U.S. Department
Of Transportation
Federal Highway
Administration

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

June 22, 1998

Refer to: HNG-14/SS-48A

Mr. Gary R. Reinert
President
SAFE Installation Company
2200 Spring Garden Avenue
Pittsburgh, Pennsylvania 15212

Dear Mr. Reinert:

This is in response to your letter of May 5 to our Director, Office of Engineering, Mr. Henry H. Rentz requesting Federal Highway Administration's (FHWA) acceptance for your company's modified SAFE foundation for supporting "Penn DOT Type A Two-Legged" highway signs as breakaway devices. You included specifications, drawings, and calculations supporting the ability of the modified design to serve as a firm foundation for breakaway sign supports.

We initially concurred in the use of SAFE foundations for use with breakaway couplings in our September 23, 1994, letter to Mr. Kenneth L. Williams. The modification you request is to support a dual-legged breakaway sign with a single SAFE foundation insert. Your propose to do this by welding a "cap" across the top of the SAFE foundation and supporting the two legs of the breakaway support on either end of that cap. The breakaway devices used are the "New Jersey Breakaway Couplings" which were the subject of our acceptance letter number SS-23 dated March 14, 1991. Drawings of the proposed support modification are enclosed.

We have reviewed the documentation you provided and conclude that the modification to the design would not adversely affect the breakaway characteristics of the sign support installation. Therefore, your company's modified SAFE foundation for supporting "Penn DOT Type A Two-Legged Highway Signs" is acceptable for use, if requested by a State.

Our acceptance is limited to the breakaway characteristics of the system and does not cover its structural features. Presumably, you will supply potential users with sufficient information on design and installation requirements to ensure proper performance. We anticipate that the States will require certification from SAFE that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as those used in

the previous crash testing, and that they will meet the FHWA change in velocity requirements.

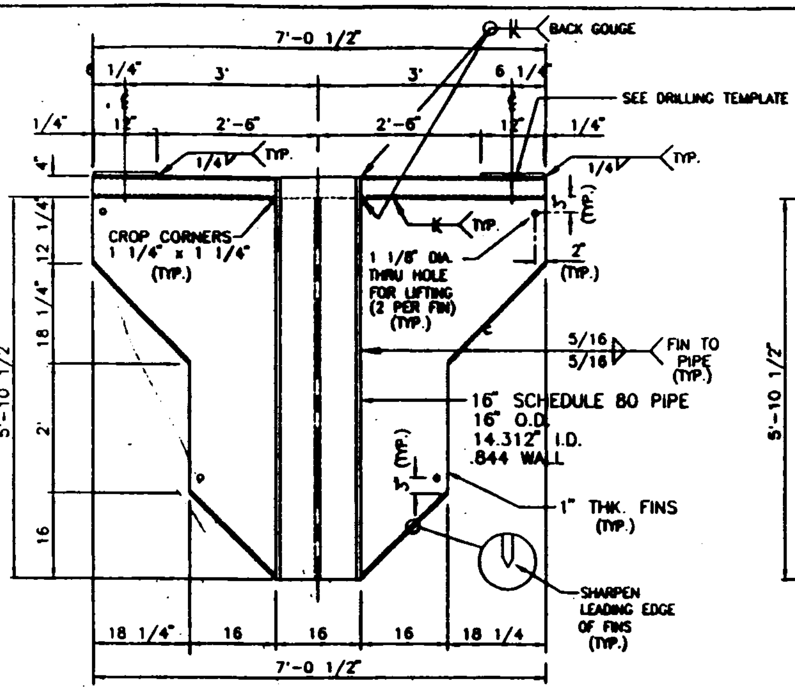
SAFE foundations are proprietary products. To be used in Federal-aid projects, except exempt, non-National Highway System projects, proprietary products: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternate exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.

Sincerely yours,

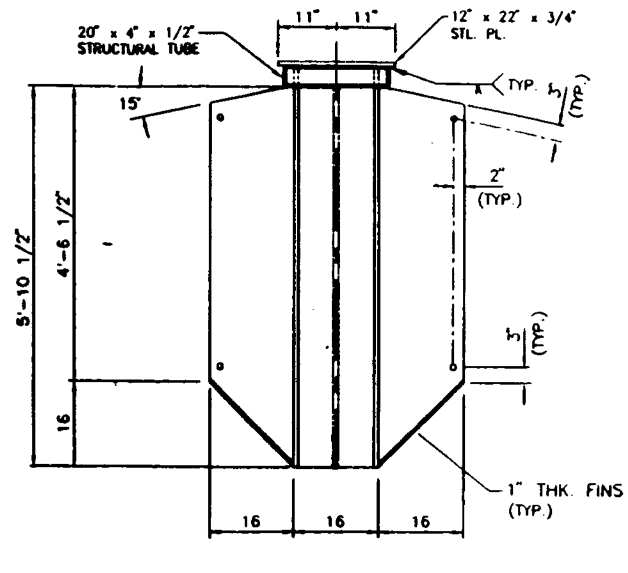
Dwight A. Horne, Chief
Federal-Aid and Design Division

2 Enclosures

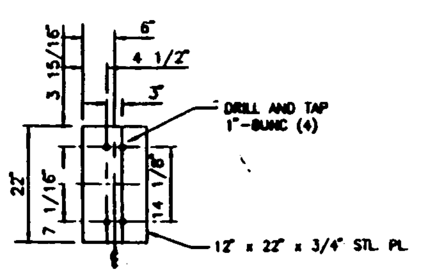
Geometric and Safety Design Acceptance Letter SS-48A



FRONT VIEW



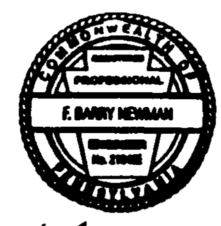
SIDE VIEW



DRILLING TEMPLATE
2 REQ'D.

NOTES

1. PROVIDE MATERIALS, FABRICATION AND WORKMANSHIP IN ACCORDANCE WITH SECTIONS 910, 1101 AND 1105 OF PENNDC SPECIFICATIONS PUB. 408 WITH INTERIM REVISIONS ANSI/AASHTO/AWS D1.5-88 AND D1.1 BRIDGE WELDING CODE AND CONTRACT SPECIAL PROVISIONS.
2. PIPE, ASTM A53, GRADE B, TYPE E OR S, SCHEDULE 80
3. FINS, ASTM A-36 STEEL
4. TUBE, ASTM A-500 GRADE A OR B.
5. CERTIFICATION AS SPECIFIED IN 106.03 (b) 3 OF PUBLICATION FURNISH A COPY OF THE RESULTS OF ALL TESTS PERFORMED WHICH ARE NECESSARY TO ASSURE COMPLIANCE WITH THE SPECIFICATIONS.
6. SAFE FOUNDATIONS TO BE GALVANIZED PER ASTM A-123 AFTER COMPLETE WELDED ASSEMBLY.
7. WELDING, IN ACCORDANCE WITH ANSI/AASHTO/AWS D1.5-88 AND D1.1 AND SECTION 1105-03(M) OF PUBLICATION 408 UTILIZING E-60XX WELDING ELECTRODES OR BETTER.
8. DESIGN CAPACITIES AT TOP OF FOUNDATION FOR SIGN 70:
   OVERTURNING MOMENT- 37.0 KIP-FEET (WIND)
   SHEAR - 2.7 KIPS (WIND)
   COMPRESSION - 2.1 KIPS (DEAD + ICE)
   TORSION - 46.8 KIP-FEET (IMPACT)
9. DESIGN CALCULATIONS AND ASSUMPTIONS FOR THE INFORMATION PRESENTED ON THIS DRAWING ARE PRESENTED IN THE GAI REPORT, "SAFE ALTERNATE FOUNDATIONS TYPE A SIGNS 70 AND 72, ROUTE 60, BEAVER VALLEY EXPRESSWAY, PITTSBURGH INTERNATIONAL AIRPORT, PITTSBURGH, GAI PROJECT 93-503-66, DATED MARCH 17, 1998.
10. INSTALLER SHALL BE CERTIFIED BY SAFE FOR PROPER INSTALLATION OF SAFE FOUNDATIONS. INSTALL FOUNDATIONS IN PLUMB PREDRILLED HOLES NO LARGER THAN THAN THE FOUNDATION PIPE OUTSIDE DIAMETERS AT THE CORRECT LOCATI FIN ORIENTATIONS, PLUMBNESS AND ELEVATIONS USING THE PATENTED SAFE ANCHOR INSTALLATION PROCEDURE OR PUSHIT MACHINE. BACKFILL THE PIPE IN THIN LIFTS BY TAMPING THE S REMOVED IN THE DRILLING OPERATION. BACKFILL ANY SAI ANCHOR HOLES WITH SOIL COMPACTED IN THIN LIFTS TO THE S DENSITY AS THE UNDISTURBED CONDITION. REPORT ANY INSTALL DIFFICULTIES, DAMAGE, UNANTICIPATED SUBSURFACE CONDITIONS, INDICATIONS OF INADEQUATE FOUNDATION CAPACITY TO GAI FOR RECOMMENDATIONS. RECORD INJECTION LOAD FOR EACH FOOT O BELOW THE GROUND SURFACE. THE FINAL INJECTION LOAD MUS LEAST TWICE THE REQUIRED DESIGN COMPRESSIVE CAPACITY FO FOUNDATION.
11. INSTALL HARDWARE AND ANCHORS IN ACCORDANCE WITH PENND REQUIREMENTS FOR TYPE A SIGNS.
12. COMPLETE THE INSTALLATION AS REQUIRED BY THE CONTRACT DOCUMENTS AND PROVIDE A MAXIMUM BREAKAWAY HEIGHT OF 4" ABOVE THE SURROUNDING GROUND SURFACE.



F. Barry Newman
REPRESENTING GAI CONSULTANTS INC.

SIGN NUMBER	FOUNDATIONS REQUIRED	OFFSET DIM.		
70	1	0"		

PITTSBURGH INTERNATIONAL AIRPORT
ROADWAY SIGNAGE IMPROVEMENTS
PROJECT 7G2-95
SIGN NO. 70 FOUNDATION - STA SR 0060 NB
SOUTH OF AIRPORT INTERCHANGE

GAI CONSULTANTS INC.
570 BEATTY ROAD, MONROEVILLE, PA.
GAI DRAWING 93-503-66-E1
DATE 3/25/98 REVISION A
DRAWN BY [illegible] CHECKED BY [illegible]
APPROVED BY [illegible] DATE [illegible]

SAFE INSTALLATION CO.
PROJECT / JOB NO.

SIGN 70