

NOTE: ANCHOR BOLTS, BASE PLATE AND FOOTING DIMENSIONS ARE BASED ON DESIGN POLE DIMENSIONS AND YIELD STRENGTH SHOWN. POLES SUPPLIED OF DIFFERENT SIZE OR STRENGTH MAY REQUIRE CHANGES IN THESE DIMENSIONS.
BACKRAKE SHOWN IS AS MEASURED AT THE TOP OF THE POLE.

POLE NUMBER	POLE LENGTH, GAGE, & DIAMETER	B.C.	S	T	BASE DEPTH	BASE DIAMETER	ANCHOR BOLT SIZE	POLE BKRR.
#1,2	30', 3GA, 14"	20"	20'	2'	9'	2 1/2"	1 3/4" x 90"	3 1/4"
	Poles shall be equipped with a tenon for a pole top mounted luminaire.							
	Pole #2 shall have a second weatherhead for the aerial power service. It shall be at 60°* clockwise from the signal cable weatherhead.							
	* Location of relocated utility pole must be verified by contractor prior to pole fabrication. Field revisions may change angle.							

STRAIN POLE

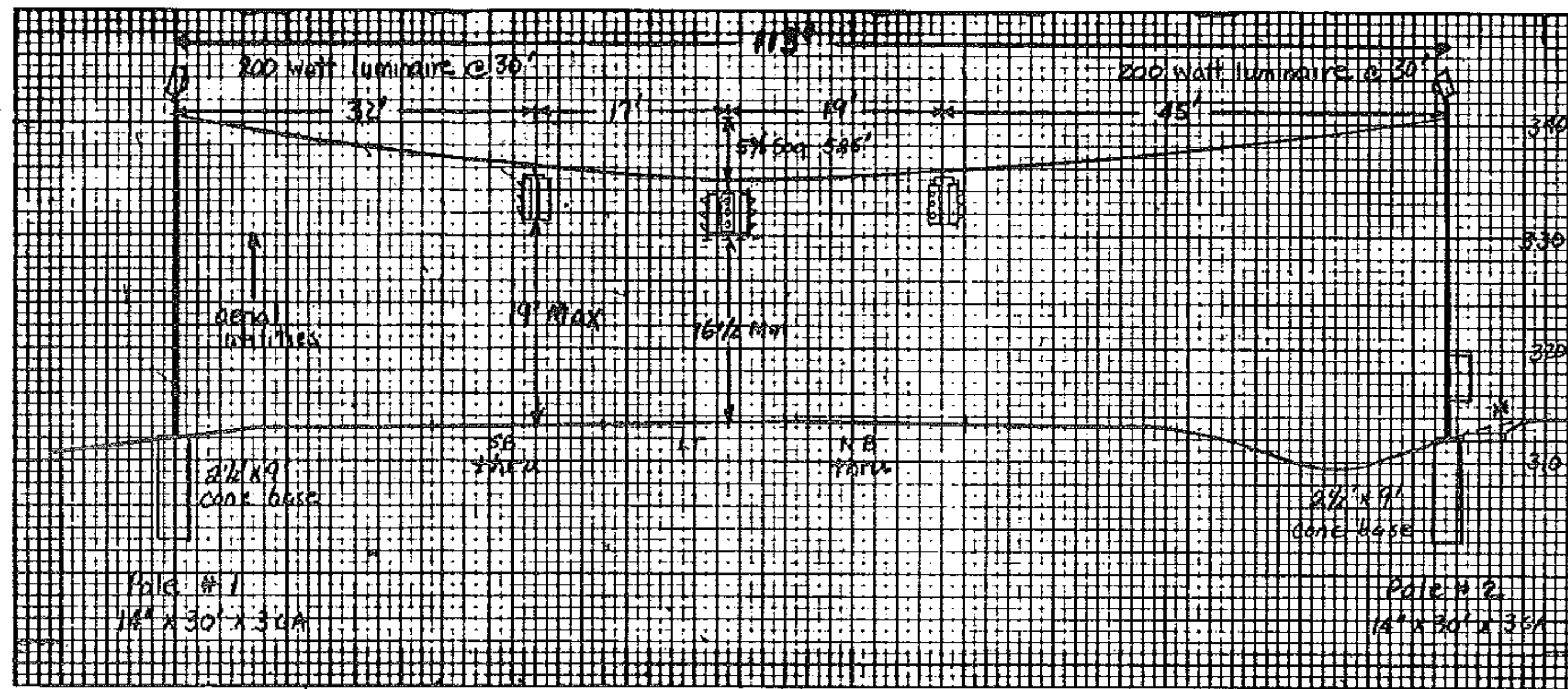
DESIGN CRITERIA USED:
POLE $F_y = 48 \text{ KSI}$
BASE PLATE $F_y = 36 \text{ KSI}$
ANCHOR BOLTS $F_y = 55 \text{ KSI}$

See sheet

LOCATION PLAN

IF MORE THAN ONE LOCATION SEE SHEET(S) FOR ADDITIONAL DETAILS.

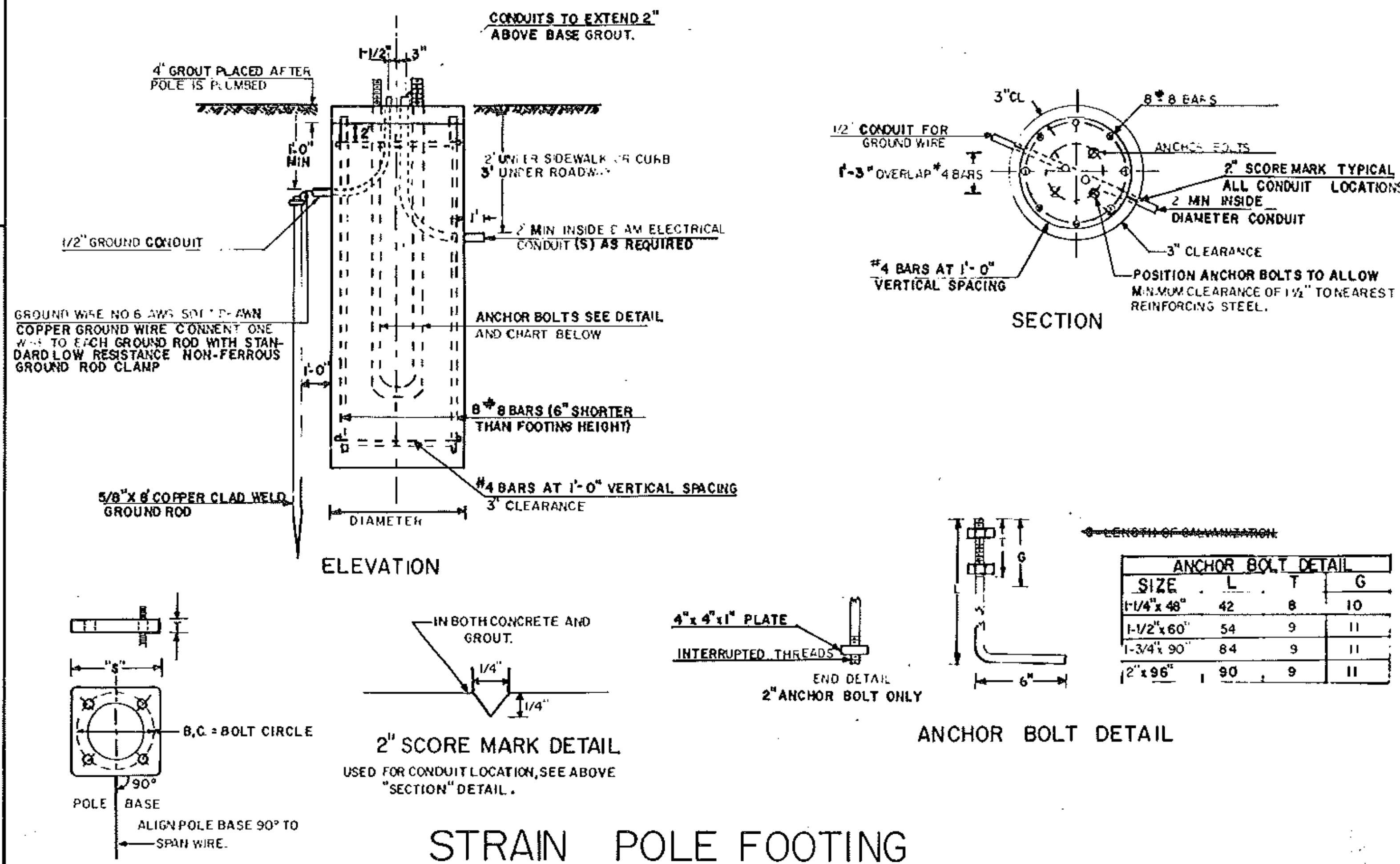
SCALE 1" = 1'



SPAN WIRE CROSS SECTION

IF MORE THAN ONE LOCATION SEE SHEET(S) FOR ADDITIONAL DETAILS.

* modify slope around concrete pad
cost - subsidiary to 67B.15
DEAD LOAD SPAN WIRE TENSION = 1360 lbs
LIVE LOAD SPAN WIRE TENSION = 3550 lbs
SCALE 1" = 10'



STRAIN POLE/FOOTING DETAIL SHEET

TRAFFIC SIGNAL PROJECTS AND RELATED ITEMS

GENERAL NOTES

- ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANS. STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.
- TRAFFIC CONTROL SIGNAL STRAIN POLES SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 752.02, STRAIN POLES, AND SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SECTION 678 - TRAFFIC CONTROL SIGNALS.
- STEEL POLE CAP SHALL BE PROVIDED WITH A 2-INCH BUSHED (BLIND) ELECTRICAL ENTRANCE WHEN APPLICABLE. THE STRAIN POLE SHALL BE PROVIDED WITH A 2-INCH (BLIND) HALF COUPLING FOR SIGNAL CABLE, LOCATED 6" BELOW THE SPANWIRE ATTACHMENT HEIGHT.
- FOUR HIGH-STRENGTH STEEL ANCHOR BOLTS WITH TWO HEXAGON NUTS PER BOLT SHALL BE FURNISHED WITH EACH POLE. BOLTS SHALL HAVE A MINIMUM YIELD STRENGTH OF 55,000 P.S.I. AND AN ULTIMATE OF 80,000 P.S.I. BOLTS AND BASES SHALL BE OF ADEQUATE SIZE TO RESIST THE FULL BENDING MOMENT OF THE POLE AT YIELD STRENGTH.
- ANCHOR BOLT ASSEMBLY SHALL BE GALVANIZED OR GALVANNEAL.
- ADDITIONAL DESIGN CRITERIA:
CONCRETE - $F_c = 1,400 \text{ P.S.I.}$, $F'_c = 3,500 \text{ P.S.I.}$
WIND LOAD - 25 LBS PER SQUARE FOOT (MINIMUM) ON THE EXPOSED POLE SURFACE.
REINFORCING STEEL - $F_s = 24,000 \text{ PSI}$ (GRADE 60)
- IN ACCORDANCE WITH SUBSECTION 106.03 SHOP DRAWINGS (5 COPIES OF EACH) SHALL BE SUBMITTED TO THE STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, FOR APPROVAL PRIOR TO FABRICATION.
- CONCRETE FOR FOOTINGS SHALL CONFORM TO REQUIREMENTS OF CONCRETE CLASS "B" SECTION 501, STRUCTURAL CONCRETE.
- ANY BACKFILL MATERIAL PLACED ADJACENT TO THE FOOTINGS SHALL BE GRAVEL MEETING THE REQUIREMENTS FOR GRANULAR BACKFILL FOR STRUCTURES, SUBSECTION 704.11.
- WHEN THE DESIGN DEPTH OF A FOOTING CANNOT BE OBTAINED DUE TO UNFORESEEN FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OBTAIN A REVISED FOOTING DETAIL FROM THE ENGINEER.
- ALL ANCHOR BOLTS SHALL CONFORM WITH THE REQUIREMENTS OF SECTION 678.15 FOR ANCHOR BOLTS.
ANCHOR BOLTS SHALL CONFORM WITH ASTM A-325 OR ASTM A-572 NOTE 1.3. ON SHEET 33.
- PEDESTAL POSTS AND BASES (SUBSECTION 752.01) MAY BE EITHER STEEL WITH A CAST IRON BASE OR ALL ALUMINUM.
- EACH METAL POLE SUPPORTING EITHER VEHICLE OR PEDESTRIAN TRAFFIC SIGNAL EQUIPMENT SHALL BE GROUNDED.
- SHOP DRAWINGS SPECIFIED IN NOTE NO. 7 SHALL INCLUDE THE FOLLOWING INFORMATION:
A) DETAILED DRAWING OF EACH COMPONENT OF THE STRAIN POLE.
B) MATERIAL SPECIFICATIONS FOR EACH COMPONENT OF THE STRAIN POLE BY COMPLETE SPECIFICATIONS OR BY REFERENCE TO APPLICABLE ASTM STANDARD.
C) NOTATION OF PROJECT NAME, PROJECT NUMBER, ROUTE NUMBER AND STRAIN POLE STATIONING. (TO BE INCLUDED ON EACH SHEET INCLUDING STANDARD SHEETS AND SPECIFICATION SHEETS).
D) DETAILS FOR LOCATION OF LUMINAIRE ARM(S) ON STRAIN POLES.
E) ALL ELEVATIONS AND DIMENSIONS NECESSARY TO PROVIDE A COMPLETE SET OF RECORD PLANS.
F) DEAD LOAD DEFLECTION INFORMATION.
G) WELDING DETAILS AND PROCEDURES ARE REQUIRED FOR ALL WELDS. PROCEDURES SHALL BE SUBMITTED FOR APPROVAL WITH REFERENCE TO EACH WELD IDENTIFIED ON THE SHOP DRAWINGS.
- ALL DESIGN DETAILS, WORKMANSHIP, PROCEDURES AND INSPECTION OF WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D.1.1-80 AS MODIFIED BY THE LATEST EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES. THE SHIELDED METAL ARC WELDING (SMAW) OR SUBMERGED ARC WELDING (SAW) PROCESSES SHALL BE USED FOR ALL WELDING UNLESS OTHER PROCESSES ARE APPROVED, ON A PROJECT BY PROJECT BASIS, FROM ACCEPTABLE RESULTS OF PROCEDURE QUALIFICATION TESTS.
- WHERE WELDMENTS ARE TO BE GALVANIZED AFTER WELDING, A TYPE OF FILLER METAL WHICH WILL DEPOSIT WELD METAL WITH A SILICON CONTENT LESS THAN 0.4 PERCENT SHALL BE USED.
- ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL(S) BEING WELDED.
- THE STRAIN POLE ALLOWABLE BENDING STRESS SHALL BE MODIFIED FROM AASHTO "STANDARD SPECIFICATIONS" SECTION 1.4.1(B) AS FOLLOWS:
 $F_b = 0.65 F_y (K_p)$ (COMPACT SECTION)
1.27

DONE BY LKA DATE 9/87
DRAWN BY _____ DATE _____
CHECKED BY _____ DATE _____
COLCHESTER
PROJ. RS NO. 0285(S)
SHEET 34 OF 93