



In Reply Refer To: HSSD-10/B-88E

July 31, 2007

Mr. Michael Kempen  
Vice President  
Safence Inc.  
46-04 245<sup>th</sup> Street  
Douglaston, NY 11362

Dear Mr. Kempen:

Thank you for your letter requesting the Federal Highway Administration's (FHWA) acceptance of your company's four-cable tensioned barrier as a Test Level 4 device for use on the National Highway System (NHS). Accompanying your letter was a report of crash testing conducted by the Swedish Verg Trafik Institute and a consultant review of the system. You requested that we find this device acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

**Introduction**

The FHWA guidance on crash testing of roadside safety hardware is contained in a memorandum dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features."

**Testing**

Full-scale automobile, pickup, and single-unit truck testing has been conducted on your Safence cable barrier systems leading to the following FHWA Acceptance Letters:

FHWA#	Date	NCHRP	Cables	Name	Spacing	Deflection
B-88	7/13/01	TL-3	4	Roadside	Driven elliptical posts	2.5 1.8
B-88A	1/28/04	TL-3	4	3504RI	Median Driven I posts	2.5 2.7
B-88B	6/8/04	TL-3	4		Concrete footers	2 to 3 1.9 to 2.5
B-88C	5/26/05	TL-3	4	Roadside	Allow "C" posts	? ?
B-88D	12/27/06	TL-4	3	3RC	Modified C posts	10 m 3.7

Cable heights in these systems are as follows:

			height 1	height 2	height 3	height 4	Name
B-88	7/13/2001	TL-3	480	630	780	930	
B-88A	1/28/2004	TL-3	480	560	640	720	3504RI
B-88B	6/8/2004	TL-3	480	560	640	720	
B-88C	5/26/2005	TL-3	480	630	780	930	
B-88D	12/27/2006	TL-4	480	640	720	(none)	3RC
B-88E	This Letter	TL-4	480	560	640	720	



## Findings

Your present request builds on prior testing of the 4-cable Safence systems to Test Level 3 and testing of the 3-Cable “3RC” system to Test Level 4. We concur that the addition of the fourth cable to the “3RC” system will have no adverse effect on the performance of this Test Level 4 barrier. The fourth cable is anchored with its own connection to the concrete terminal block.

Therefore, the Safence 4 cable system described above and detailed in the enclosed drawings is acceptable for use on the NHS under the range of conditions tested, when proposed by a State.

Other details of this system include:

Posts may be driven or placed in concrete footings.

Steel used in the 1230 mm long posts is ASTM A1011 HSLAS Grade 50

Cable tension at 100 F installation temperature is to be 1750 foot-pounds

Dynamic deflection of the system is 2.2 meters with the 8000S single-unit truck and 2.1 meters with the 2000P pickup truck.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- This acceptance is limited to the crashworthiness characteristics of the device.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number B-88E shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- Safence is a patented product and considered proprietary. If proprietary devices are specified by a highway agency for use on Federal-aid projects, except exempt, non-NHS projects, they:
  - (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 the existing highway facilities or that no equally suitable alternative 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.

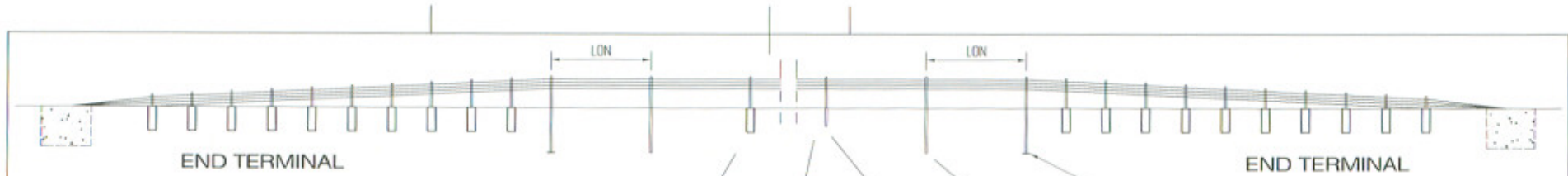
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

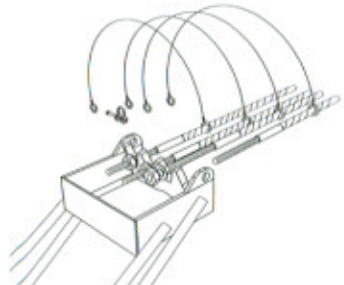
A handwritten signature in blue ink, appearing to read "George E. Rice".

**for:** George E. Rice  
Acting Director, Office of Safety Design  
Office of Safety

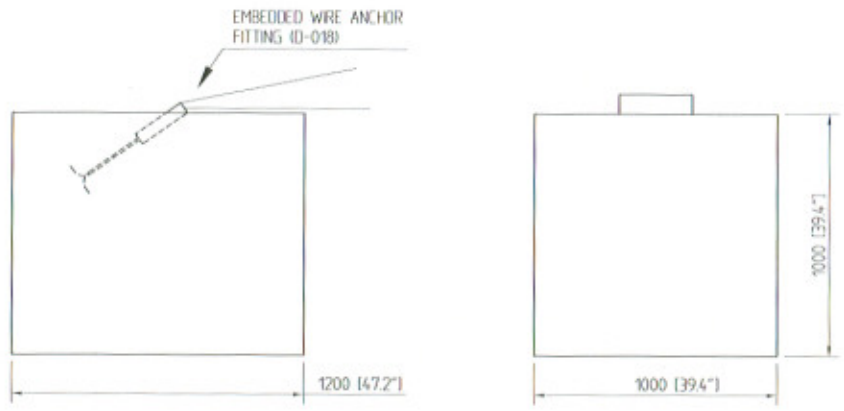
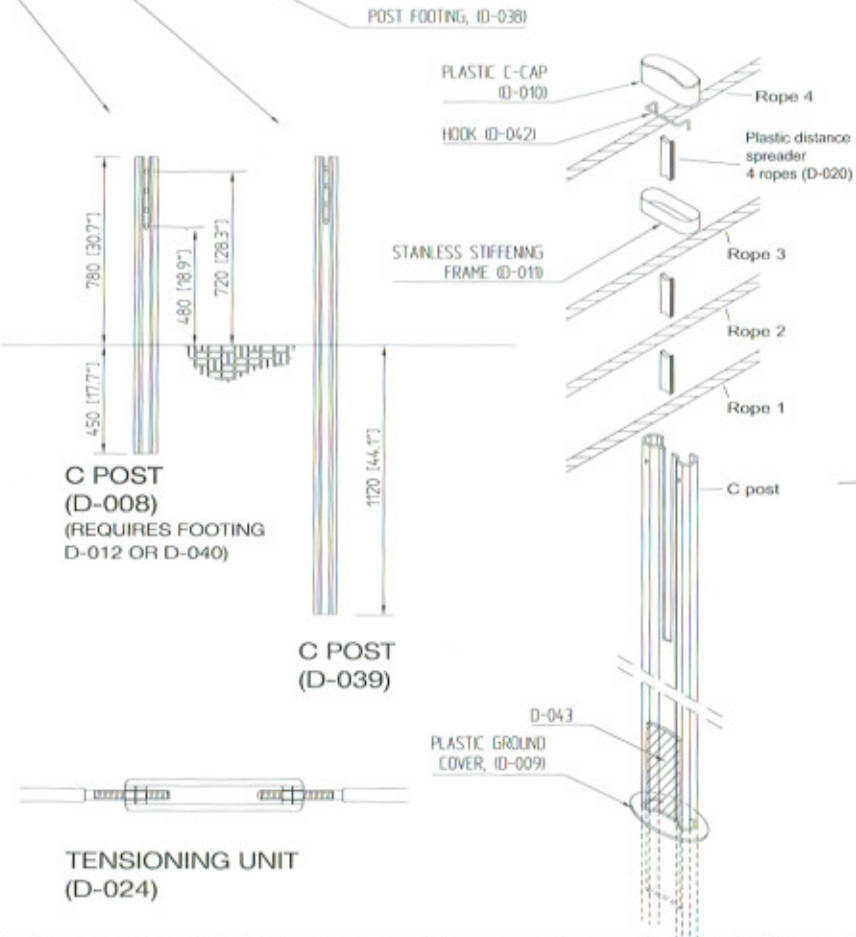
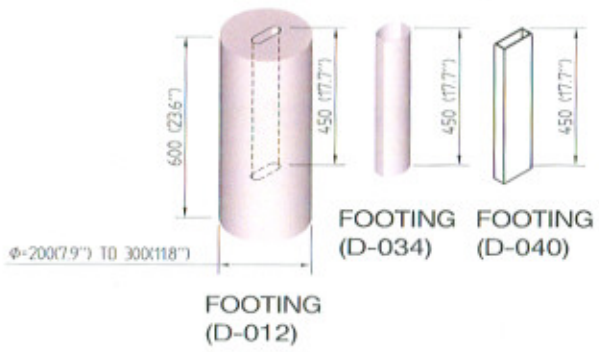
2 Enclosures



NCHRP 350 TL4		
POST TYPE	POST DISTANCE	ELONGATION
D 041	4,0 m (13,2')	2,1 m (6,9')



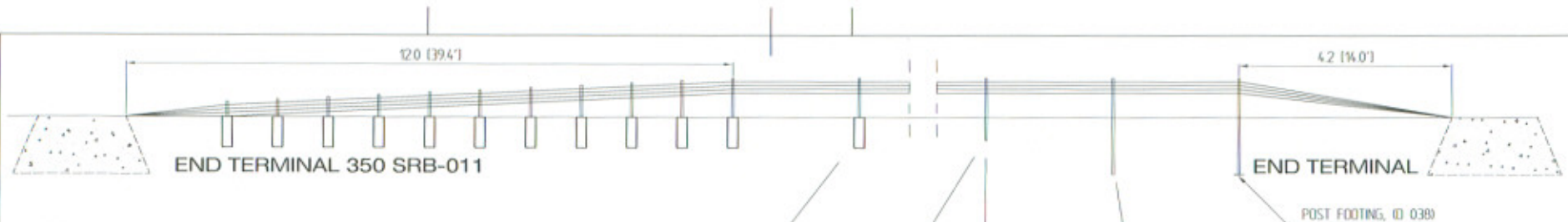
WIRE ANCHOR FITTING (D-018)



ANCHOR

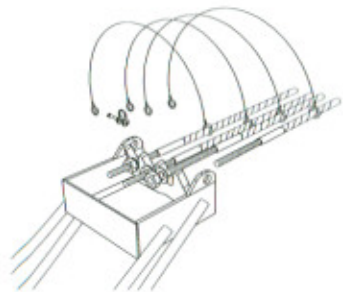
Safence Inc. accepts no liability for any changes made to the enclosed drawings of the Safence II System and the Safence II Terminal. These drawings are to only be used by State designers and engineers and may not be altered. Safence is not responsible for any modifications or changes to the enclosed documents

Designed MH	Drawn NM	Approved - date 2007-03-04	Units m (ft) , mm (inch)	Proj. [Symbol]	Scale -
<b>SAFENCE ink</b> 46-04 245th Street Douglaston NY 11332 USA Phone: 718 222-8844 Cell: +846 732 3812			Material Name <b>SAFENCE 4 RC, PATENT PENDING</b>		
			Issue	Sheet	File
			DrawingNo	SRB-016	

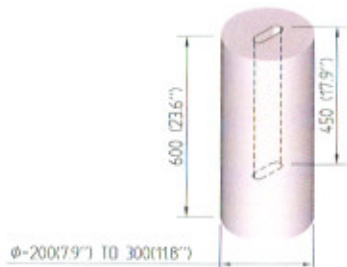


NCHRP 350 TL3

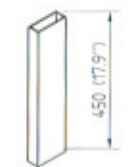
POST TYPE	POST DISTANCE	ELONGATION
D 008	2,0 m (6,6')	1,9 m (6,2')
D 008	2,5 m (8,2')	2,2 m (7,2')
D 008	3,0 m (9,8')	2,5 m (8,2')
D 039	2,5 m (8,2')	2,7 m (8,9')



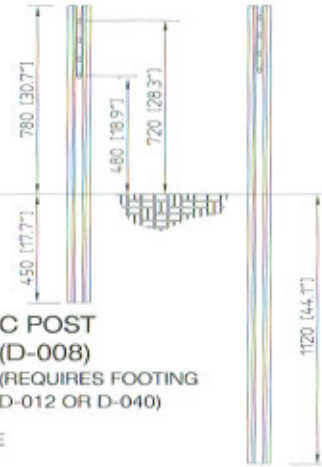
WIRE ANCHOR FITTING (D-018)



FOOTING (D-012)



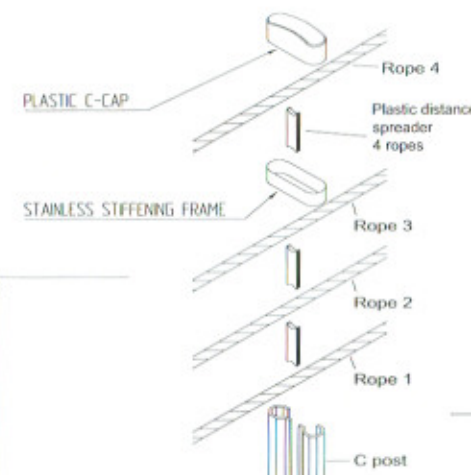
FOOTING (D-040)  
SQUARE-SHAPED TUBE  
4" X 1 1/2" WITH WALL THICKNESS OF .109



C POST (D-008)  
(REQUIRES FOOTING D-012 OR D-040)



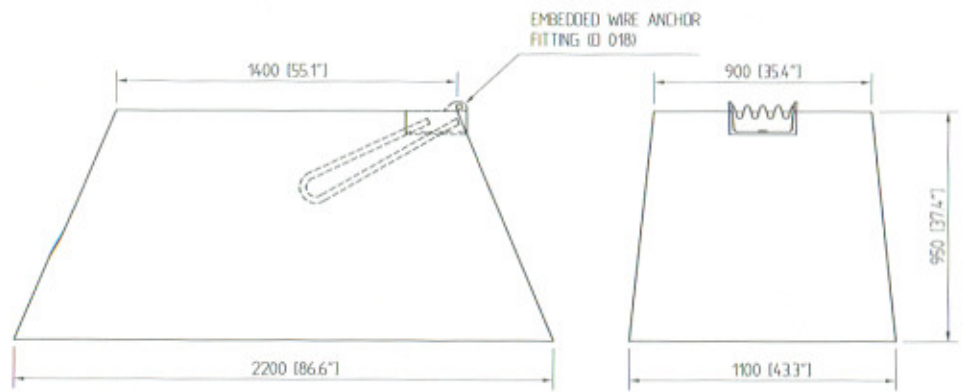
C POST (D-039)



PLASTIC GROUND COVER (D-009)



TENSIONING UNIT (D-024)

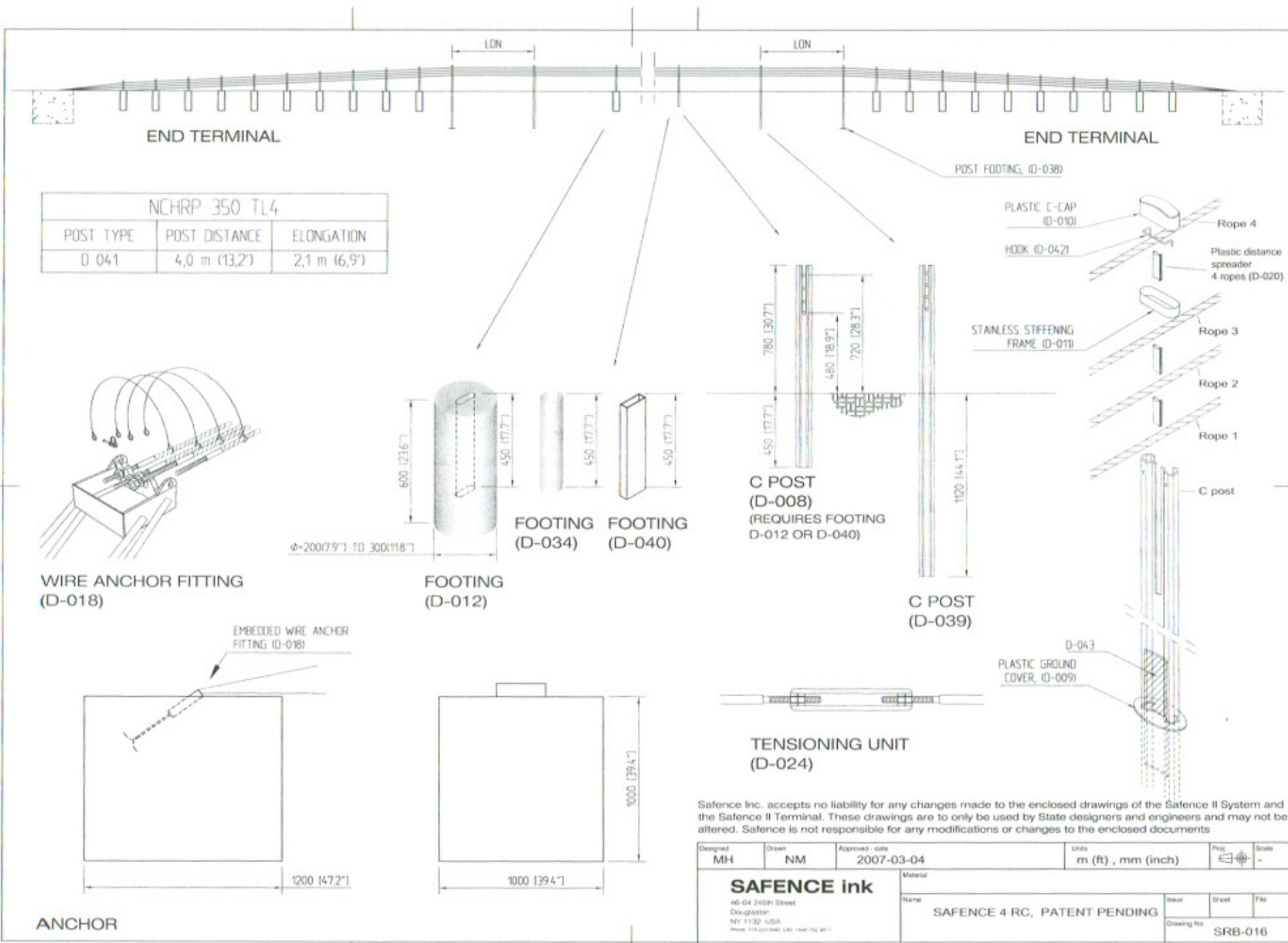


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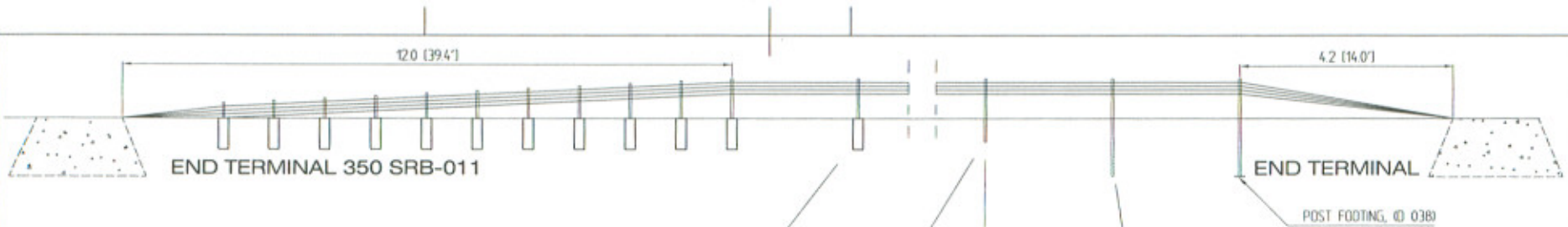
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<b>SAFENCE ink</b> 46-04 245th Street Douglaston NY 11332 USA Phone: 718-229-2044 Cell: 949-752-3810			Material Name <b>SAFENCE 4 RC, PATENT PENDING</b>		
			Issue	Sheet	File
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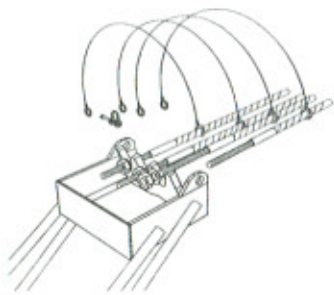
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<b>SAFENCE Ink</b> 46-04 245th Street Douglaston NY 11332 USA Phone: 718.277.8800 Fax: 718.277.8811			Name <b>SAFENCE 4 RC, PATENT PENDING</b>		
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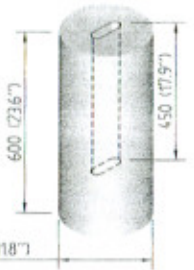


NCHRP 350 TL3

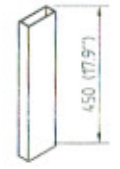
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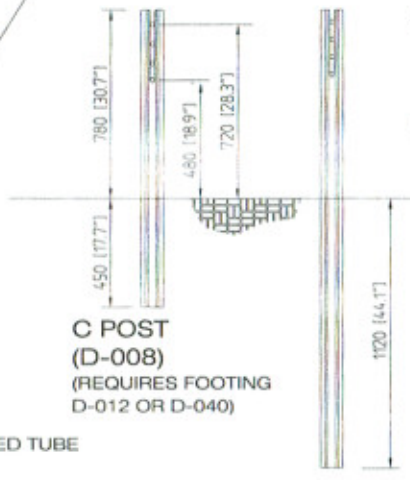
WIRE ANCHOR FITTING (D-018)



FOOTING (D-012)

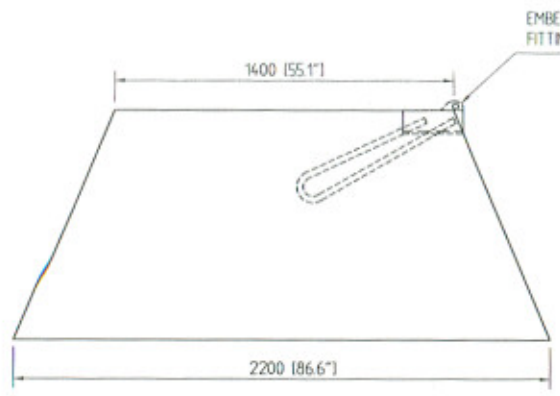
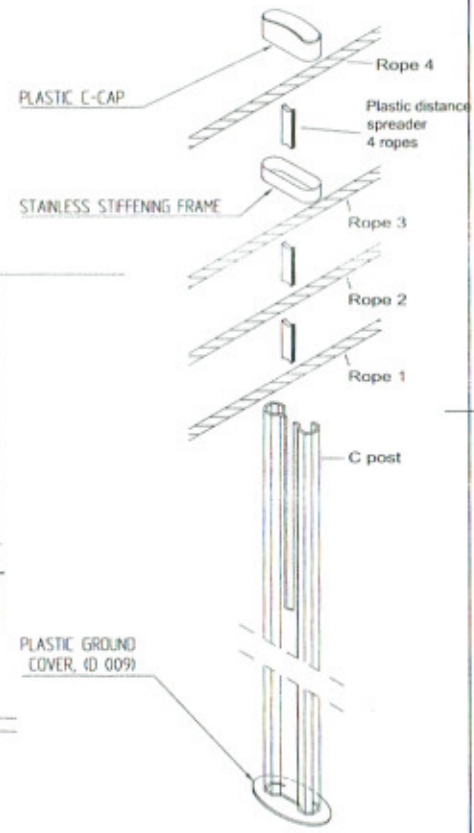


FOOTING (D-040)  
SQUARE-SHAPED TUBE  
4" X 1 1/2" WITH  
WALL THICKNESS OF .109

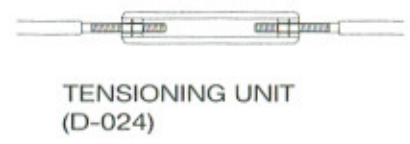
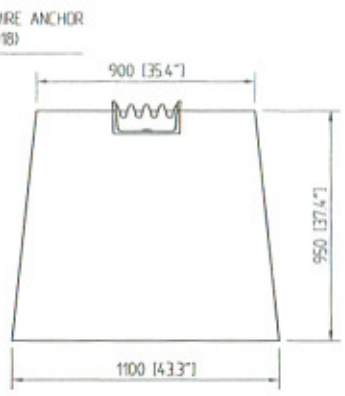


C POST (D-008)  
(REQUIRES FOOTING D-012 OR D-040)

C POST (D-039)



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TENSIONING UNIT (D-024)

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			Drawing No. <b>SRB-012</b>		