LS-3

U.S. Department of Transportation
Federal Highway Administration

400 Seventh St., S.W.
Washington, D.C. 20590

JUN 24 1988

REFER TO:
HNG-14

Mr. Joseph J. Brindlinger
Manager, Engineering Services
Union Metal Corporation
1022 9th St. S.W.
P.O. Box 9920
Canton, OH 44711

Dear Mr. Brindlinger:

This is in response to your May 18 request for acceptance by the Federal Highway Administration of your company's A2940 cast aluminum base for use on Federal-aid highway projects. Tests were conducted to assess the compliance of the base with Section 7 of the 1975 and 1985 AASHTO specifications. You enclosed for our review two Southwest Research Institute reports (Project No. 06-2128-102), dated May 1988, containing pendulum tests on the base using two different poles.

The tests used an instrumented 1,800-pound pendulum fitted with a 10 stage crushable nose which simulates a 1979 Volkswagen Rabbit. The bolt circle diameter was 14.5 inches and the luminaire mounting height was 50 feet in both tests. The measured and extrapolated results from the tests were as follows:

Test No.	Date	Measured change in velocity at 20 m.p.h.	Extrapolated change in velocity at 60 m.p.h.	Stub Height	Pole Wall Thickness	Total Weight of System	Change in Momentum
UMLP 1	3-28-88	14.8 fps	9.7 fps	4.0"	0.188"	331 #	827 lb-sec
UMLP 3	3-28-88	13.8 fps	10.5 fps	4.0"	0.250"	405 #	453 lb-sec

The above information shows that the actual tests and calculated changes in velocity of the pole-base combinations meet the change in velocity and stub height provisions of Section 7 of the 1985 American Association of State Highway and Transportation Officials (AASHTO) "Standard Specifications for Structural Supports for Highway Signs, Luminaire and Traffic Signals." It is also evident that the test results meet the change in momentum requirements of the 1975 AASHTO specifications.

The Union Metal A2940 base is acceptable for use on Federal-aid projects, within the range of conditions tested, if proposed by a State. The acceptance is limited to breakaway characteristics of the base and does not cover its structural features. Presumably, you will supply potential users with sufficient information on structural design and installation requirements to ensure proper base performance.

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CONT

We anticipate that the States will require certification from Akron Foundry Company that castings furnished have essentially the same chemistry, mechanical properties, and geometry as the castings used in the tests and that the castings will meet the FHWA change in velocity requirements.

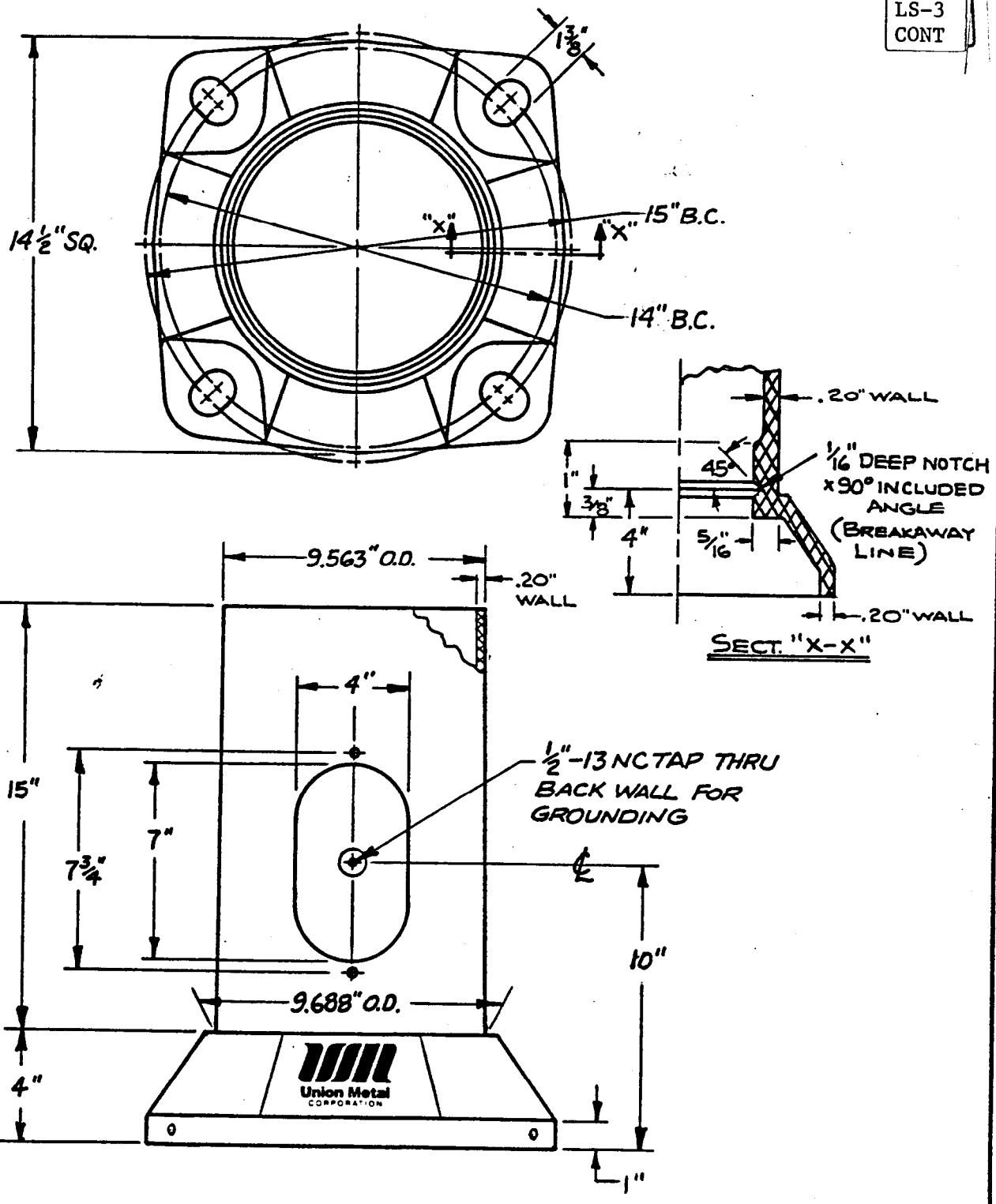
Sincerely yours,

L. A. Staron

L. A. Staron
Chief, Federal-Aid and Design Division

3 Enclosures

LS-3
CONT



CONTROL NO.
17798

10" SLEEVE BASE

PATT. NO. APA-2940

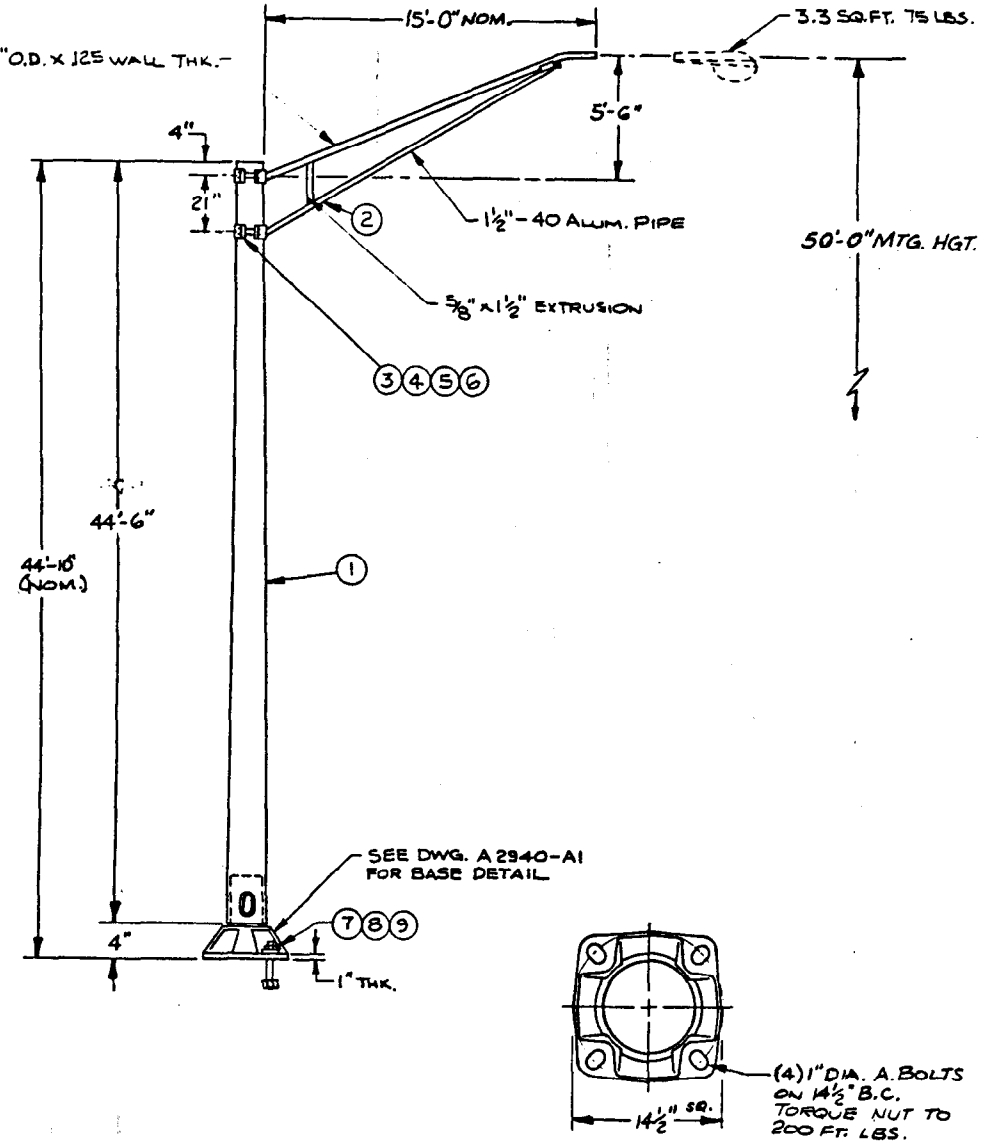
MAT'L: CAST ALUM. 356-T6

Union Metal
CORPORATION

SCALE
DWN. M. STEVENSON
DATE 2-10-88

A2940-A1

RL	GEN. REV.	5-23-88



SHIPPING LIST (FOR 1 UNIT)

ITEM NO.	QTY. REQ'D.	DESCRIPTION	CONTROL NO.	WEIGHT (LBS.)
①	1	POLE ASS'Y .188-10.06 x 6.00 x 44'-10"	465254	273
②	1	15'-0 ARM ASS'Y.	208238	44
③	2	BACK-HALF CLAMP	3360	4
④	8	½" DIA x 4" LG. HEX BOLT S.S.	501079	3
⑤	8	½" HEX NUTS S.S.	502430	
⑥	16	½" WASHERS S.S.	500024	
⑦	4	1" x 4" STRUC. HVY. HEX BOLTS	502134	—
⑧	4	1"-8NC2 HEX NUTS	501561	
⑨	4	1" FLATWASHER F436	501726	
		TOTAL WGT.		324

R2	ADDED BASE REF.	5-23-88	MAS	JJB
R1	WAS 46'-6" MTG. HGT.	3-3-88	MAS	JJB
	REVISIONS			

.188 -10" TEST POLE WITH 10" SLEEVE BASE

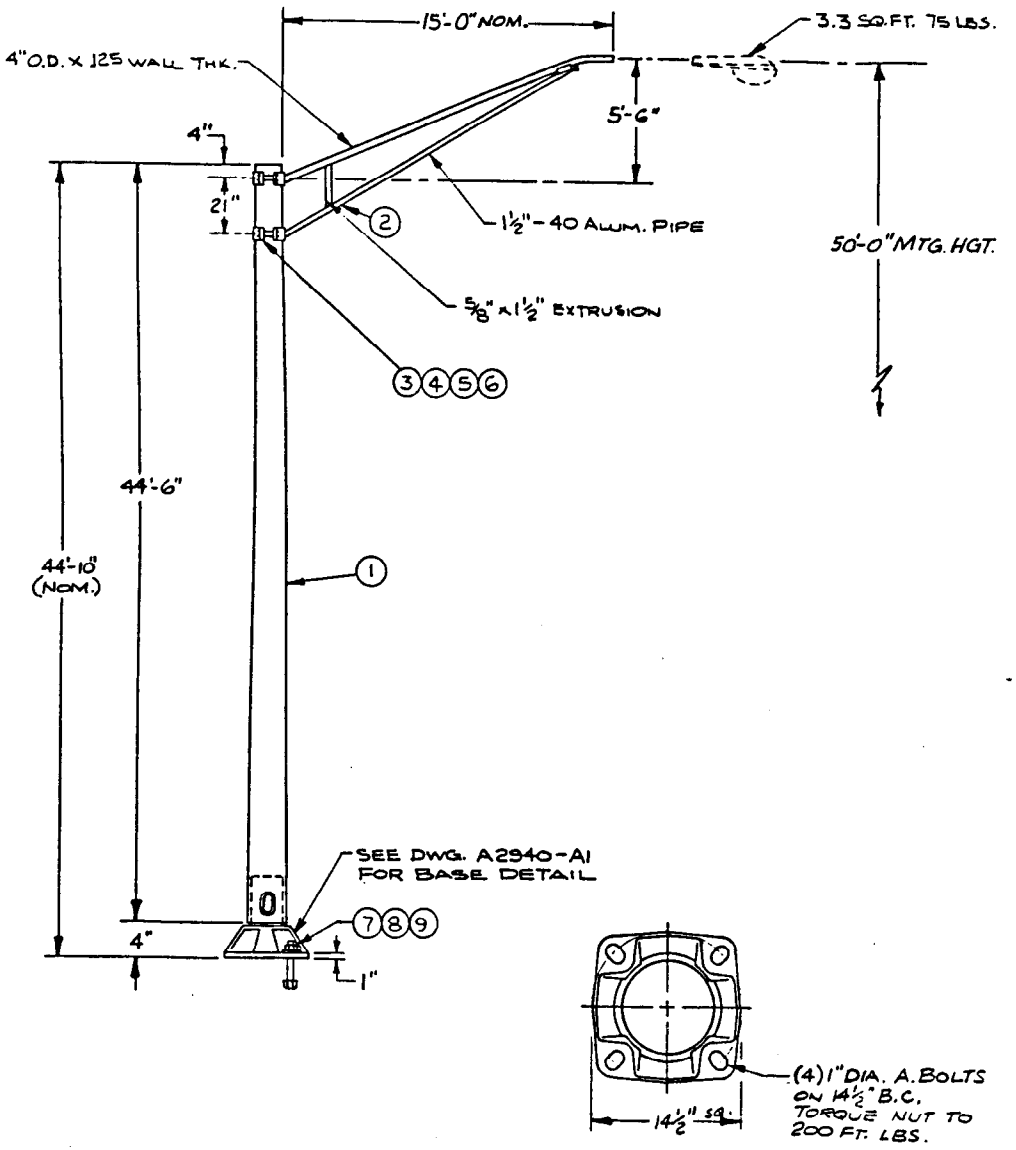
Union Metal CORPORATION

SCALE ~
DWN. M.A.S.
DATE 1/29/88
CKD. JJB

P09-B105

ES88-19

LS-3 CONT



SHIPPING LIST (FOR 1 UNIT)

ITEM NO.	QTY. REQ'D.	DESCRIPTION	CONTROL NO.	WEIGHT (LBS.)
1	1	POLE ASS'Y .250-10(18 x 6.00 x 44'-10"	465255	355
2	1	15'-0 ARM ASS'Y.	208238	44
3	2	BACK-HALF CLAMP	3360	4
4	8	½" DIA x 4" LG. HEX S.S. BOLT	501079	3
5	8	½" HEX NUTS S.S.	502430	
6	16	½" WASHERS S.S.	500024	
7	4	1" x 4" STRUC. HVY. HEX BOLTS	502134	—
8	4	1"-8NC2 HEX NUTS GAL'D.	501561	
9	4	1" FLATWASHER F436	501726	
			TOTAL WGT.	406

REVISIONS			
R2	ADDED BASE REF.	5-23-88 MAS	JJB
R1	WAS 46'-6" MTG. HGT.	3-3-88 MAS	JJB

.250 - 10" TEST POLE WITH 10" SLEEVE BASE

Union Metal CORPORATION

SCALE ~
DWN. M.A.S.
DATE 1/29/88
CKD. JJB

P09-B106

ES88-19

LS-3 CONT.