1. Use the number and size of supports shown on the support chart in project plans.

2. Fabricate sign panel sections with sheets 4'-0" wide. When fabricating signs which are not multiples of 4'-0" in width, do not cut more than two sheets to less than 4'-0" in width. These panels shall not be less than 1'-0" in width.

3. See NCDOT standard specifications for roads and structures, for type of material to be used for sign panels, hanger assemblies, and supports.

4. Use galvanized steel for backing plates and mounting bolts.

5. See roadway standard 904.20 when type "B" secondary sign mounting is required.

6. Details for type "A" secondary signs shall be the same as for type "A" signs.

7. The vertical dimension between primary and secondary signs is two (2) inches.

8. Adjust stiffeners to avoid conflict with supports.

9. See roadway standard 901.70 for support and "Z" bar spacing.

10. Fabricate signs taller than 12'-0" as two separate signs with a horizontal splice. Locate stringers on each section of the sign by the sign stringer chart. (See roadway standard 901.70)

11. Fabricate signs taller than 12'-0" but shorter than 14'-6" with a horizontal splice located 7'-0" from bottom of sign.

12. Fabricate signs 14'-6" tall and taller with a horizontal splice. Locate the splice at least half of the sign height from the bottom and at least 7'-0" from the top.

13. There shall only be a 5/8" gap between the vertical backing strip and the "Z" bar.

14. See roadway standard 901.80 for details showing sign mounting to supports.

15. Place nylon washer under head of 5/8" thru bolts.

16. Fabricate each sign with 5/8" dia. thru bolt, 4" from each end of each "Z" bar thru sign panel and "Z" bar. See details A & C.

17. Fabricate each sign with 3/8" dia. thru bolt centered in each panel thru the top and bottom "Z" bar. Centered thru bolt required in end panels greater than 2'-0" wide. See details A & C.

18. Thru bolts will have a minimum 3/8" to maximum 5/8" gap.
NOTE # 7

... "DIA. THRU BOLT
" GAP
... "THICK
... "I.D.,\nO.D.,
NYLON WASHER
FLAT WASHER
ALUMINUM STIFFENER BAR
1" X ...

1. PLACE NYLON WASHER UNDER HEAD OF THRU BOLT.

12. NYLON INSERT LOCK NUT
THRU BOLTS WILL HAVE A MINIMUM ... MAXIMUM ...

14. DIA. MELDED STUD WITH STD. PLAIN FLAT WASHER, LOCK WASHER AND HEX. NUT

15. "W" TYP. OF SIGN (SEE NOTE 6)

16. SUPPORT % OF ALUMINUM BAR SUPPORT

17. 12'-0" MAX.

18. SIGN FACE

19. SECTION A-A
STIFFENER DETAIL

20. DRIVE STUD CONSTRUCTION

NOTES
1. USE NUMBER AND SIZE OF SUPPORTS SHOWN ON SUPPORT CHART IN PROJECT PLAN SHEETS.

2. SEE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR THE TYPE OF MATERIAL TO BE USED FOR SIGN PANELS, HANGER ASSEMBLIES AND SUPPORTS.

3. FURNISH ALL MOUNTING HARDWARE.

4. USE GALVANIZED STEEL FOR BACKING PLATES AND MOUNTING BOLTS.

5. THE VERTICAL DIMENSION BETWEEN PRIMARY AND SECONDARY SIGNS IS TWO (2) INCHES.

6. ADJUST STIFFENERS TO AVOID CONFLICT WITH SUPPORTS.

7. FABRICATE EACH SIGN WITH A 3g" DIA. BOLT 4" FROM EACH END OF EACH "Z" BAR THRU SIGN PANEL AND "Z" BAR.

8. SEE ROADWAY STANDARD 901.70 FOR SUPPORT AND "Z" BAR SPACING.

9. SEE ROADWAY STANDARD 901.80 FOR DETAILS SHOWING SIGN MOUNTING TO SUPPORTS.

10. PLACE NYLON WASHER UNDER HEAD OF 3g" THRU BOLT.

11. THRU BOLTS WILL HAVE A MINIMUM 3g" TO MAXIMUM 5g" GAP.
IF OVERLAYING SIGN OVERLAPS SIGN ON FOUR SIDES
DETAIL NO.4

IF OVERLAYING SIGN OVERLAPS SIGN ON TOP ONLY
DETAIL NO.1

IF OVERLAYING SIGN OVERLAPS SIGN ON TOP AND SIDES
DETAIL NO.3

TYPICAL RIVET SPACING FOR OVERLAY SIGNS

OVERLAPPING EXISTING SIGN IS TO BE TRIMMED FLUSH TO OVERLAYING SIGN
3" MAX

IF OVERLAYING SIGN OVERLAPS SIGN ON TWO SIDES
DETAIL NO.2

IF EXISTING SIGN OVERLAPS OVERLAYING SIGN
OVERLAPPING EXISTING SIGN IS TO BE TRIMMED FLUSH TO OVERLAYING SIGN
3" MAX

6" MAX

IF OVERLAYING SIGN OVERLAPS SIGN ON ONE SIDE
DETAIL NO.7

1. A COMPLETE OVERLAY OF AN EXISTING O.H. SIGN IS NOT PERMISSIBLE
### Height Bottom Section
```
<table>
<thead>
<tr>
<th>Height</th>
<th>Bottom Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>14' 6&quot;</td>
<td>7' - 6&quot;</td>
</tr>
<tr>
<td>15' 0&quot;</td>
<td>8' - 0&quot;</td>
</tr>
<tr>
<td>15' 6&quot;</td>
<td>8' - 6&quot;</td>
</tr>
<tr>
<td>16' 0&quot;</td>
<td>9' - 0&quot;</td>
</tr>
<tr>
<td>16' 6&quot;</td>
<td>9' - 6&quot;</td>
</tr>
<tr>
<td>17' 0&quot;</td>
<td>10' - 0&quot;</td>
</tr>
<tr>
<td>17' 6&quot;</td>
<td>10' - 6&quot;</td>
</tr>
<tr>
<td>18' 0&quot;</td>
<td>11' - 0&quot;</td>
</tr>
<tr>
<td>18' 6&quot;</td>
<td>11' - 6&quot;</td>
</tr>
<tr>
<td>19' 0&quot;</td>
<td>12' - 0&quot;</td>
</tr>
<tr>
<td>19' 6&quot;</td>
<td>12' - 6&quot;</td>
</tr>
<tr>
<td>20' 0&quot;</td>
<td>13' - 0&quot;</td>
</tr>
<tr>
<td>20' 6&quot;</td>
<td>13' - 6&quot;</td>
</tr>
<tr>
<td>21' 0&quot;</td>
<td>14' - 0&quot;</td>
</tr>
<tr>
<td>21' 6&quot;</td>
<td>14' - 6&quot;</td>
</tr>
<tr>
<td>22' 0&quot;</td>
<td>15' - 0&quot;</td>
</tr>
<tr>
<td>22' 6&quot;</td>
<td>15' - 6&quot;</td>
</tr>
<tr>
<td>23' 0&quot;</td>
<td>16' - 0&quot;</td>
</tr>
<tr>
<td>23' 6&quot;</td>
<td>16' - 6&quot;</td>
</tr>
<tr>
<td>24' 0&quot;</td>
<td>17' - 0&quot;</td>
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### Stringer Spacing

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<th>3 Stringers</th>
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<th>5 Stringers</th>
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<tbody>
<tr>
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<td>0 - 6</td>
<td>1 - 0</td>
<td>2 - 0</td>
<td>3 - 0</td>
</tr>
<tr>
<td>30 - 2</td>
<td>0 - 8</td>
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<td>3 - 2</td>
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<td>48 - 5</td>
<td>0 - 11</td>
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<td>3 - 5</td>
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<td>3 - 1</td>
<td>4 - 1</td>
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<td>4 - 2</td>
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<td>3 - 5</td>
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<td>4 - 9</td>
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<td>4 - 10</td>
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<td>1 - 12</td>
<td>2 - 12</td>
<td>3 - 12</td>
<td>4 - 12</td>
</tr>
</tbody>
</table>

### Notes:
1. Fabricate signs taller than 12'-0" as two separate signs with a horizontal splice.
2. Fabricate signs taller than 12'-0" but shorter than 14'-6" with a horizontal splice located 7'-0" from bottom of sign.
3. Fabricate signs taller than 14'-6" with a horizontal splice. Locate the splice at least half the sign height from the bottom and at least 7'-0" from the top.

Support spacing not applicable to overhead signs.

### Support Spacing

- 0.080 and 0.125 sign faces

### Number of Stringers Required

- 0.080 and 0.125 sign faces

- Maximum sign height

<table>
<thead>
<tr>
<th>Number of Stringers</th>
<th>Maximum Sign Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4'-6&quot;</td>
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<tr>
<td>3</td>
<td>7'-0&quot;</td>
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<td>10'-0&quot;</td>
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<td>5</td>
<td>12'-0&quot;</td>
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<tr>
<td>6</td>
<td>14'-0&quot;</td>
</tr>
<tr>
<td>7</td>
<td>17'-0&quot;</td>
</tr>
<tr>
<td>8</td>
<td>20'-0&quot;</td>
</tr>
<tr>
<td>9</td>
<td>23'-0&quot;</td>
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<tr>
<td>10</td>
<td>24'-0&quot;</td>
</tr>
<tr>
<td>W (IN)</td>
<td>2 SUPPORTS</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>P= 0.207W R= 0.356W</td>
</tr>
<tr>
<td>180 16-0</td>
<td>2, 200 15-0</td>
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<tr>
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<td>2, 200 14-0</td>
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<tr>
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<td>2, 200 01-0</td>
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<tr>
<td>180 01-0</td>
<td>2, 200 00-0</td>
</tr>
</tbody>
</table>

VALUES HAVE BEEN ROUNDED TO NEAREST 1/2 INCH.
* THESE VALUES HAVE BEEN ADJUSTED TO BALANCE SPACING.
\# MAXIMUM WIDTH FOR 2 SUPPORTS. 200 SQ. FT. MAX. AREA FOR 2 SUPPORTS.
△ SUPPORTS SPACING NOT APPLICABLE TO OVERHEAD SIGNS.
1. THE SUPPORT MOUNTING DETAIL SHOWS A "W" OR "S" BEAM. THIS DETAIL IS ALSO USED FOR MOUNTING SIGNS TO WOOD OR SQUARE TUBE SUPPORTS.

2. USE A36 STEEL FOR BACKING PLATES GALVANIZED IN ACCORDANCE WITH ASTM A123.

3. SEE NC DOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR TYPE OF MATERIAL TO BE USED FOR SIGN HANGER ASSEMBLIES AND SUPPORTS.

4. USE GALVANIZED STEEL FOR MOUNTING BOLTS AND THREADED RODS IN COMPLIANCE WITH ASTM A325 AND ASTM F2329.

1. THE SUPPORT MOUNTING DETAIL SHOWS A "W" OR "S" BEAM. THIS DETAIL IS ALSO USED FOR MOUNTING SIGNS TO WOOD OR SQUARE TUBE SUPPORTS.

2. USE A36 STEEL FOR BACKING PLATES GALVANIZED IN ACCORDANCE WITH ASTM A123.

3. SEE NC DOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR TYPE OF MATERIAL TO BE USED FOR SIGN HANGER ASSEMBLIES AND SUPPORTS.

4. USE GALVANIZED STEEL FOR MOUNTING BOLTS AND THREADED RODS IN COMPLIANCE WITH ASTM A325 AND ASTM F2329.
2. Vertically reinforcing bars. No other welding will be permitted. The final flat turn of spiral or hoops No. 3 or larger placed 3" from top and bottom of footing may be welded to ground mounted sign supports.

3. Bur all bolt threads of base connections to prevent loosening.

4. Use reinforced footings with dimensions as shown in plans. Where solid rock is encountered, the engineer directs whether to place the footing at the prescribed depth or extend it at least two feet into the rock. Construct all footings of Class A concrete.

5. Eliminate hinge connection for all single support signs.

6. Do not weld reinforcing plates to prevent bolt slipping. Tighten bolts to the following prescribed torque:

<table>
<thead>
<tr>
<th>Bolt Diameter</th>
<th>Torque (lb. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot;</td>
<td>9</td>
</tr>
<tr>
<td>9&quot;</td>
<td>22</td>
</tr>
<tr>
<td>12&quot;</td>
<td>37</td>
</tr>
<tr>
<td>18&quot;</td>
<td>46</td>
</tr>
</tbody>
</table>

7. Assemble upper support to stub as shown in detail. Slip base plates shall be fillet welded onto posts all around the structural shape so as to insure no loss of strength. Assemble in either shop or field. 28 gauge keeper plate is placed between slip base plates to prevent bolt slipping. Tighten bolts to the following prescribed torque:

8. Use high strength bolts, nuts and washers that conform to ASTM A-527 and that are galvanized in accordance with ASTM F2232 or S695 Class 55.

9. Use backing plates, slip base plates, friction plates, and hinge plates that conform to ASTM A-36 and that are galvanized in accordance with ASTM A-123 prior to galvanizing. Grind smooth any metal projection beyond the plate face. Keeper plates shall be manufactured from 28 gauge sheet steel that conforms to ASTM A-36 and is galvanized in accordance with ASTM A-123.

10. Use backer plates, slip base plates, friction plates, and hinge plates that conform to ASTM A-36 and that are galvanized in accordance with ASTM A-123.

11. Design conforming with the specifications for the design and construction of structural supports for highway signs - AASHTO.

12. Design conforming with the specifications for the design and construction of structural supports for highway signs - AASHTO.

13. Assemble hinge connections in the shop. The shop shall tighten bolts by use of either a calibrated power wrench or a manual torque wrench. Tighten each hinge connection bolt to 1/3 past snug.

14. Notes:

   - Construct all footings of Class A concrete.
   - The footing at the prescribed depth or extend it at least two feet into the rock. Construct all footings of Class A concrete.
   - Use reinforced footings with dimensions as shown in plans. Where solid rock is encountered, the engineer directs whether to place the footing at the prescribed depth or extend it at least two feet into the rock. Construct all footings of Class A concrete.
   - Use backer plates, slip base plates, friction plates, and hinge plates that conform to ASTM A-36 and that are galvanized in accordance with ASTM A-123.
   - Use high strength bolts, nuts and washers that conform to ASTM A-527 and that are galvanized in accordance with ASTM F2232 or S695 Class 55.
   - Use reinforcing plates to prevent bolt slipping. Tighten bolts to the following prescribed torque:

<table>
<thead>
<tr>
<th>Bolt Diameter</th>
<th>Torque (lb. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot;</td>
<td>9</td>
</tr>
<tr>
<td>9&quot;</td>
<td>22</td>
</tr>
<tr>
<td>12&quot;</td>
<td>37</td>
</tr>
<tr>
<td>18&quot;</td>
<td>46</td>
</tr>
</tbody>
</table>

   - Eliminate hinge connection for all single support signs.
   - Do not weld reinforcing plates to prevent bolt slipping. Tighten bolts to the following prescribed torque:

<table>
<thead>
<tr>
<th>Bolt Diameter</th>
<th>Torque (lb. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot;</td>
<td>9</td>
</tr>
<tr>
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<td>22</td>
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<tr>
<td>12&quot;</td>
<td>37</td>
</tr>
<tr>
<td>18&quot;</td>
<td>46</td>
</tr>
</tbody>
</table>

   - Use backer plates, slip base plates, friction plates, and hinge plates that conform to ASTM A-36 and that are galvanized in accordance with ASTM A-123.
   - Use high strength bolts, nuts and washers that conform to ASTM A-527 and that are galvanized in accordance with ASTM F2232 or S695 Class 55.
**NOTES:**

1. Use the size, number, length and type of supports shown in the plans. Use wood posts that conform to Sections 1082-2 and 1082-3 of the 2002 NCDOT Standard Specifications for Roads and Structures.

2. Mount all wood posts that do not have drilled holes behind guardrail, except the 4" x 4" wood posts.

3. For wood posts, drill the bottom hole 4" above the ground and the top hole 18" above the ground (see detail "B"). See chart for post sizes and drilled hole sizes. Drill holes perpendicular to the direction of travel. Dual supports must be at least 7 feet apart.

4. Locate all wood posts that are 8" x 8" either behind guardrail or located so that the posts could not be hit by traffic.

5. Furnish all mounting hardware.

6. Use galvanized steel backing plates and mounting bolts.

7. Adjust stiffeners to avoid conflicts with supports.

8. Drill holes in the center of the supports.
ATTACHMENT METHODS

<table>
<thead>
<tr>
<th>POST SIZE AND DRILLED HOLE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A B</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>4.0&quot;</td>
</tr>
<tr>
<td>4.0&quot;</td>
</tr>
</tbody>
</table>

- **3/8" DIA. HEX HEAD**
- **ALUMINUM SHIMS** (9/16" x 1/2" x 1/2")
- **WOOD SUPPORT**
- **3/8" DIA. BOLT**
- **WASHER**
- **LOCK WASHER**
- **NUT**
- **"U" CHANNEL CROSS-BRACING**
- **SIGN FACE**
- **NYLON WASHER**
- **LOCK WASHER**
- **NUT**
- **BACKING PLATE**
- **WOOD SUPPORT**
- **WOOD POST WIDTH PLUS 25/32"**

**NOTES**

1. **1.4" X 4" WOOD POSTS ARE ACCEPTABLE UNDRILLED, AND CAN BE USED AT ANY LOCATION WITHOUT GUARDRAIL PROTECTION.**
2. **2.4" X 6" WOOD POSTS MUST BE USED WITH GUARDRAIL PROTECTION OR DRILLED TO MAKE THEM BREAKAWAY. (DRILLED WITH 1½" HOLES, PERPENDICULAR TO THE DIRECTION OF TRAVEL, LOCATED 4" AND 18" ABOVE THE GROUND)**
3. **USE "U" CHANNEL POSTS FOR CROSS-BRACING SIGNS SUPPORTED BY DUAL WOOD POSTS.**
1. MAXIMUM SIGN SIZE IS 9.0 SQUARE FEET IN MAXIMUM WIND VELOCITY OF 80 MPH.

2. ERECT TYPE "E" AND "F" SIGNS WITH THE SAME SPECIFICATIONS AS "TYPICAL INSTALLATION OF SIGNS MOUNTED ON "U" CHANNEL POSTS.

3. ERECT MILE MARKERS WITH THE SAME SPECIFICATIONS AS "MILEPOST DETAILS AND PLACEMENT". SEE ROADWAY STANDARD NUMBER 904.40.

4. APPLICABLE SECTIONS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SHALL BE IN EFFECT.

5. ATTACH THE BRACE TO THE BARRIERS BY MEANS OF 5/8" DIAMETER, 2" LONG CONCRETE ANCHORS WITH Lock WASHERS. USE CONCRETE ANCHORS THAT ARE STAINLESS STEEL OR GALVANIZED, IN ACCORDANCE WITH ASTM A-152, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

NOTE

HORIZONTAL BRACE
4" X 4" X 7/8" ANGLE

VERTICAL BRACE
4" X 4" X 4" ANGLE

3/4" DIA., HOLES FOR 5/8" BOLTS

3/4" DIA., HOLES FOR 5/8" BOLTS

5/8" DIA., HOLES FOR 3/8" BOLTS

1-1/2" DIA. HEX. HEAD OR 3/8" DIA. FASTENER (SEE APPLICABLE SPECIFICATION)

NYLON WASHER (WHERE APPLICABLE)

ALUMINUM SHIMS (3 1/2" X 3 1/2" X 1/4")

FOR "E" AND "F" SIGNS

(SEE APPLICABLE SPECIFICATION)

2 LB./LF OR 3 LB./LF "U" CHANNEL POST

SEE NOTE 1

SEE NOTE 1

5/16" DIA. BOLT, ASTM A-307

BARRIER SIGN SUPPORT ASSEMBLY

ASTM A-36 STEEL

ASTM A-307

ASTM A-307

LOCK WASHER

NUT

1/2" DIA. X 4" CONCRETE ANCHORS

WITH LOCK WASHERS, SEE NOTE 6

ASTM A-507

SIGN BRACE ASSEMBLY

ASTM A-307 STEEL

WITH ASTM A-152 GALVANIZING

1" DIA. X 2" CONCRETE ANCHORS

WITH LOCK WASHERS, SEE NOTE 5.
ENGLISH STANDARD DRAWING FOR
ENGLISH STANDARD DRAWING FOR
MEDIAN BARRIER SIGN SUPPORT
MEDIAN BARRIER SIGN SUPPORT
AND ANCHORAGE
AND ANCHORAGE

NOTES:

1. FURNISH ONE SET OF SIGN SUPPORTS FOR EACH SIGN.

2. SEE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SIGN SPECIFICATION SUPPLEMENT FOR THE TYPE OF MATERIAL TO BE USED FOR SIGN SUPPORTS.

3. FURNISH ALL MOUNTING HARDWARE.

4. THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WILL FURNISH SIGNS.

5. USE ASTM A-36 STEEL GALVANIZED "U" BOLTS AND NUTS IN ACCORDANCE WITH ASTM A-153. EACH ANCHOR SHALL BE PROVIDED WITH "U" BOLT WITH STANDARD PLAIN FLAT WASHERS, LOCK WASHERS, AND HEX NUTS.

6. USE ASTM A-36 ANCHOR BOLTS, GALVANIZED IN ACCORDANCE WITH ASTM A-153. OFFICIAL LENGTHS OF ANCHOR BOLTS IS 27". ANCHOR BOLT PROJECTION, EMBEDMENT, AND OVERALL LENGTH OF ANCHOR TO BE AS SHOWN ON PLANS.

USE 5/8" X 7-5/8" DRILLED ADHESIVE ANCHOR GALVANIZED TO ASTM A-163. EACH ANCHOR SHALL BE PROVIDED WITH TWO (2) NUTS, ONE (1) FLAT WASHER, AND ONE (1) LOCK WASHER.
DETAIL "A"

USE EITHER GALVANIZED STEEL OR A CAST ALUMINUM CAP TO MATCH THE MATERIAL OF THE POLE. USE FOUR SET SCREWS FOR ATTACHMENT TO SUPPORT.

DETAIL "B"

WITH ANCHOR BOLT DETAIL

CONCRETE MEDIAN BARRIER

SET SCREW

CONCRETE MEDIAN BARRIER

CONCRETE PLANE SCREW (WHERE APPLICABLE)

5/8" x 20" x 6½" HOOKED ANCHOR BOLT (DETAILED LENGTH) WITH 4" THREADED END. (TYPICAL)

1" HOLE IN 5½" R

1½" HOLE IN 5½" R

CONCRETE MEDIAN BARRIER

CONCRETE MEDIAN BARRIER

CONCRETE MEDIAN BARRIER

PLAN VIEW

CONCRETE GLARE

SHEET 2 OF 2
ORIENTATION OF GROUND MOUNTED SIGNS

X = (60 FT. PER IN.) (HEIGHT OF LOWER CASE LETTER IN INCHES)
IF SIGN HAS NO LOWER CASE LETTERS, USE HEIGHT OF
UPPER CASE OR CAPITAL LETTERS IN MAJOR LINE OF COPY.
NOTES:
1. FABRICATE VERTICAL AND HORIZONTAL Z'S OF ALUM.
   Z 3" X 2¾" X ¼" X 2.33 LBF/FT.
2. ATTACH VERTICAL Z SUPPORT TO TOP TWO HORIZONTAL
   STRINGERS ON BACK OF PRIMARY SIGN.
3. DO NOT PERMIT SLOTS IN HORIZONTAL STRINGERS
   FOR ATTACHMENT OF VERTICAL Z SUPPORTS.

ATTACHMENT METHOD ONE RIGHT (1-R) OR ONE LEFT (1-L)
(EXIT PANEL OR OTHER SECONDARY SIGN ATTACHED TO VERTICAL Z SUPPORTS)

ATTACHMENT METHOD TWO (II)
(EXIT PANEL OR OTHER SECONDARY SIGN ATTACHED TO PRIMARY SIGN SUPPORTS)
**NOTES:**

1. FABRICATE VERTICAL AND HORIZONTAL "Z'S." 
2. ATTACH VERTICAL "Z" SUPPORT TO BOTTOM TWO HORIZONTAL STRINGERS ON BACK OF PRIMARY SIGN.
3. SLOTS ARE NOT ALLOWED IN HORIZONTAL STRINGERS FOR ATTACHMENT OF VERTICAL "Z" SUPPORTS.
4. THE HINGE CONNECTION IS LOCATED AT THE BOTTOM OF THE SUPPLEMENTAL PANEL FOR BREAKAWAY SUPPORTS.
**MILEPOST PLACEMENT**

**MARKER DETAILS**

- **1/8" FLUSH BORDER (TYP.)**
- **1/16" CORNER RADIUS (TYP.)**
- **1/4" O.D. MOUNTING HOLES (TYP.)**
- **49" H.D. DIMENSION (TYP.)**
- **47" W.DIMENSION (TYP.)**

**2# U CHANNEL**

- **SINGLE UNIT 12" X 24"**
- **DOUBLE UNIT 12" X 36"**
- **TRIPLE UNIT 12" X 48"**

**NOTES:**

1. **A MILEPOST SHALL CONSIST OF ONE (1) 12" X 24", 12" X 36", OR 12" X 48" MARKER. A ENHANCE REFERENCE LOCATION SIGN SHALL CONSIST OF ONE (1) 12" X 36" OR 12" X 42" MILEPOST AND ENHANCE REFERENCE LOCATION SIGNS REQUIRED ONE (1) GALVANIZED STEEL "U" CHANNEL POST WEIGHT TWO (2) POUNDS PER LINEAR FOOT.**

2. **FABRICATE MARKERS FROM .080" SHEET ALUMINUM. EACH MARKER SHALL HAVE SILVER STICK ON MESSAGE AND BORDER OR GREEN BACKGROUND, MESSAGE, BORDER, AND BACKGROUND TO BE REFLECTORIZED.**

3. **USE GALVANIZED STEEL "U" SHAPED CHANNEL POSTS. THE POST'S LENGTH MUST MEET THE REQUIREMENTS SHOWN IN THESE STANDARDS.**

4. **POSTS SHALL BE DRIVEN. THE TOP OF POST SHALL NOT PROJECT ABOVE THE TOP OF MARKER.**

5. **ATTACH EACH MARKER TO THE WIDE FACE (FLANGES) OF THE POST BY MEANS OF 1/4" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT. FULL CONTACT BETWEEN THE MARKER AND THE POST SHALL BE ACHIEVED. NO BUCKLING OF THE MARKER WILL BE PERMITTED.**

6. **PLACE MILEPOSTS AT THE SHOULDER POINT UNLESS THE ENGINEER DIRECTS OTHERWISE.**

7. **ENHANCED REFERENCE LOCATION SIGNS SHALL BE PLACED EVERY 2 TENTHS OF A MILE OR AS SHOWN IN THE PLANS.**

**ENHANCED REFERENCE LOCATION SIGNS**

- **Silver Stuck-On Message and Border on Green Background. Message, Fabricate Markers from .080" Sheet Aluminum. Each Marker Shall Have Silver Stick On Message and Border or Green Background, Message, Border, and Background to Be ReflectORIZED.**

**USE GALVANIZED STEEL "U" SHAPED CHANNEL POSTS. THE POST'S LENGTH MUST MEET THE REQUIREMENTS SHOWN IN THESE STANDARDS.**

**POST DETAILS**

- **SINGLE, DOUBLE, OR TRIPLE UNIT AS REQUIRED**

**FASTENER**

- **5/16" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT.**

**ENHANCED REFERENCE LOCATION SIGNS**

- **Required One (1) Galvanized Steel "U" Channel Post Weight Two (2) Pounds Per Linear Foot.**

**STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS DIVISION OF HIGHWAYS RALEIGH, N.C.**

**SHEET 1 OF 1 904.40**

**ENGLISH STANDARD DRAWING FOR MILEPOST AND PLACEMENT**

**STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.**

**SHEET 1 OF 1 904.40**
1. Erect Type "D", "E", and "F" signs on freeways with the near edge of the sign 20 ft. from the travel lane. Erect all other "D", "E", and "F" signs with the near edge of the sign at the edge of the shoulder break (6 ft. minimum clearance, 12 ft. desirable) from the edge of travel lane, or as dimensioned on plan sheets.

2. Erect Type "D", "E", and "F" signs with the bottom of sign assembly at least 7 ft. above the edge of the travel lane on roads with 2 or more lanes and at least 6 ft. on other routes. The vertical clearance is 7 ft. where required for pedestrian traffic and/or parked vehicles. Erect Type "D", "E", and "F" signs on freeways with the near edge of the sign 20 ft.

3. The vertical dimension between mounting hole centers on all types "D", "E", and "F" signs is 30" MAXIMUM. The vertical and horizontal dimensions between mounting holes is to the whole inch. Each sign panel has a minimum of 2 bolts per support.

4. Attach sign with 3/8" hex head bolt, nylon washer, shim, flat washer, lock washer, hex nut. No buckling of the sign will be permitted. See Assembly detail sheet # 2 of 904.50.

5. Furnish and install cross-bracing as shown in detail. Paint ends of cross-braces as approved. Zinc paint.

6. Install post and cross-bracing with the wide side of the flange toward the back of sign(s) for combination Type "D" and "F" signs.

7. The shield heights in these assemblies can not be larger than 24".
**ISLAND PAVEMENT CHANNEL POST IN CONCRETE**

**DETAIL FOR INSTALLATION OF**

**HOLE DRILLED, CORED, FORMED WITH SOIL.**

**MINIMUM 4 FT. BETWEEN CHANNEL POSTS**

<table>
<thead>
<tr>
<th>NO. SUPPORTS</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
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<td>.207W</td>
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<td>.107W</td>
</tr>
<tr>
<td>R</td>
<td>.150W</td>
<td>.360M</td>
<td>.265M</td>
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**UNITS ON ATTACHED SHEET**

**MINIMUM 4 FT. BETWEEN CHANNEL POSTS**

**HOLE PUNCHING DETAIL**

**TYPE "D" SIGNS**

**TYPE "E" AND "F" SIGNS**

**SIGN FACE**

**BACK OF SIGN**

**ASSEMBLY DETAIL**

**HOLE DRILLED**

**LOCK WASHER**

**SIGN PLANT**

**1/16" HOLE DRILLED AND BACK FILLED WITH SOIL.