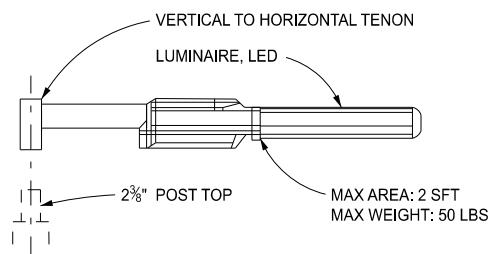


**LIGHT STANDARD DETAIL
(WITH ARM)**

**LIGHT STANDARD DETAIL
(WITH TENON)**



LUMINAIRE DETAIL

APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES



APPROVED BY: DIRECTOR, BUREAU OF DEVELOPMENT

**STANDARD PLAN FOR
LIGHT STANDARD DETAILS**

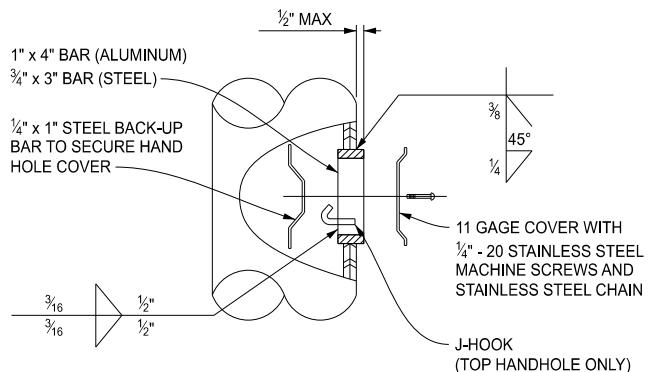
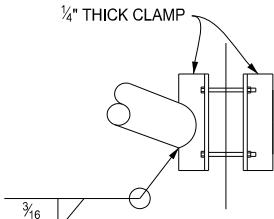
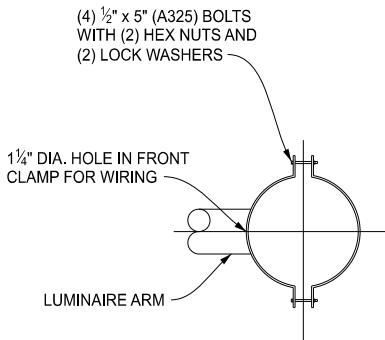
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

SPECIAL DETAIL
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LUMINAIRE CLAMP DETAILS

4" x 6" HAND HOLE DETAIL

NOTES:

CAST LIGHT STANDARD FOUNDATIONS IN PLACE. DO NOT USE PRECAST FOUNDATIONS.

ENSURE ALL MATERIALS AND WORKMANSHIP COMPLY WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

SUPPLY EACH BRACKET ARM WITH ITS OWN POLE CONNECTION AND STAINLESS STEEL HARDWARE, WHICH INCLUDES LOCK WASHERS THAT MEET ANSI B18.21.1.

ENSURE BOLT CIRCLE DIMENSION IS EXACT. SET ANCHOR BOLTS WITH A TEMPLATE, CENTERED ON THE FOUNDATION.

IF THE FOUNDATION IS LOCATED WITHIN 30' OF A HANDHOLE, CONDUIT MAY BE RUN DIRECTLY TO THE HANDHOLE.

IF THE FOUNDATION IS LOCATED MORE THAN 30'-0" FROM THE POLE, PROVIDE A SECOND DEDICATED HANDHOLE ASSEMBLY ADJACENT TO THE POLE.

FACE THE HANDHOLE AWAY FROM THE ROADWAY, EXCEPT WHEN MOUNTED ON A BRIDGE OR A MEDIAN WALL WHERE IT WILL FACE THE ROADWAY. USE STAINLESS STEEL HEX HEAD MACHINE SCREWS. PLACE HANDHOLES SO THEY DO NOT INTERSECT THE LONGITUDINAL SEAM WELD ON THE POLE.

DO NOT USE NUT COVERS.

WHEN A FRANGIBLE TRANSFORMER BASE IS CALLED FOR ON THE PLANS, DO NOT USE A LEVELING NUT. MOUNT FRANGIBLE TRANSFORMER BASES FLUSH WITH TOP OF THE FOUNDATION.

ENSURE LIGHT STANDARDS MOUNTED ON FRANGIBLE TRANSFORMER BASES HAVE THE SAME DIMENSIONS AS OTHER BASE TYPES, EXCEPT FOR THE SHAFT LENGTH. LIGHT STANDARDS 45' IN HEIGHT ARE NOT PERMITTED ON FRANGIBLE BASES.

THE FOUNDATION LENGTHS PROVIDED ARE BASED ON TWO SOIL TYPES: LOOSE COHESIONLESS SOILS WITH A MINIMUM BLOW COUNT OF 5 BLOWS/FT AND MEDIUM STIFF COHESIVE SOILS WITH A MINIMUM UNDRAINED SHEAR STRENGTH OF 750 PSF. THE CONTRACTOR MUST VERIFY THE SOIL STRENGTH DURING DRILLING FOR THE SHAFT FOUNDATIONS. THE CONTRACTOR MUST NOTIFY THE ENGINEER IF VERY LOOSE COHESIONLESS SOIL OR SOFT TO VERY SOFT COHESIVE SOIL WITH AN UNDRAINED SHEAR STRENGTH OF LESS THAN 750 PSF IS ENCOUNTERED.

THIS STRUCTURE IS DESIGNED FOR THE SPECIFIED LUMINAIRE ONLY. PERFORM ADDITIONAL ANALYSIS FOR ANY DEVIATIONS FROM THIS STANDARD.

THIS STRUCTURE IS DESIGNED FOR A HEIGHT ABOVE GROUND EQUAL TO THE STRUCTURE'S MOUNTING HEIGHT. PROVIDE A UNIQUE DESIGN FOR STRUCTURES PLACED AT A HIGHER ELEVATION.

DO NOT BURY FOUNDATIONS. REMOVE FOUNDATIONS IF NO LONGER IN USE.

ALTER THE SHAFT LENGTHS MOUNTED ON TRANSFORMER BASES TO COMPENSATE FOR THE HEIGHT OF THE TRANSFORMER BASE. USE THE SAME BOLT CIRCLE ON TOP OF THE TRANSFORMER BASE AS ON THE LIGHT STANDARD ANCHOR BASE.

SEAT THE ENTIRE BOTTOM OF THE FRANGIBLE TRANSFORMER BASE ON THE FOUNDATION. ALTER THE DIAMETER OF THE FOUNDATION AS NECESSARY TO MEET THIS REQUIREMENT.

INSTALL ALL HARDWARE COMPONENTS (INCLUDING FLAT AND LOCK WASHERS) AS SHOWN IN THE DETAILS ON THIS SHEET.

MATCH THE COLOR OF THE LUMINAIRE ASSEMBLY TO THE COLOR OF THE FRANGIBLE TRANSFORMER BASE.



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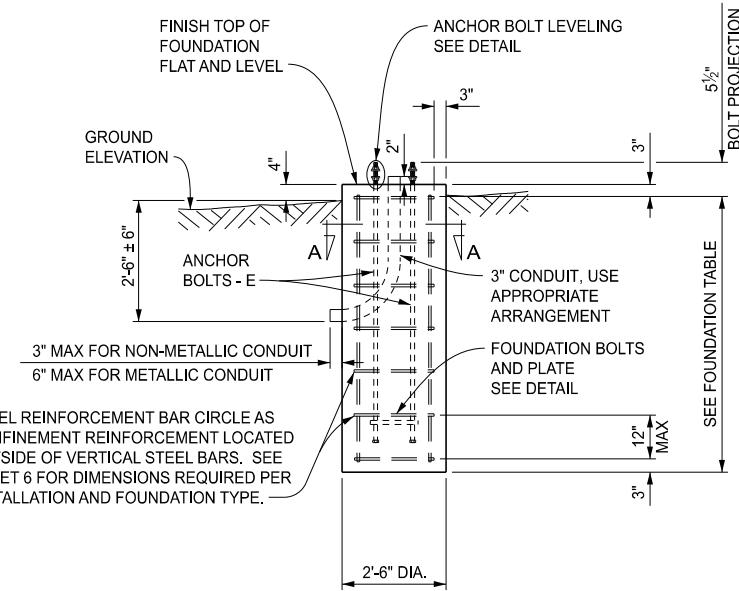
STANDARD PLAN FOR
LIGHT STANDARD DETAILS

SPECIAL DETAIL
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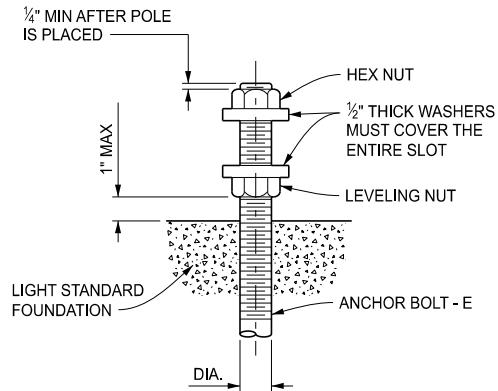
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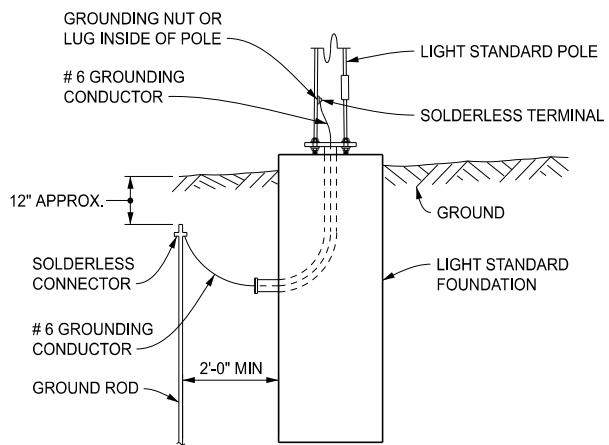


LIGHT STANDARD FOUNDATION DETAIL



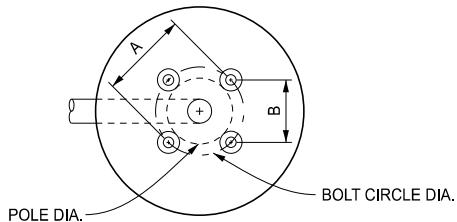
ANCHOR BOLT LEVELING DETAIL

DO NOT APPLY THIS DETAIL WHEN USING FRANGIBLE TRANSFORMER BASE. SEE FRANGIBLE TRANSFORMER BASE DETAIL ON SHEET 4.



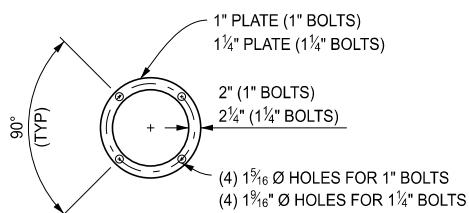
LIGHT STANDARD GROUNDING DETAIL

NOTE:
IF CONDUIT EXTENDS TO HAND HOLE, DRIVE GROUND ROD IN OR NEAR HANDHOLE.

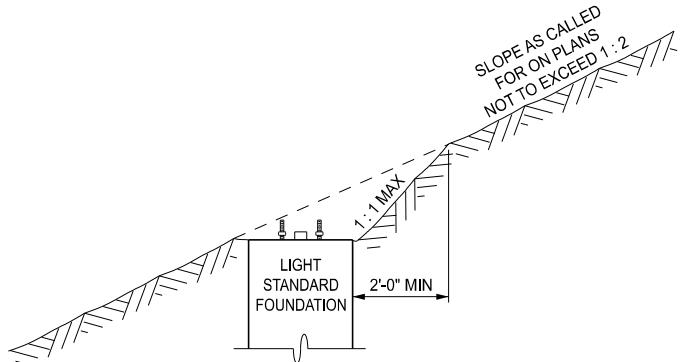


TOP OF FOUNDATION DETAIL

NOTE:
KEEP STEEL TEMPLATE LEVEL AT ALL TIMES
(CONTRACTOR TO DETERMINE TEMPLATE SIZE AND DIMENSIONS)



FOUNDATION PLATE DETAIL

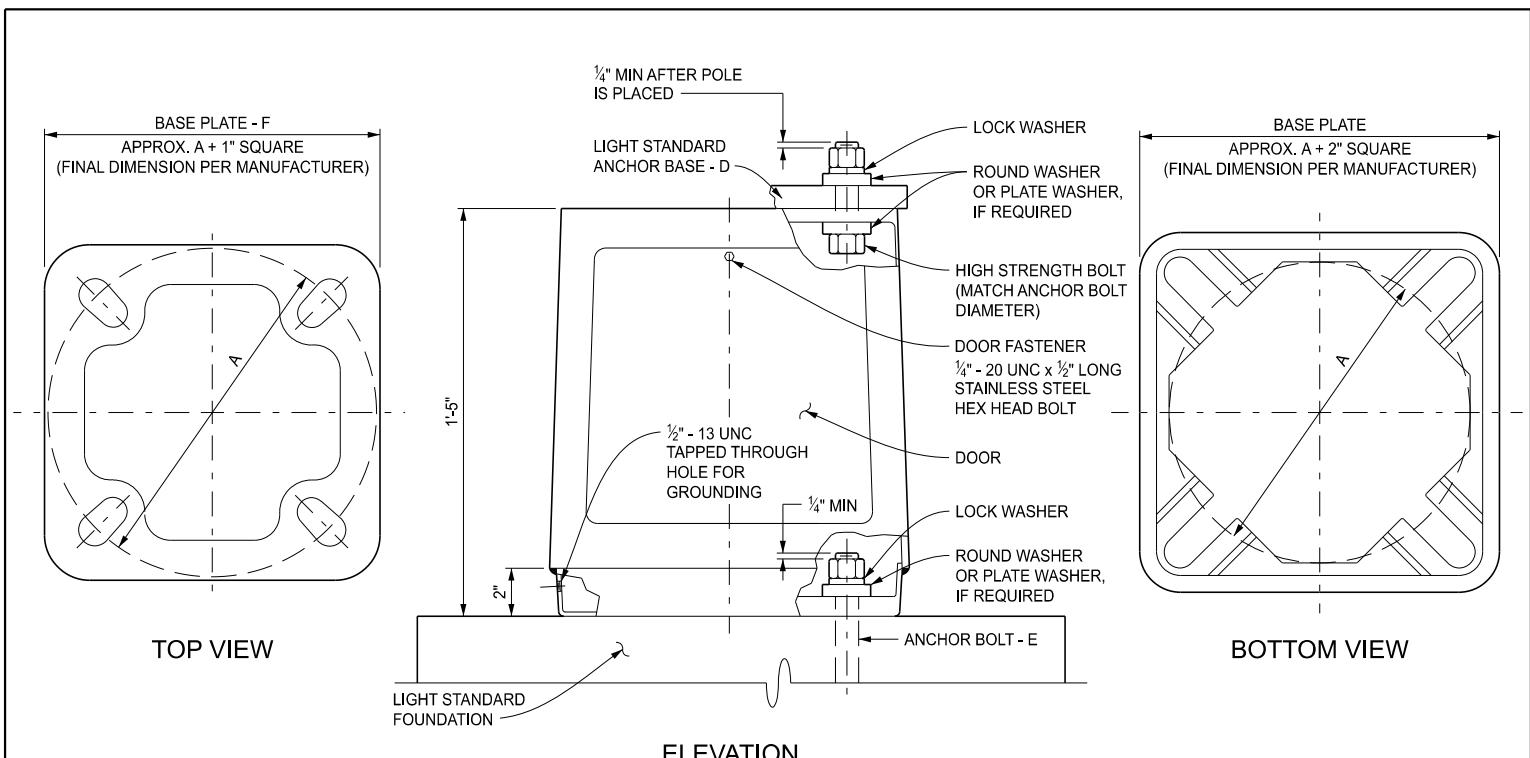


SLOPE DETAIL AT FOUNDATION

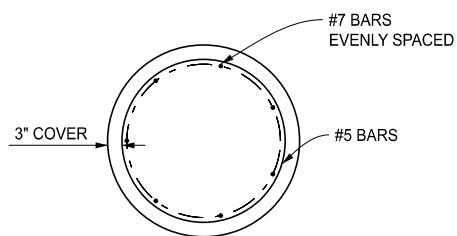
ON FILL OR CUT SLOPE

NOTE:
DO NOT COVER HANDHOLES. PLACE PERPENDICULAR TO SLOPE AT SAME ELEVATION AS FOUNDATION.

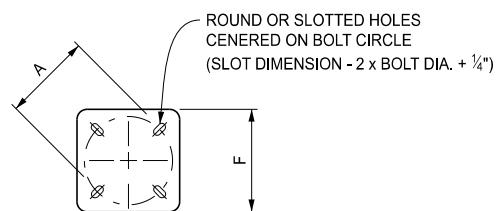
DO NOT PLACE SOIL ABOVE TOP OF FOUNDATION.



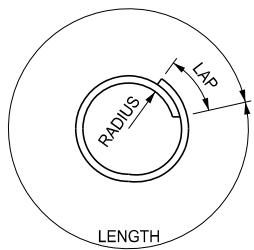
ELEVATION
FRANGIBLE TRANSFORMER BASE FOR POLES WITH BOLT CIRCLE DIAMETER - A



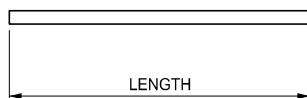
SECTION A-A
ANCHOR RODS NOT SHOWN FOR CLARITY



ANCHOR BASE DETAIL



CONFINEMENT
REINFORCEMENT



VERTICAL
REINFORCEMENT

REINFORCEMENT DETAILS



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
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BASE AND POLE DATA TABLE

| LIGHT STANDARD FOR | A | B | D | STEEL POLES GAGE (MIN) | E | ALUM. POLES GAGE (MIN) | POLE DIAMETER AT BASE | F |
|---|------------------------|--|---|------------------------|---|------------------------|--|-----------------------------|
| 20 FT NOMINAL MOUNTING HEIGHT (WITHOUT TRANSFORMER BASE) | 11" | 7 ³ / ₈ " | 2" | | 1" Ø x 3'-4" | 0.188" | | 12.2" |
| 20 FT NOMINAL MOUNTING HEIGHT (WITH TRANSFORMER BASE) | * 11" | 7 ³ / ₈ " | 2" | | 1" Ø x 3'-4" | 0.188" | | 12.2" |
| 30 FT MOUNTING HEIGHT WITH 4 OR 6 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" | 10 ⁵ / ₈ " | 2" | 7 | 1" Ø x 3'-4" | 0.188" | 9" ± ¹ / ₂ " | 15.38" ** |
| 30 FT MOUNTING HEIGHT WITH 8, 10 OR 12 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" | 10 ⁵ / ₈ " | 2" | 7 | 1" Ø x 5'-0" | 0.188" | 9" ± ¹ / ₂ " | 15.38" ** |
| 30 FT MOUNTING HEIGHT WITH 15 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" | 10 ⁵ / ₈ " | 2" | 7 | 1" Ø x 5'-0" | 0.25" | 9" ± ¹ / ₂ " | 15.73" ** |
| 30 FT MOUNTING HEIGHT WITH 17 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" | 10 ⁵ / ₈ " | 2" | 7 | 1" Ø x 5'-0" | 0.25" | 9" ± ¹ / ₂ " | 15.73" ** |
| 40 FT MOUNTING HEIGHT WITH 4, 6, 8, 10, 12, 15 OR 17 FT SINGLE OR DOUBLE BRACKET ARM | 1'-4" (A) 1'-3" (S) | 11 ¹ / ₈ " (A) 10 ⁵ / ₈ " (S) | 2" | 7 | 1 ¹ / ₄ " Ø x 5'-0" | 0.313" | 10" ± ¹ / ₂ " | 16.79" (A) ** 16.09" (S) |
| 45 FT MOUNTING HEIGHT WITH 4, 6, 8, 10, 12, 15 OR 17 FT SINGLE OR DOUBLE BRACKET ARM (WITHOUT FRANGIBLE BASE) | 1'-5" (A) 1'-6" (S) | 1'-0" (A) 1'-0 ³ / ₄ " (S) | 2" (A) 2 ³ / ₈ " (S) | 7 | 1 ¹ / ₄ " Ø x 5'-0" | 0.375" | 11" ± ¹ / ₂ " (A) 10" ± ¹ / ₂ " (S) | 17.5" (A) ** 18.21" (S) |

* THE 11" BOLT CIRCLE APPLIES FOR BOTH THE POLE TO TRANSFORMER BASE AND FOR THE TRANSFORMER BASE TO FOUNDATION.

** FINAL BASEPLATE WIDTHS FOR ALUMINUM STRUCTURES ARE PER MANUFACTURER
(A) = DIMENSION CORRESPONDS TO ALUMINUM
(S) = DIMENSION CORRESPONDS TO STEEL

FOUNDATION DATA TABLE

| GROUND SLOPE | SINGLE ARM MAXIMUM LUMINAIRE STRUCTURE SIZE | 30 FT MOUNTING HEIGHT, 6 FT ARM | 30 FT MOUNTING HEIGHT, 17 FT ARM | 45 FT MOUNTING HEIGHT, 17 FT ARM |
|--------------|---|---------------------------------|----------------------------------|----------------------------------|
| | | L (FT) | L (FT) | L (FT) |
| GROUND SLOPE | HORIZONTAL | 8.5 | 9 | 10 |
| | SLOPED | 16.5 | 17.5 | 18.5 |

| GROUND SLOPE | DOUBLE ARM MAXIMUM LUMINAIRE STRUCTURE SIZE | 30 FT MOUNTING HEIGHT, 6 FT ARM | 30 FT MOUNTING HEIGHT, 17 FT ARM | 45 FT MOUNTING HEIGHT, 17 FT ARM |
|--------------|---|---------------------------------|----------------------------------|----------------------------------|
| | | L (FT) | L (FT) | L (FT) |
| HORIZONTAL | 9 | 10 | 11 | |

L = EMBEDDED LENGTH OF THE SHAFT FOUNDATION

* SLOPED GROUND SLOPE CASE NOT TO BE USED FOR DOUBLE ARM LUMINAIRE STRUCTURE.

BRACKET ARM TABLE

| STEEL | BRACKET LENGTH, L | 6'-0" | 12'-0" | 15'-0" | 17'-0" |
|----------|--------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| | TOP MEMBER O.D. | 2" DIA. | 2 ¹ / ₂ " DIA. | 2 ¹ / ₂ " DIA. | 3 ¹ / ₄ " DIA. |
| ALUMINUM | BOTTOM MEMBER O.D. | 1 ¹ / ₂ " DIA. | 1 ¹ / ₂ " DIA. | 2" DIA. | 2" DIA. |
| | TOP MEMBER O.D. | 2" DIA. | 3" DIA. | 3" DIA. | 3" DIA. |
| | BOTTOM MEMBER O.D. | 1 ¹ / ₂ " DIA. | 2" DIA. | 2 ¹ / ₄ " DIA. | 2 ¹ / ₄ " DIA. |



STANDARD PLAN FOR
LIGHT STANDARD DETAILS

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

SPECIAL DETAIL
FHWA APPROVAL

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REINFORCEMENT DATA TABLE

| MAXIMUM LUMINAIRE STRUCTURE SIZE | FOUNDATION DIAMETER | VERTICAL REINFORCEMENT | | | | CONFINEMENT REINFORCEMENT | | | |
|----------------------------------|---------------------|------------------------|----------------|---|--------|---------------------------|----------|-------------|------------|
| | | BAR SIZE | NUMBER OF BARS | BAR LENGTH | | BAR RADIUS | BAR SIZE | BAR SPACING | BAR LENGTH |
| | | | | HORIZONTAL | SLOPED | | | | |
| 30 FT MOUNTING HEIGHT, 6 FT ARM | 30" | 7 | 12 | 8'-0" (SINGLE ARM) 8'-6" (DOUBLE ARM) | 16'-0" | 12" | 5 | 12" (MAX) | 6'-4" |
| 30 FT MOUNTING HEIGHT, 17 FT ARM | | | | 8'-6" (SINGLE ARM) 9'-6" (DOUBLE ARM) | 17'-0" | | | | |
| 45 FT MOUNTING HEIGHT, 17 FT ARM | | | | 9'-6" (SINGLE ARM) 10'-6" (DOUBLE ARM) | 18'-0" | | | | |

PROVIDE A 2'-8" LAP FOR #5 BAR CIRCLES.

MATERIALS TABLE (ANCHOR BASE)

| MATERIAL | SPECIFICATION | DIMENSIONS | QUANTITY (PER FOUNDATION) |
|--|---------------|--|---------------------------|
| ANCHOR BOLTS | MDOT 908.14 | DETERMINED BY LIGHT STANDARD CHART | 4 |
| ANCHOR NUTS | MDOT 908.14 | DETERMINED BY ANCHOR BOLT DIAMETER | 8 |
| FLAT WASHERS *** (1" DIA. ANCHOR BOLT) | MDOT 908.14 | 2" O.D. x 1 $\frac{1}{16}$ " I.D. x $\frac{3}{8}$ " THICK | 4 |
| PLATE WASHERS *** (1" DIA. ANCHOR BOLT) | MDOT 908.14 | 1 $\frac{1}{16}$ " I.D. x $\frac{1}{2}$ " THICK | 4 |
| FLAT WASHERS *** ($\frac{1}{4}$ " DIA. ANCHOR BOLT) | MDOT 908.14 | 2 $\frac{1}{2}$ " O.D. x 1 $\frac{1}{16}$ " I.D. x $\frac{3}{8}$ " THICK | 8 (IF REQUIRED ***) |
| PLATE WASHERS *** ($\frac{1}{4}$ " DIA. ANCHOR BOLT) | ASTM A1018 | 1 $\frac{5}{16}$ " I.D. x $\frac{1}{2}$ " THICK | 8 (IF REQUIRED ***) |

MATERIALS TABLE (FRANGIBLE BASE)

| MATERIAL | SPECIFICATION | DIMENSIONS | QUANTITY (PER FOUNDATION) |
|--|---|---|---------------------------|
| ANCHOR BOLTS | MDOT 908.14 | DETERMINED BY LIGHT STANDARD CHART | 4 |
| ANCHOR NUTS | MDOT 908.14 | DETERMINED BY ANCHOR BOLT DIAMETER | 4 |
| FLAT WASHERS *** (1" DIA. ANCHOR BOLT) | MDOT 908.14 | 2" O.D. x 1 $\frac{1}{16}$ " I.D. x $\frac{3}{8}$ " THICK | 4 |
| FLAT WASHERS *** ($\frac{1}{4}$ " DIA. ANCHOR BOLT) | MDOT 908.14 | 2 $\frac{1}{2}$ " O.D. x 1 $\frac{1}{16}$ " I.D. x $\frac{3}{8}$ " THICK | 12 OR 14 (***) |
| LOCK WASHERS | ANSI B18.21.1 | $\frac{1}{4}$ " THICK | 8 |
| HIGH STRENGTH BOLTS | MDOT 906.07 | LENGTH DETERMINED BY THE CONTRACTOR DIAMETER TO BE SAME AS ANCHOR BOLT | 4 |
| CONNECTING NUTS | MDOT 906.07 | DETERMINED BY HIGH STRENGTH BOLT DIAMETER | 4 |
| PLATE WASHERS *** (1" DIA. ANCHOR BOLT) | MDOT 908.14 | 1 $\frac{1}{16}$ " I.D. x $\frac{1}{2}$ " THICK | 4 |
| PLATE WASHERS *** ($\frac{1}{4}$ " DIA. ANCHOR BOLT) | ASTM A1018 | 1 $\frac{5}{16}$ " I.D. x $\frac{1}{2}$ " THICK | 8 (IF REQUIRED) |
| FRANGIBLE TRANSFORMER BASE | SELECT FROM THE MDOT QUALIFIED PRODUCTS LIST | ACCESS DOOR OPENING: 8 $\frac{1}{2}$ " x 9" x 11" | 1 |

*** IF LIGHT STANDARDS BASE PLATE HAS SLOTTED HOLES, USE PLATE WASHERS THAT COVER THE ENTIRE SLOT IN LIEU OF CIRCULAR WASHERS.

HOT DIP GALVANIZE ALL ANCHOR BOLTS, NUTS, WASHERS AND PLATE WASHERS ACCORDING TO AASHTO M232.



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