRATION FOR THE READER CABINET IS EXCLUSIVELY MADE THROUGH THE BOTTOM SURFACE OF THE CABINET TO PREVENT WATER AND MOISTURE FROM PENETRATING INTO ELECTRONIC EQUIPMENT.
13. NO OPENING IS PERMITTED IN THE CABINET FLOOR OTHER THAN CONDUIT ENTRIES, WHICH HAS TO BE SEALED.
14. INSTALL READER CABINET AND COORDINATE WITH TRANSCOM AGENCY FOR SETTING UP READER AND ANTENNA.
15. CAP 2" RMC, FOR FUTURE FIBER CONNECTION 6" FROM THE FOUNDATION FOR FUTURE USE.
16. PROVIDE NO. 6 AWG GROUND WIRE FROM READER CABINET TO ADJACENT JUNCTION BOX (INSIDE 2" RMC FOR POWER). GROUND READER EQUIPMENT AT EXISTING SIGN STRUCTURE IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE ADDITIONAL GROUND RODS IF REQUIRED.
17. PROVIDE AN ANTENNA EXTENSION AND MOUNTING DETAIL TO OBTAIN MAXIMUM WIRELESS SIGNAL RECEPTION / TRANSMISSION. SUBMIT THE DETAIL TO THE RE FOR APPROVAL.



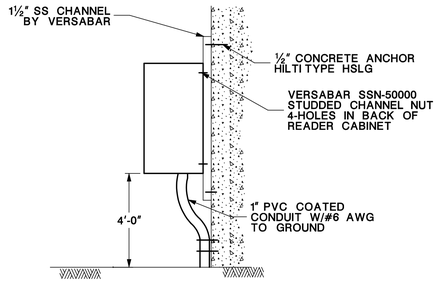

ELEVATION




SIDE VIEW




SECTION C-C




SECTION A-A

READER CABINET DETAILS

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.

TRAVEL TIME SYSTEM

CONTROLLER TTS, SHEET 1 OF 2

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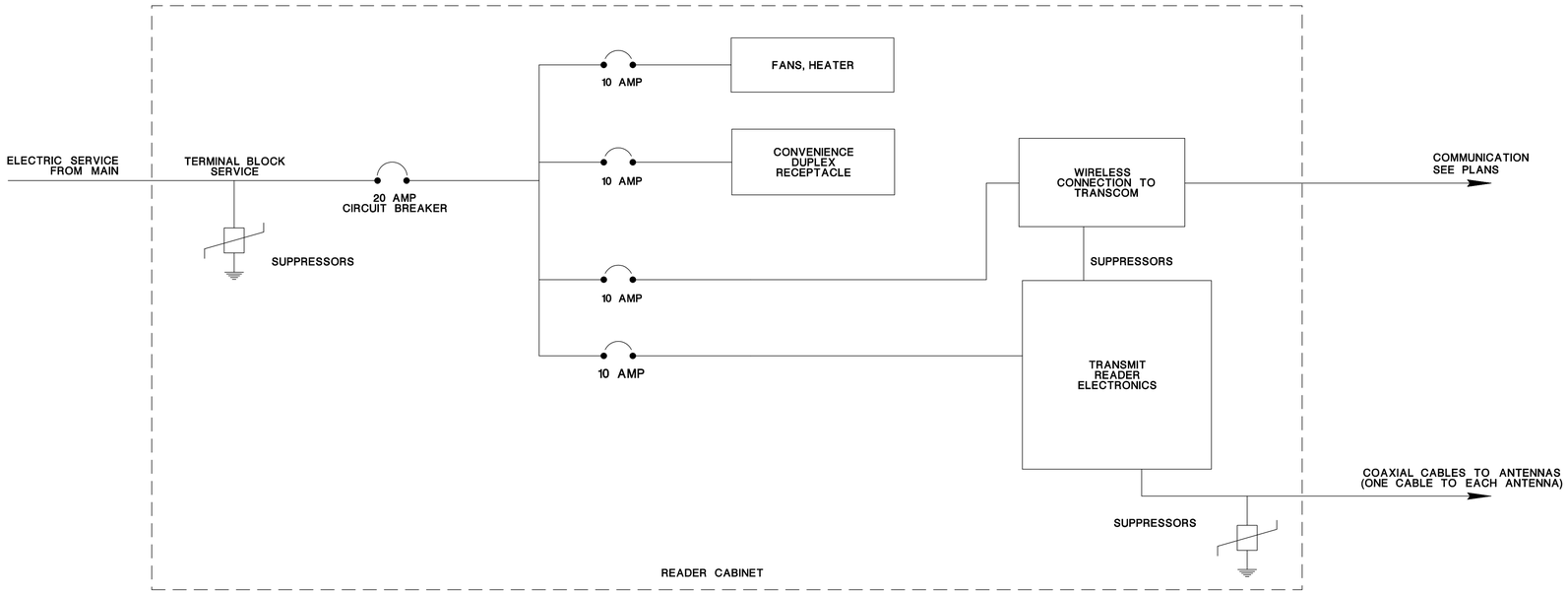
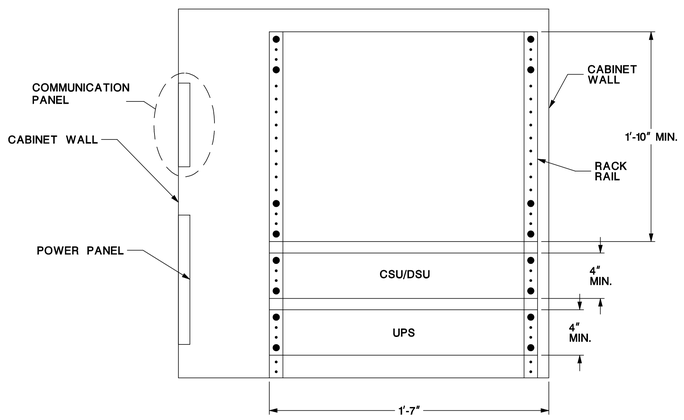
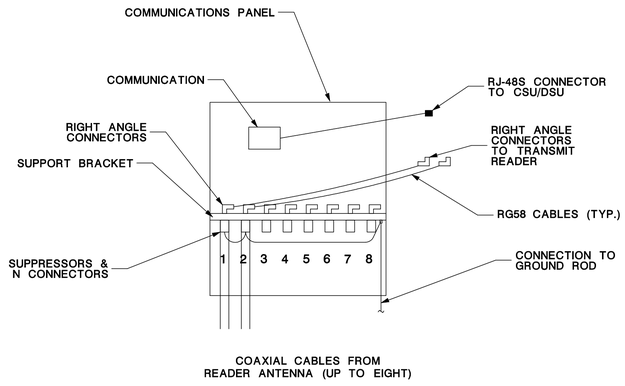



BLOCK DIAGRAM




COMMUNICATIONS PANEL

READER CABINET EQUIPMENT LAYOUT

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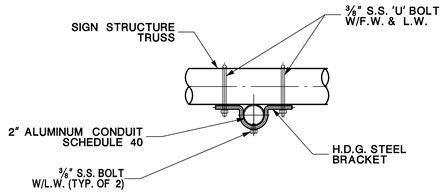
NEW JERSEY DEPARTMENT OF TRANSPORTATION

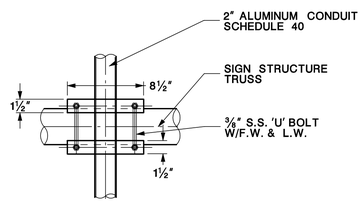
ITS DETAILS
N.T.S.

TRAVEL TIME SYSTEM

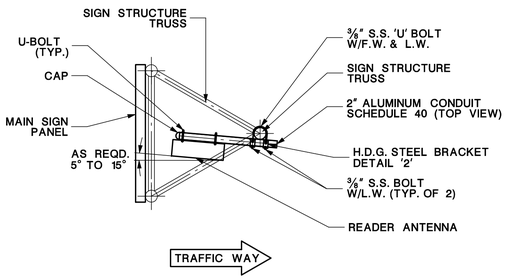
CONTROLLER TTS, SHEET 2 OF 2



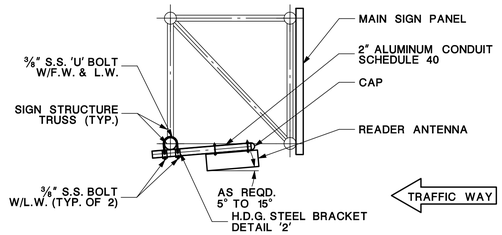

TOP VIEW



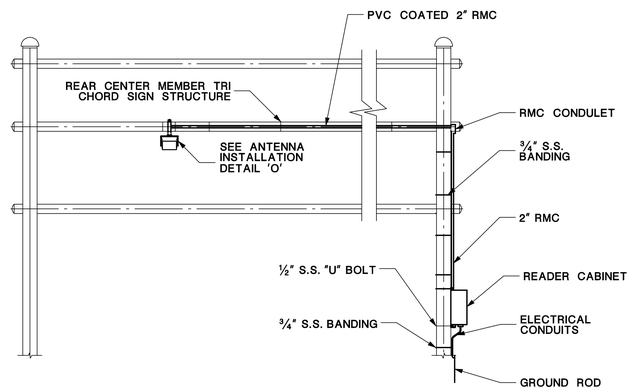

DETAIL '2'
SUPPORT BRACKET



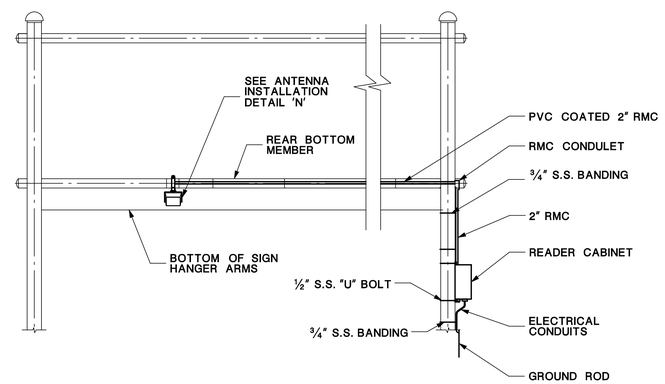

DETAIL "0"
TYP. READER ANTENNA MOUNTING
ON SIGN STRUCTURE




DETAIL "N"
TYP. READER ANTENNA MOUNTING
ON SIGN STRUCTURE




TYP. ANTENNA INSTALLATION
ON TRICHORD SIGN STRUCTURE




TYP. ANTENNA INSTALLATION ON SIGN STRUCTURE

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.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.

TRAVEL TIME SYSTEM

TTS DETECTOR, TYPE A

SHEET 1 OF 2

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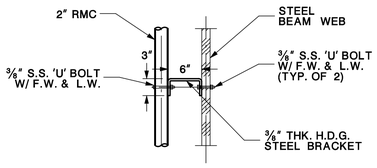
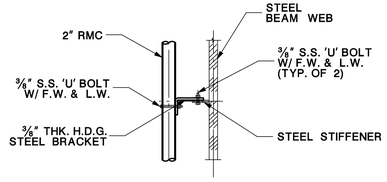
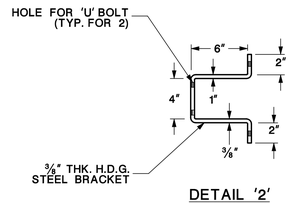


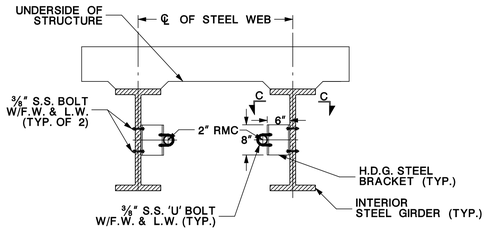

SECTION 'C-C'



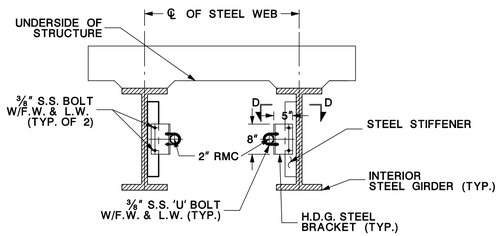

SECTION 'D-D'



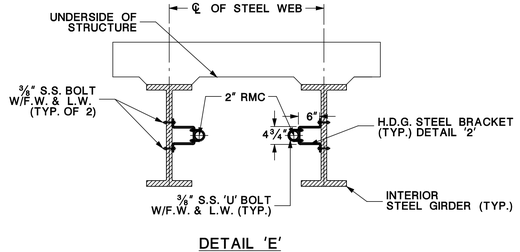

DETAIL '2'




DETAIL 'F'



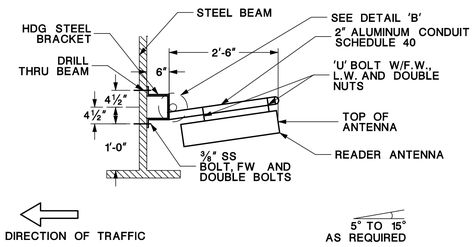

DETAIL 'G'

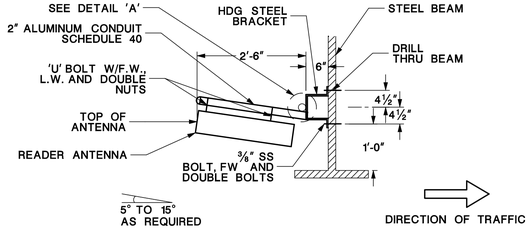



DETAIL 'E'

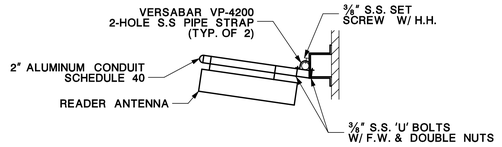
## NOTES:

1. ENSURE ALL FASTENERS, INCLUDING BOLTS, U-BOLTS, NUTS AND WASHERS ARE STAINLESS STEEL AND CONFORMS TO ASTM SPECIFICATION A320, GRADE B8, CLASS 2 (ANSI TYPE 304) WITH NO. 4 FINISH, AND STRAIN HARDENED.
2. ENSURE ALL SUPPORT MEMBERS, PLATES AND SHAPES ARE GALVANIZED. AFTER COMPLETE FABRICATION, HOT-DIP GALVANIZE EACH STEEL SUPPORT ASSEMBLY CONFORMING TO THE REQUIREMENTS OF AASHTO M270 (ASTM A709) GRADE 50W.
3. WELDING IS NOT PERMITTED TO INSTALL THE TRANSMIT EQUIPMENT ON THE BRIDGE STRUCTURE.
4. POSITION THE TRANSMIT EQUIPMENT SUCH THAT THE STRUCTURES VERTICAL UNDER CLEARANCE IS NOT REDUCED.
5. ADJUST THE READER ANTENNA MOUNTINGS AND POSITION THE READER ANTENNAS SUCH THAT THE MINIMUM VERTICAL UNDER CLEARANCE IS NOT LESS THAN THE EXISTING CONDITIONS. NO CUT IN THE EXISTING STRUCTURE IS ALLOWED TO AVOID REDUCING CLEARANCE.
6. THE DETAILS FOR CONDUIT SUPPORT BRACKET PRESENTED ON THIS SHEET ARE SHOWN FOR CONCEPT ONLY. SUBMIT SHOP DRAWINGS FOR THE CONDUIT SUPPORT AND BRACKET. SURVEY EACH TRANSMIT SITE AND SUBMIT SHOP DRAWINGS TO THE RE AND THE APPROPRIATE GOVERNING AGENCIES FOR APPROVAL BEFORE PROCEEDING WITH THE FABRICATION OF THE CONDUIT SUPPORTS.
7. FIELD VERIFY EXISTING STRUCTURE CONDITIONS AND DIMENSIONS RELATIVE TO PROPOSED CONDUIT SUPPORT LOCATIONS PRIOR TO FABRICATION AND CONSTRUCTION.
8. ENSURE MAXIMUM SPACING BETWEEN ADJACENT CONDUIT SUPPORTS IS 4 FEET UNLESS OTHERWISE APPROVED BY THE RE AND THE APPROPRIATE GOVERNING AGENCY.
9. POSITION THE PROPOSED CONDUIT SUPPORTS SUCH THAT THE VERTICAL UNDER CLEARANCE IS NOT LESS THAN THE EXISTING CONDITION.
10. FURNISH AND INSTALL APPROVED EXPANSION JOINT FITTINGS ON BRIDGES AND OTHER STRUCTURES, AT LOCATIONS WHERE CONDUITS CROSS OVER EXPANSION JOINTS. FURNISH AND INSTALL EXPANSION FITTINGS AS RECOMMENDED BY THE MANUFACTURER. SUBMIT CONDUIT EXPANSION JOINT SPACING TO THE RE FOR APPROVAL.
11. LABEL WITH PURPOSE AND VOLTAGE ALL CONDUIT RUNS AND JUNCTION BOXES WITH WEATHERPROOF MARKER TAPE. LABEL CONDUIT RUNS EVERY 50'-0" AND AT WALL PENETRATIONS.
12. INSTALL ALL WIRING (POWER, AND COMMUNICATIONS, ETC.) IN RIGID METALLIC CONDUITS UNLESS NOTED OTHERWISE. CONDUIT SIZE AS INDICATED.
13. ENSURE ALL CONDUITS, EYS FITTINGS AND CONDULETS ARE RMC.
14. PLACE ALL U BOLTS SHOWN AS DRILL AND ANCHOR WITH ADHESIVE IN A CORE DRILLED HOLE WITH A DIA.⅛" WIDER THAN THE U-BOLT AND ANCHORED WITH APPROVED ADHESIVE ANCHOR SUCH AS "HILTI HVA ADHESIVE ANCHOR".
15. AVOID CONFLICTS WITH THE STRUCTURAL STEEL COMPONENTS OF THE BRIDGE, INCLUDING THE EXISTING ABUTMENT WALL REINFORCEMENTS WHEN DRILLING FOR PLACEMENT OF ANCHOR BOLTS. RESERVE THE STRUCTURAL INTEGRITY OF THE BRIDGE COMPONENTS.

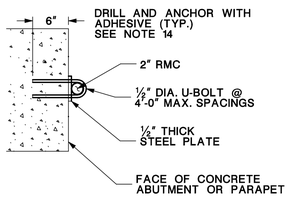


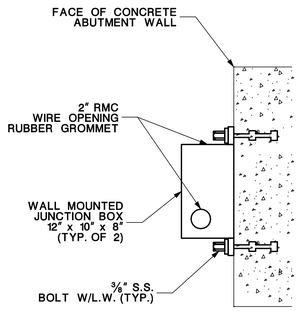

TYP. ANTENNA MOUNTING ON STEEL GIRDER



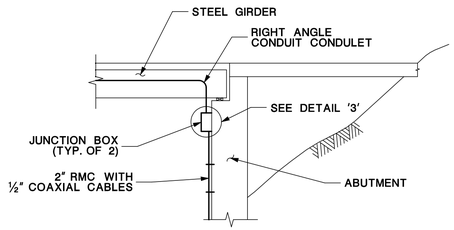

DETAIL 'A' SHOWN
DETAIL 'B' OPPOSITE HAND




TYPICAL CONDUIT ATTACHMENT AT ABUTMENT




DETAIL '3' JUNCTION BOX




TYPICAL JUNCTION BOX MOUNTING AT ABUTMENT

TYPICAL OVERPASS/ BRIDGE INSTALLATION

BDC 07D-03

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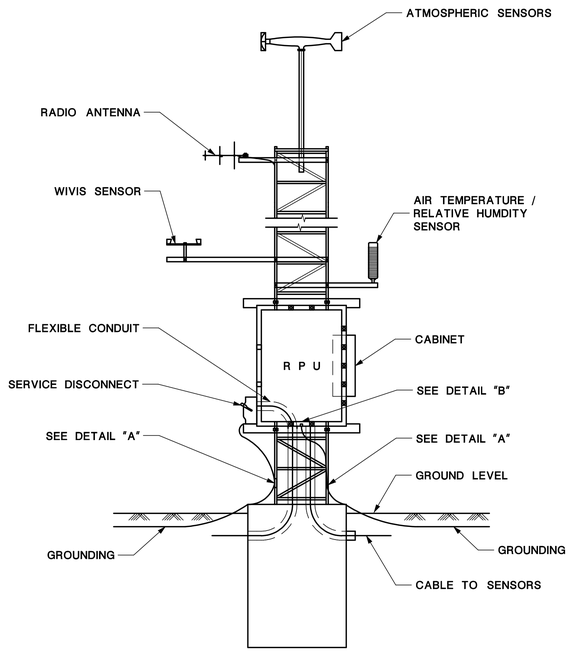
NEW JERSEY DEPARTMENT OF TRANSPORTATION

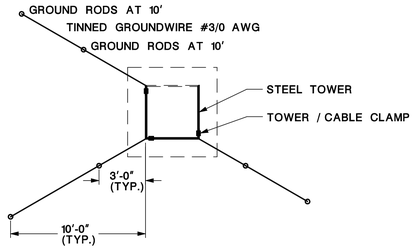
ITS DETAILS
N.T.S.

TRAVEL TIME SYSTEM

TTS DETECTOR, TYPE A SHEET 2 OF 2




WIND SPEED / DIRECTION SENSOR
(FOR CONTROLLER TOWER DETAIL SEE ITS-704-21)



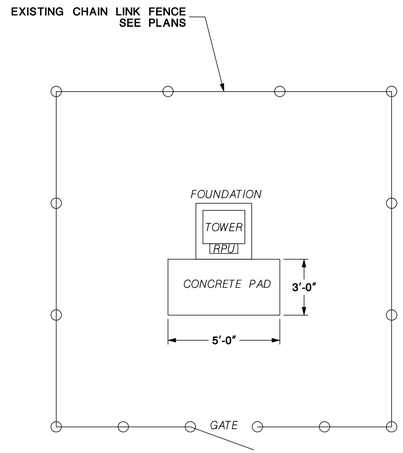

TOWER GROUNDING




DETAIL "A"




DETAIL "B"




GATE, CHAIN LINK FENCE

WEATHER STATION

BDC 07D-03

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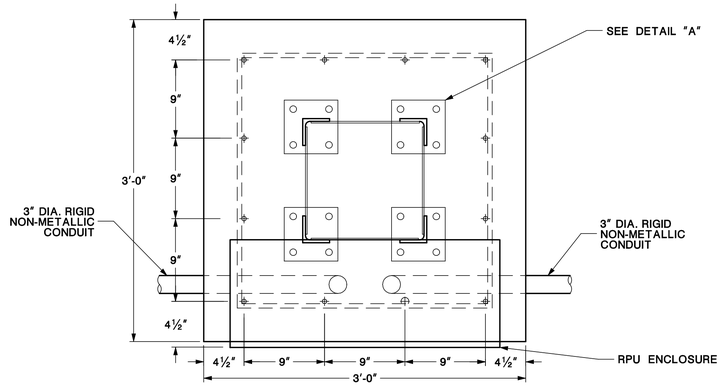
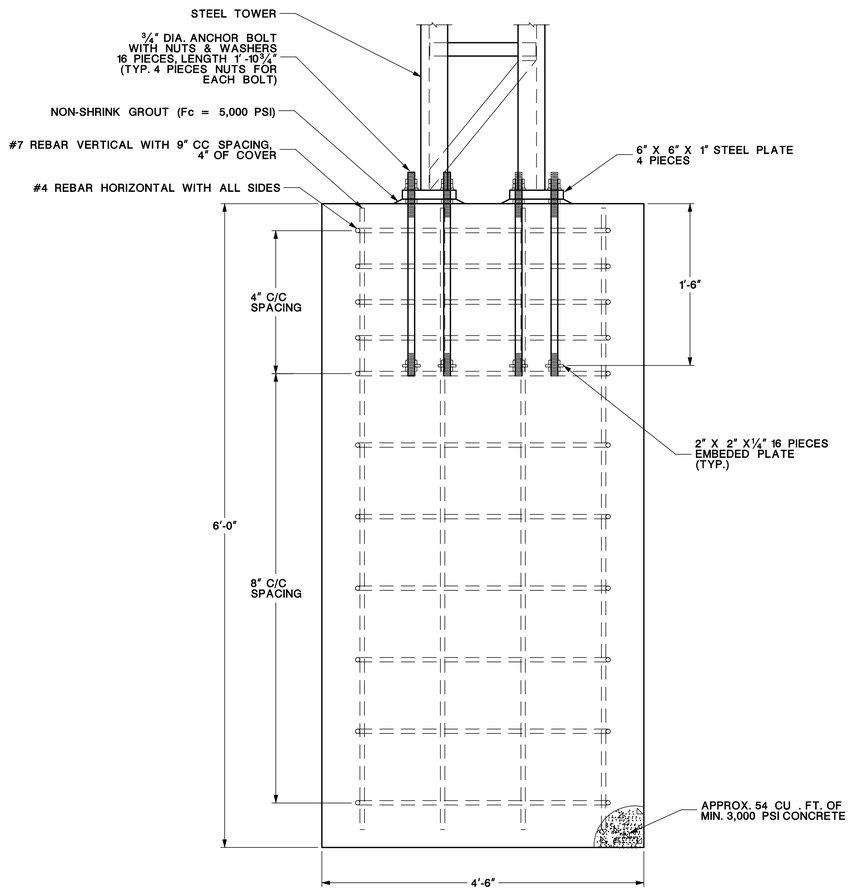
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.
ROADWAY WEATHER INFORMATION SYSTEM

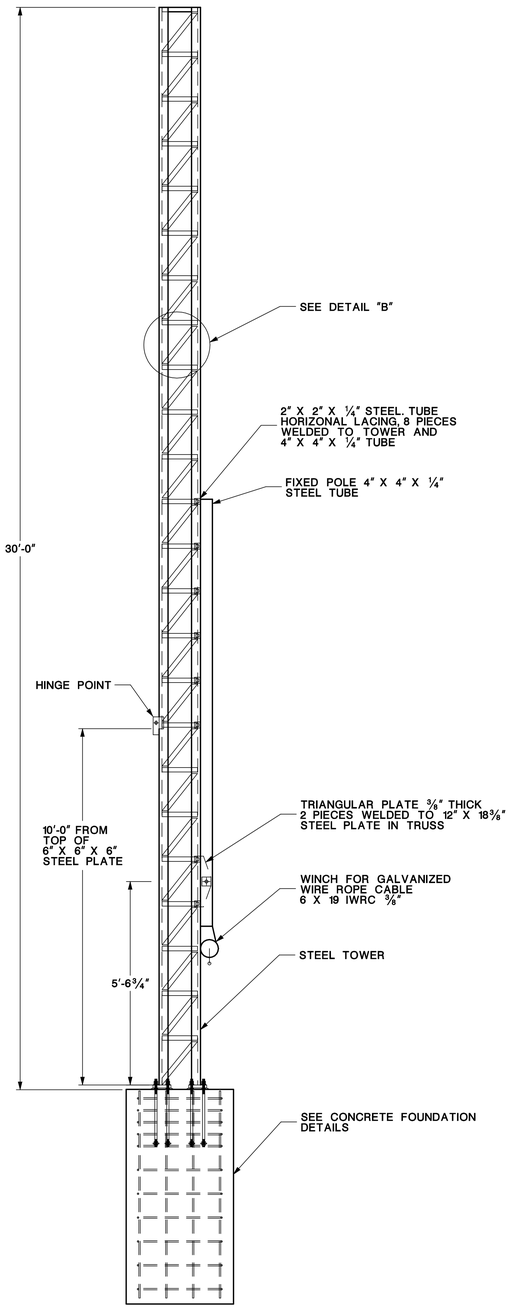
WEATHER STATION SHEET 1 OF 2



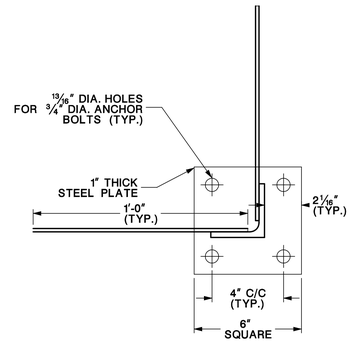

PLAN



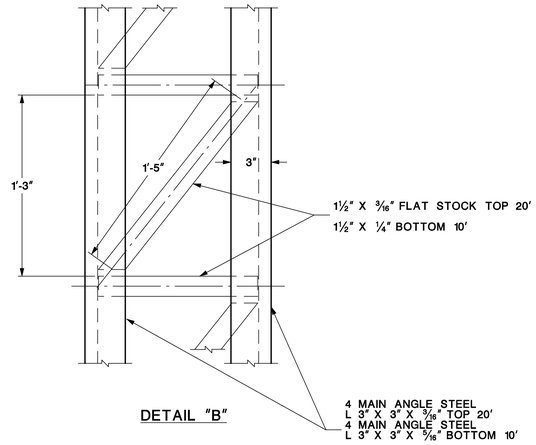

FOUNDATION




TOWER




DETAIL "A"




DETAIL "B"

NOTES

1. ALL STEEL PLATES PER ASTM A36.
2. ALL STEEL TUBES PER ASTM A36 OR EQUAL.
3. ALL STEEL FLATE 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.
9. FABRICATE STRUCTURE TO SUPPORT THE DESIGN CRITERIA OF 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURE SUPPORTS.
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.

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

# ITS DETAILS
N.T.S.
## ROADWAY WEATHER INFORMATION SYSTEM

WEATHER STATION SHEET 2 OF 2

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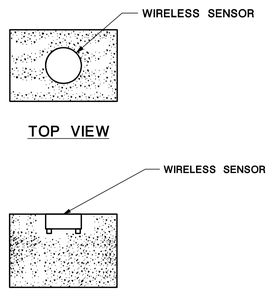
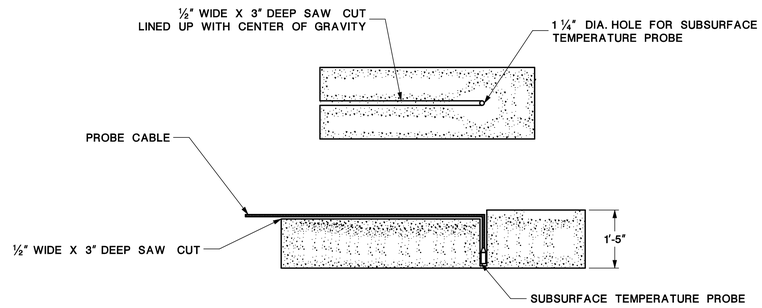


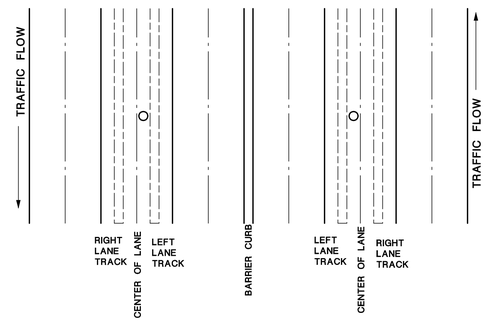

WIRELESS PAVEMENT SENSOR INSTALLATION




SUBSURFACE TEMPERATURE
PROBE INSTALLATION IN SHOULDER AREA

LOCATE THE SURFACE SENSORS AT AN EQUAL DISTANCE BETWEEN THE
CENTER LINE OF THE LANE AND THE CENTER LINE OF THE WHEEL TRACK.

MULTI-LANE HIGHWAYS BRIDGE/ ROADWAY




SURFACE SENSOR

## ROADWAY DEVICES

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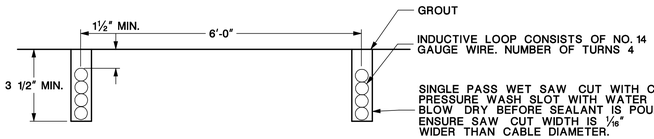
NEW JERSEY DEPARTMENT OF TRANSPORTATION

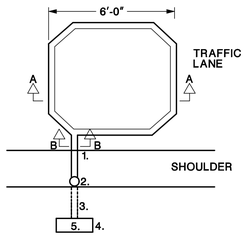
ITS DETAILS
N.T.S.
ROADWAY WEATHER
INFORMATION SYSTEM

ROADWAY DEVICES

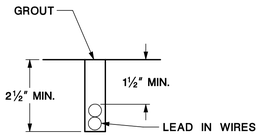
BDC 07D-03




SECTION A-A



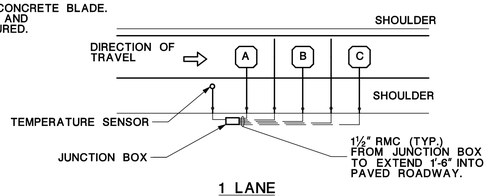

LOOP DETAILS



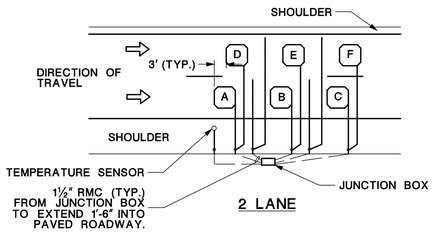

SECTION B-B

NOTES:

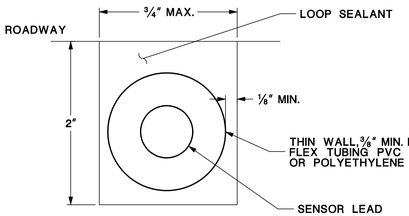
1. LEAD WIRES TWISTED MINIMUM OF 3 TURNS PER FOOT.
2. DRILL HOLE 1'-6" FROM EDGE OF SHOULDER TO INSTALL RMC CONDUIT.
3. 1½" RMC CONDUIT RUN BETWEEN JUNCTION BOX AND SHOULDER SURFACE.
4. INSTALL JUNCTION BOX AT ROAD EDGE FOR CONNECTIONS TO FEEDER CABLE.
5. MAKE ALL CONNECTIONS BETWEEN LEAD WIRES AND LOOP DETECTOR LEADS IN THE JUNCTION BOX.



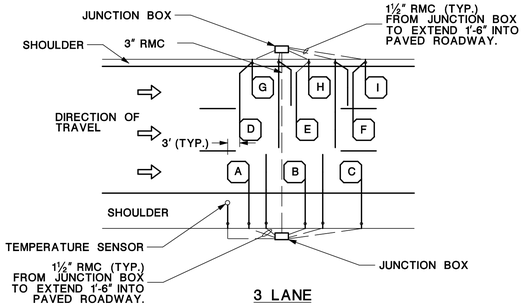

1 LANE



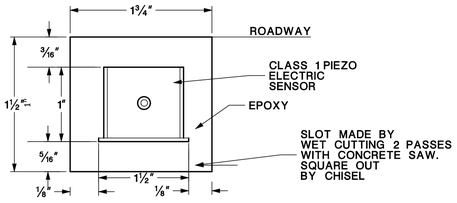

2 LANE



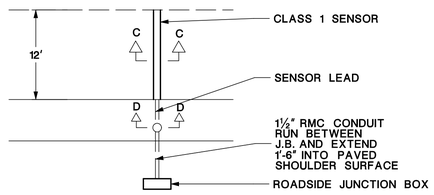

SECTION D-D



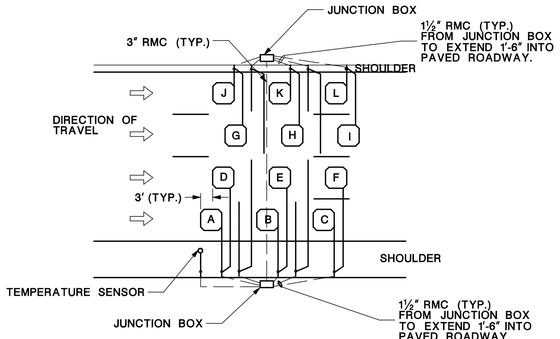

3 LANE




SECTION C-C

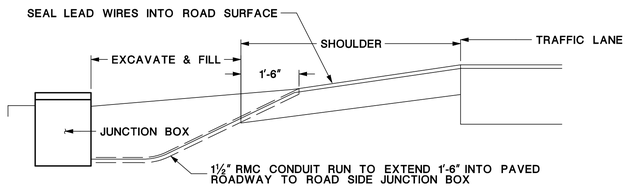



VIBRACOAX TYPE PIEZO AXLE SENSOR DETAILS

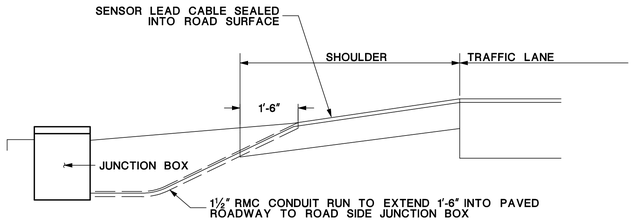



4 LANE

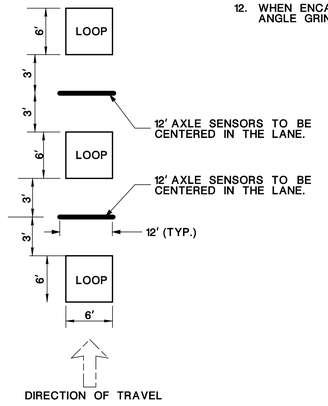
TYPICAL INSTALLATION WIM SITE




LOOP CABLE ROUTING DETAILS




AXLE SENSOR CABLE ROUTING DETAILS




SENSOR LAYOUT
FOR WEIGH IN MOTION SITES

## IDENTIFICATION OF TRAFFIC MONITORING LOOPS

1. IDENTFY LOOPS WITH DURABLE IDENTIFICATION TAGS ON EACH LOOP LEAD PAIR. AFFIX LETTERS AS FOLLOWS:

   TAG THE LEADING LOOP AS LOOP "A" (FIRST LOOP IN THE DIRECTION OF TRAVEL OF THE RIGHT MOST LANE VARIOUSLY CALLED SLOW, SHOULDER, OR TRAVEL LANE), LOOP "B" AS THE TRAILING (SECOND) LOOP IN THE SAME LANE AND LOOP "C" AS THE THIRD LOOP IN THE SAME LANE.

   IDENTIFY LOOPS IN GROUPS WITH THE LEADING LOOP IN THE DIRECTION OF TRAVEL ALWAYS IDENTIFIED BY THE FIRST LETTER IN THE GROUP. ASSIGN THE GROUPS BY LANE ACROSS ROADWAY, TOWARD THE DIVIDER OR MEDIAN.

   SIMILARLY DESIGNATE LOOPS IN THE OPPOSITE DIRECTION BY LANE STARTING IN THE RIGHT MOST LANE, USING THE NEXT GROUP OF LETTERS, THEN ACROSS THE LANES TO THE DIVIDER OR MEDIAN.

## NOTES:

1. CLEAN SLOTS FOR PIEZOELECTRIC AXLE SENSOR, LOOPS AND LEAD-IN CABLES (PRESSURE WASHED WITH WATER) AND DRY PRIOR TO THE APPLICATION OF GROUT.
2. STAGGER ADJACENT LANE SENSORS.
3. WHERE CONCRETE ROADWAY EXISTS, INSTALL LOOPS IN CONCRETE SURFACE PRIOR TO RESURFACING.
4. WHERE REFLECTORS AND CASTINGS AND RUMBLE STRIPS ARE TO BE INSTALLED, ADJUST THE DEPTH OF THE LOOP LEADS AND AXLE SENSOR CABLES ACCORDINGLY TO AVOID DAMAGE.
5. ENSURE GROUT CURES AND IS CAPABLE OF SUPPORTING VEHICULAR TRAFFIC WITHIN A MAXIMUM OF 60 MINUTES FROM START OF INSTALLATION.
6. INSTALL LOOPS AFTER MILLING PROCESS, IF PERFORMED, AND PRIOR TO THE INSTALLATION OF THE FINAL OVERLAY.
7. SENSOR SPACING SHOWN IS TYPICAL SPACING REQUIREMENT. ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDTIONS AND MANUFACTURER'S RECOMMENDATION.
8. USE THIN WALLED PLASTIC TUBING TO CONTAIN THE SENSOR LEAD WIRE. INSTALL THE TUBING FROM THE END OF THE SENSOR SLOT TO A POINT 6-12 INCHES INSIDE THE JUNCTION BOX OR CONDUIT END.
9. INSTALL PIEZO SENSORS A MINIMUM OF 2 FEET FROM CRACKS, JOINTS, OR SAWCUTS WHEN POSSIBLE.
10. PROVIDE EACH SENSOR WITH A SUFFICIENT LENGTH OF SHIELDED LEAD CABLE FOR TERMINATION AT THE WIM COMPUTER IN THE CABINET WITHOUT SPLICING.
11. INSTALL TEMPERATURE SENSOR IN SHOULDER PER MANUFACTURER'S RECOMMENDATION. SUPPLY ONE TEMPERATURE SENSOR PER WIM COMPUTER.
12. WHEN ENCAPSULATION MATERIAL IS FULLY CURED, GRIND FLUSH WITH ROAD SURFACE USING AN ANGLE GRINDER OR BLET SANDER.

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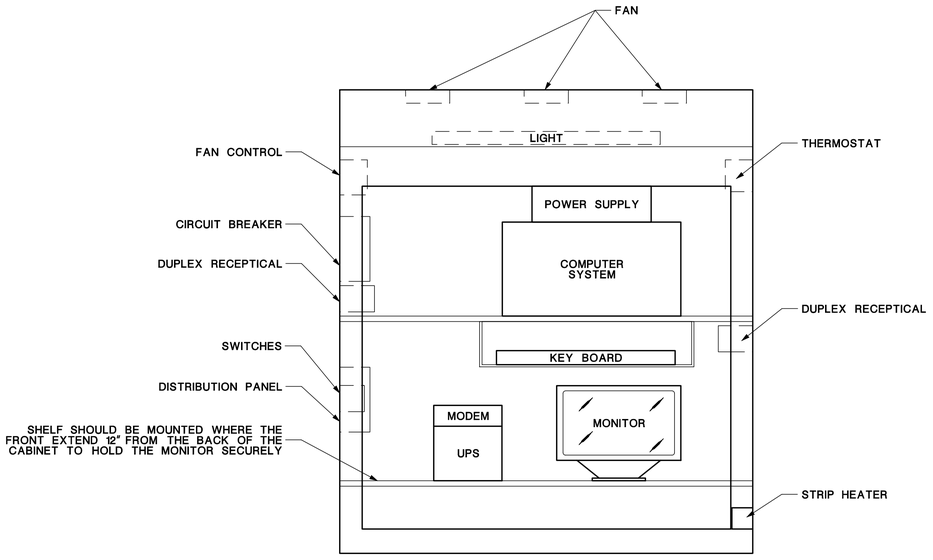
NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.

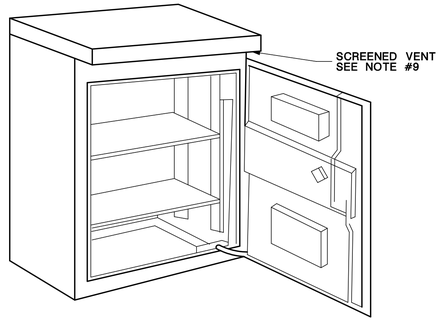
WEIGH IN MOTION SYSTEM

ROADWAY DEVICES

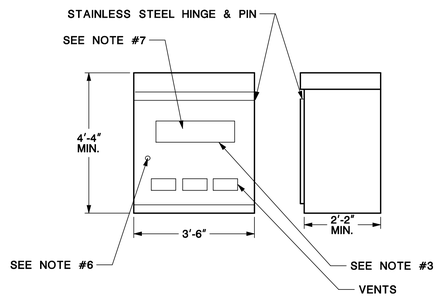
BDC 07D-03




FRONT




MINIMUM DIMENSIONS
OF CABINET




CONTROLLER CABINET DETAILS

NOTES:

1. FABRICATE CABINET OF ⅛" THK. ALUM. (GRADE 50-52-H32) THE CABINET TO BE MOUNTED WITH THE ANCHOR BOLT CONFIGURATIONS SHOWN, IF REQUIRED USE¼" THK. ALUM. 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 BRITIAN, 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 - 8.
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.

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ITSD-704-24

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS

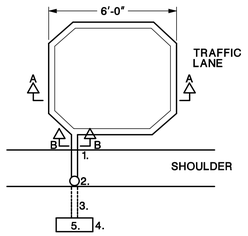
WIM SYSTEM / TVS SYSTEM

CONTROLLER WIM / TVS

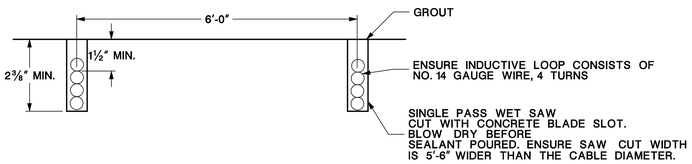
SCALE:
NOT TO SCALE

## LOOP DETECTOR SCHEDULE

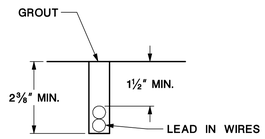
| LOOP | SIZE | No.OF TURNS | $\mu H$ |
|---|---|---|---|
| A | 6'-0" X 6'-0" | 4 | |
| B | 6'-0" X 6'-0" | 4 | |
| C | 6'-0" X 6'-0" | 4 | |
| D | 6'-0" X 6'-0" | 4 | |
| E | 6'-0" X 6'-0" | 4 | |
| F | 6'-0" X 6'-0" | 4 | |
| G | 6'-0" X 6'-0" | 4 | |
| H | 6'-0" X 6'-0" | 4 | |



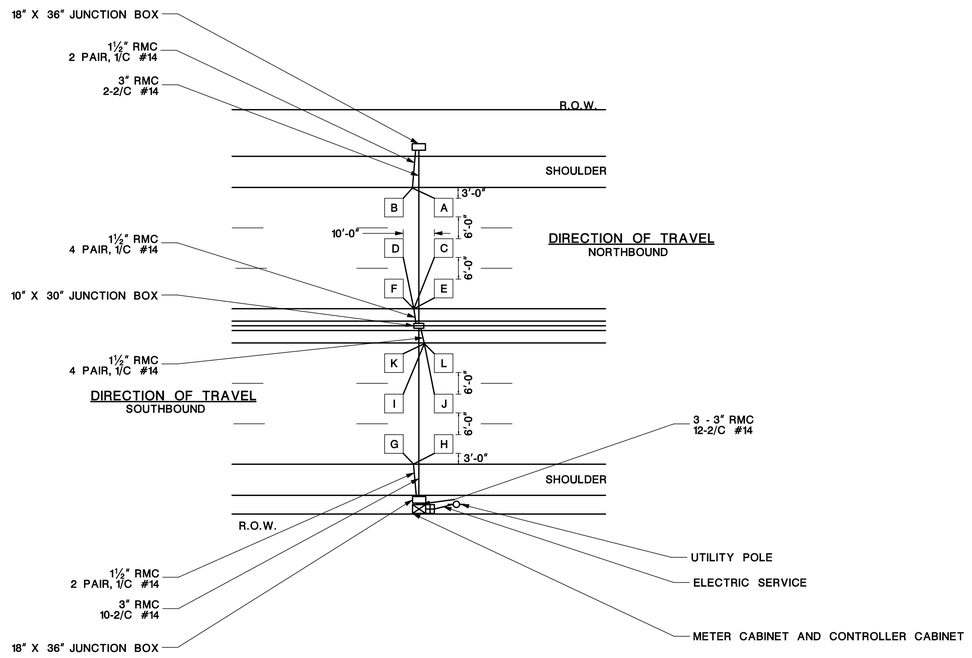

LOOP DETAILS




SECTION A-A




SECTION B-B




DIRECTION OF TRAVEL
NORTHBOUND

NOTES:

1. TWIST LEAD WIRES AT 7 TURNS PER FOOT.
2. DRILL A HOLE IN SHOULDER TO INSTALL RMC CONDUIT.
3. CONSTRUCT 1½" 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.

IDENTIFICATION OF TRAFFIC MONITORING LOOPS

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.

   THE LOOPS SHALL BE IDENTIFIED IN PAIRS (C-D, E-F, G-H, I-J, K-L), WITH THE LEADING LOOP IN THE DIRECTION OF TRAVEL ALWAYS IDENTIFIED BY THE FIRST LETTER IN THE PAIR. THE PAIRS SHALL THEN BE ASSIGNED BY LANE ACROSS THE NORTHBOUND OR EASTBOUND ROADWAY, TOWARD THE DIVIDER OR MEDIAN, STARTING WITH LOOPS A-B IN THE RIGHTMOST NORTHBOUND OR EASTBOUND 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.

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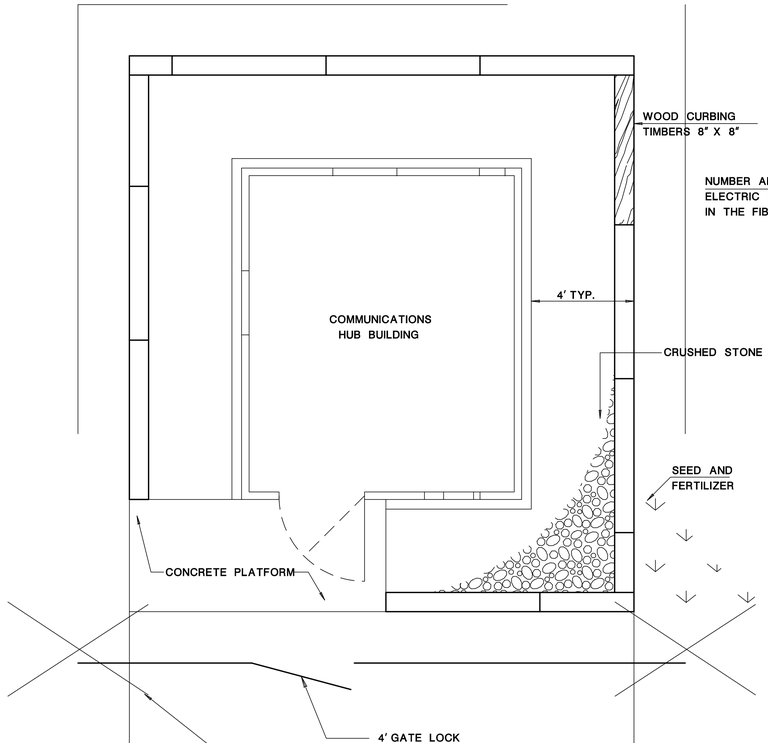
NEW JERSEY DEPARTMENT OF TRANSPORTATION

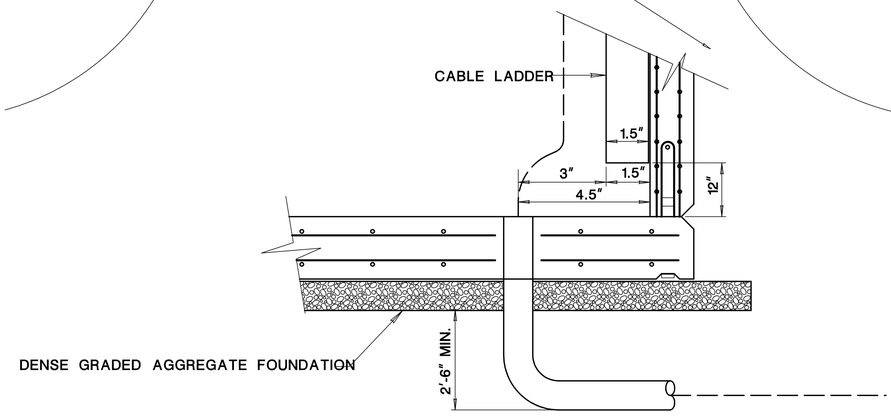
ITS DETAILS
N.T.S.

TRAFFIC VOLUME SYSTEM

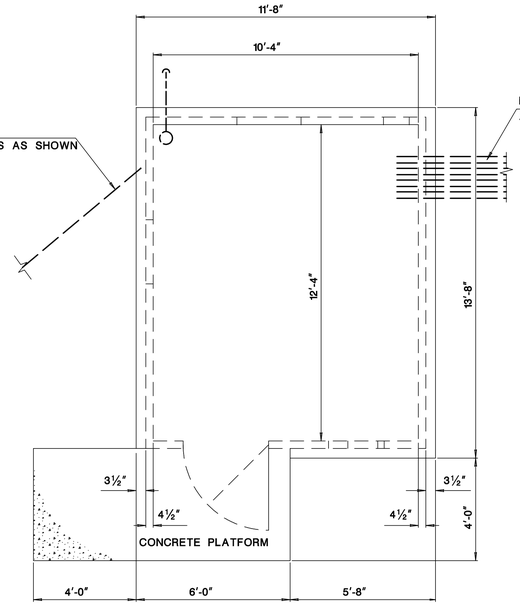
ROADWAY DEVICES

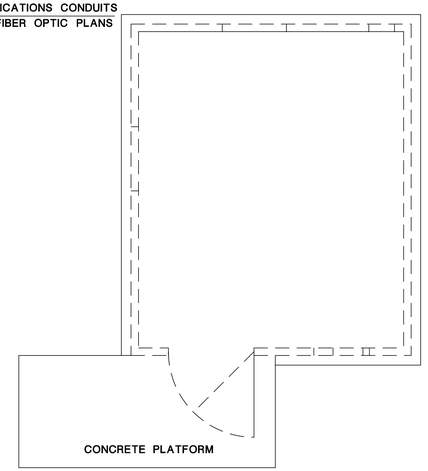



PLAN VIEW



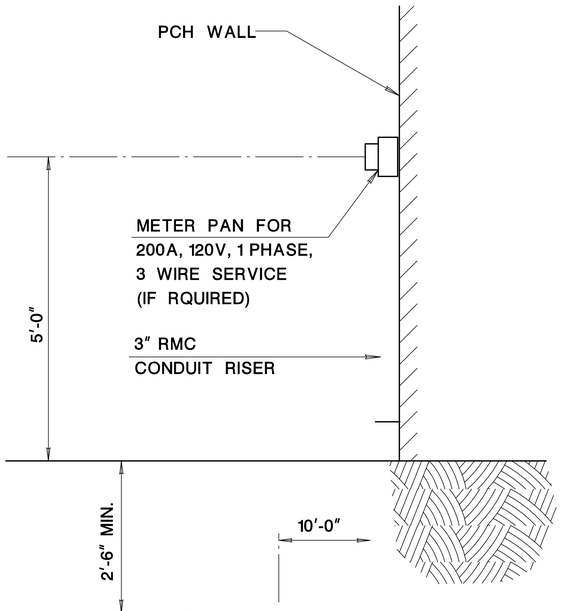

COMMUNICATIONS CABLE ENTRANCE DETAIL




GROUNDING PLAN

PLAN VIEW




SERVICE ENTRANCE DETAIL

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.

GENERAL SYSTEMS

COMMUNICATION HUB

SHEET 1 OF 4

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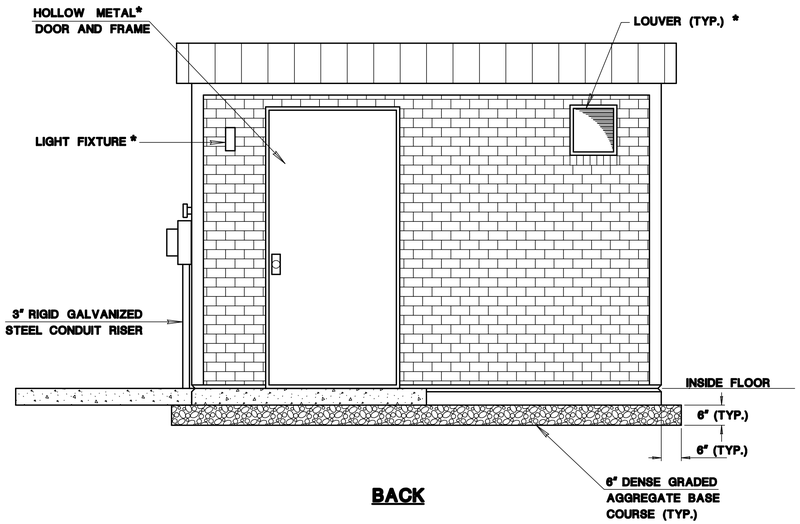
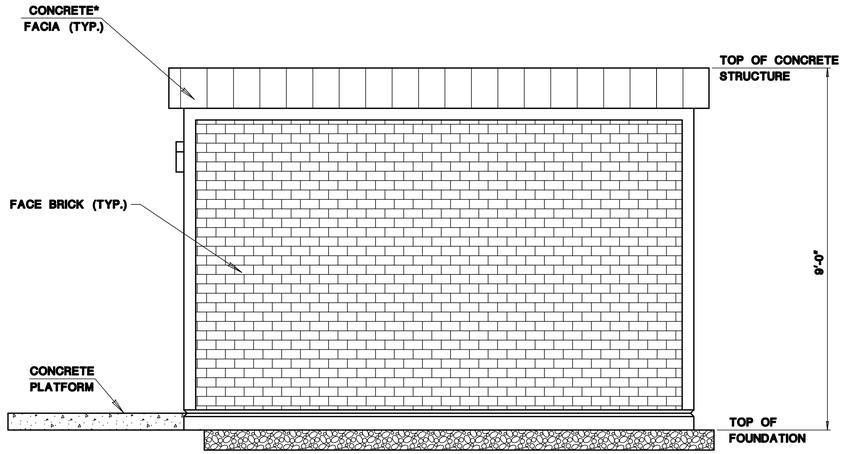
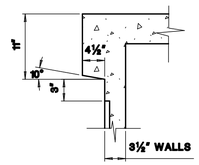


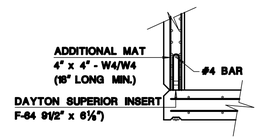

**BACK**



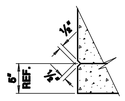

**RIGHT SIDE**



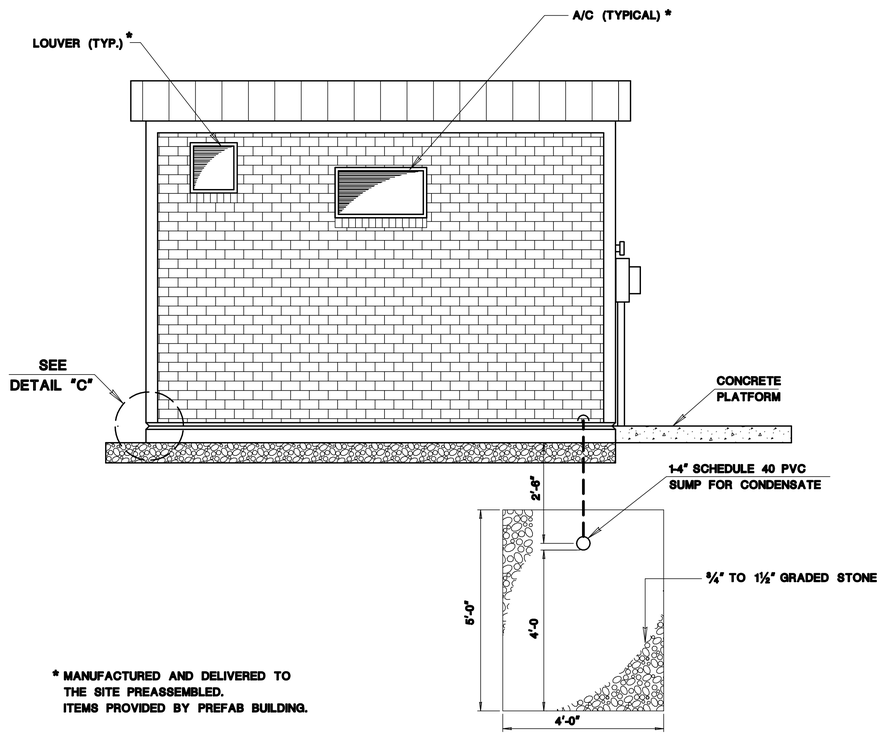

**DETAIL "A"**




**DETAIL "B" - ADDITIONAL REINFORCING**

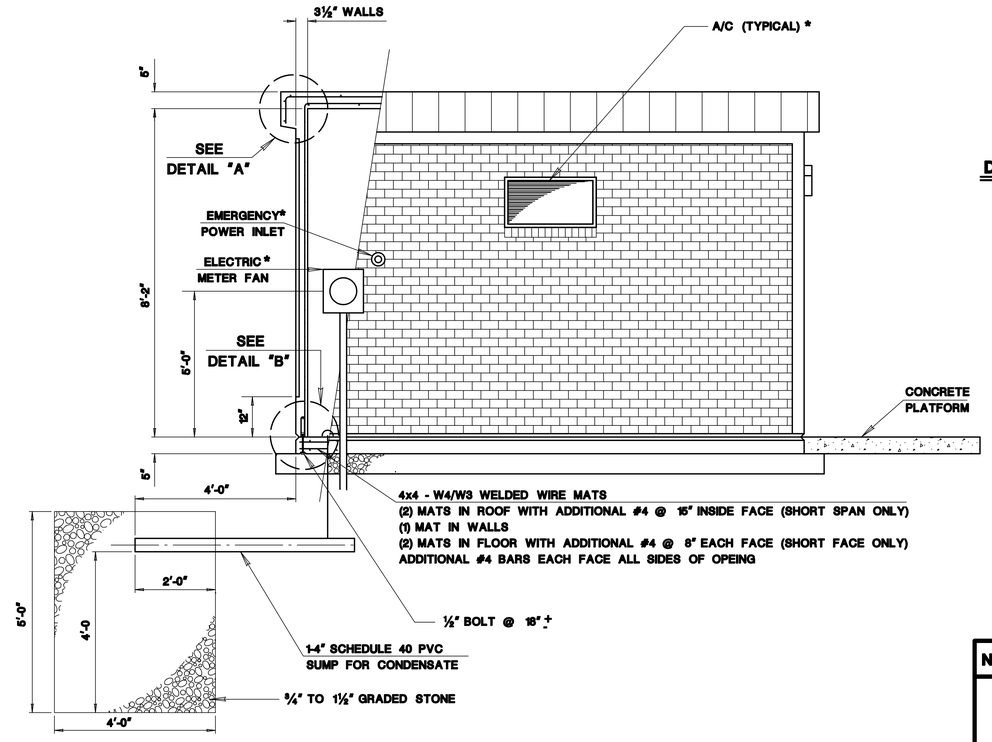



**DETAIL "C"**




* MANUFACTURED AND DELIVERED TO
THE SITE PREASSEMBLED.
ITEMS PROVIDED BY PREFAB BUILDING.

**BACK**




**LEFT SIDE**

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

# ITS DETAILS
N.T.S.

## GENERAL SYSTEMS

COMMUNICATION HUB

SHEET 2 OF 4

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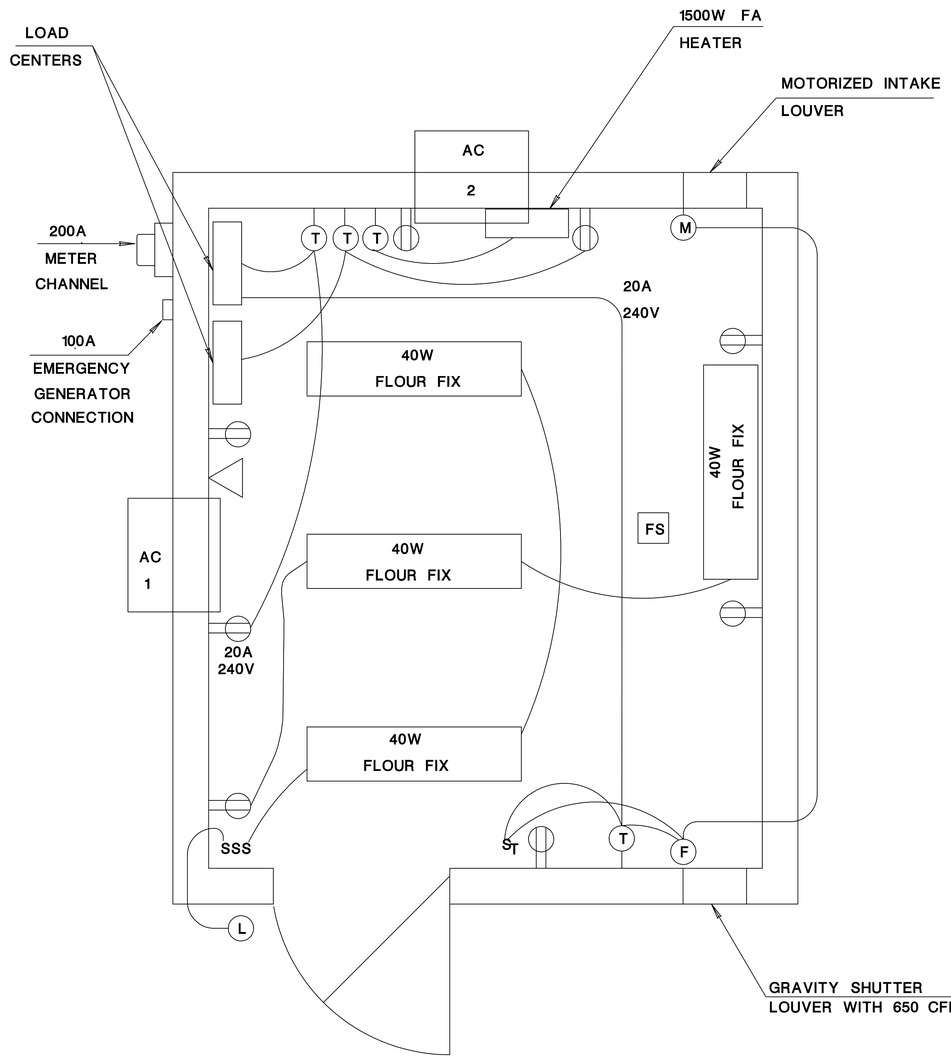
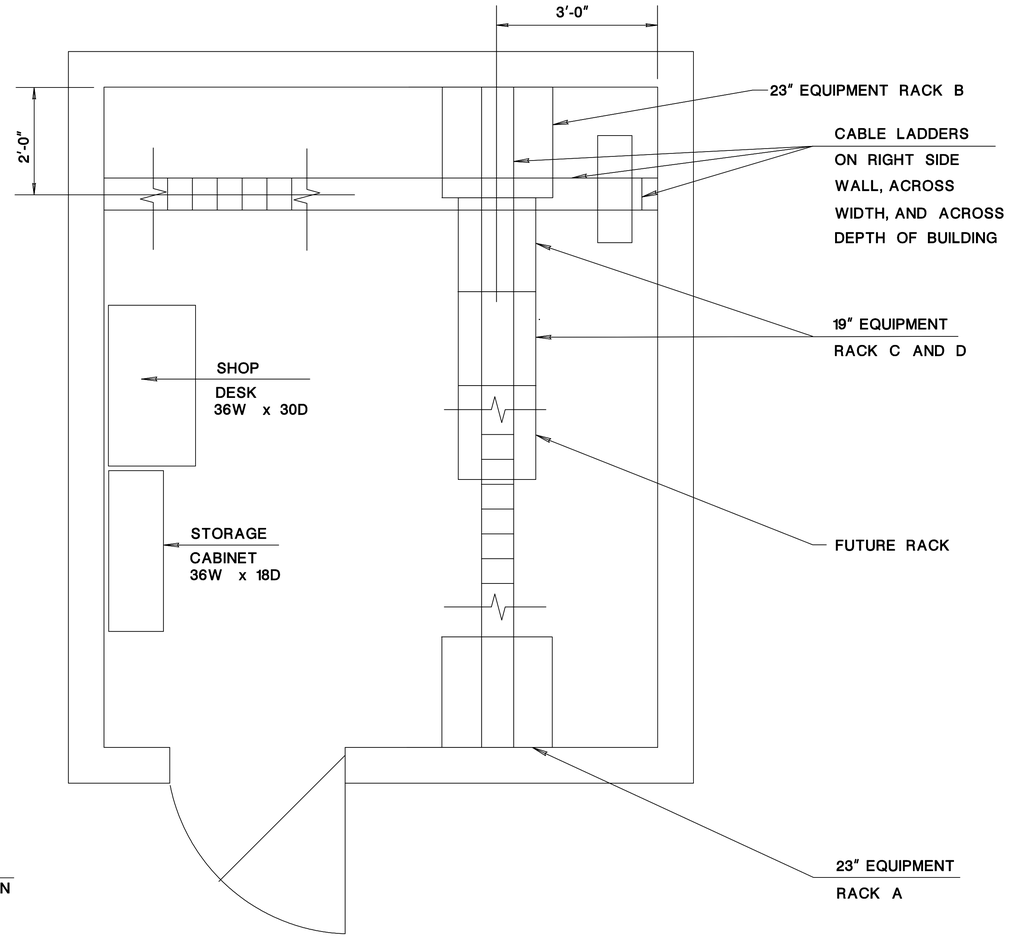



ELECTRIC WIRING PLAN




RACK AND EQUIPMENT LOCATION PLAN

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

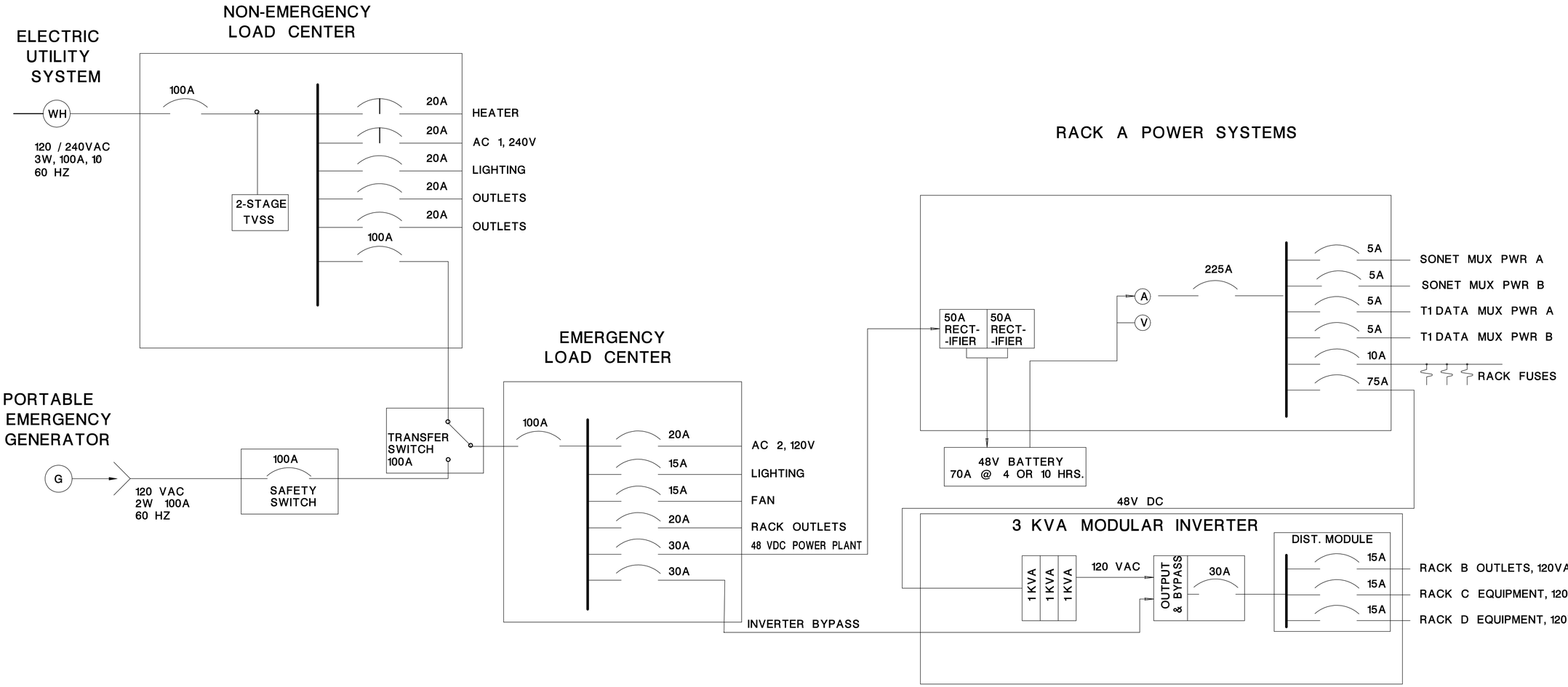
ITS DETAILS
N.T.S.

GENERAL SYSTEMS

COMMUNICATION HUB

SHEET 3 OF 4

SCALE:
NOT TO SCALE




**ELECTRICAL SERVICE LOAD CENTERS**

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NEW JERSEY DEPARTMENT OF TRANSPORTATION

ITS DETAILS
N.T.S.

GENERAL SYSTEMS

COMMUNICATION HUB

SHEET 4 OF 4