



State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER

8512C2040

PAGE

1

ADDRESS CORRESPONDENCE TO ATTENTION OF:

ALAN CUMMINGS
304-558-2402

*709022428 949-361-5663

TRAFFIX DEVICES INC
160 AVENIDA LA PATA

SAN CLEMENTE CA 92673

VENDOR

SHIP TO

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING DIVISION
VARIOUS LOCALES AS INDICATED
BY ORDER

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
04/16/2012	NET 30	BESTWAY	WEST VIRGINIA	DELIVERED
BID OPENING DATE: 05/02/2012		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		550-42		
	SAFETY SAND	BARRELS				
				OPEN-END CONTRACT		
	<p>THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS, IS SOLICITING BIDS TO PROVIDE THE AGENCY WITH AN OPEN-END CONTRACT TO FURNISH THE REQUIRED MATERIALS NECESSARY FOR THE MAINTENANCE OF ENERGY ABSORPTION SYSTEM FITCH SAND BARRELS, PLASTIC SAFETY SYSTEMS CRASHGARD SAND BARRELS, OR TRAFFIX DEVICES SAND BARRELS PER THE ATTACHED SPECIFICATIONS.</p> <p>EXHIBIT 3</p> <p>LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE ON AWARD AND EXTENDS FOR A PERIOD OF ONE (1) YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE.</p> <p>UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT BY THE STATE OF WEST VIRGINIA, ITS AGENCIES, OR POLITICAL SUBDIVISIONS, THE TERMS, CONDITIONS, AND PRICING SET FORTH HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.</p>					

SEE PRICE SHEET
ATTACHED P.18
P.17

RECEIVED

2012 APR 30 AM 9:49

WV PURCHASING
DIVISION

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
 2. The State may accept or reject in part, or in whole, any bid.
 3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
 4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
 5. Payment may only be made after the delivery and acceptance of goods or services.
 6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
 7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
 8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
 9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
 10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
 11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
 12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
 13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.html and is hereby made part of the agreement provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
 - 14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
 15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
 16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.
- I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).



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160 AVENIDA LA PATA

SAN CLEMENTE CA 92673

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DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING DIVISION
VARIOUS LOCALES AS INDICATED
BY ORDER

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04/16/2012						
BID OPENING DATE: 05/02/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.</p> <p>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICE SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.</p> <p>OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK.)</p> <p>QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY THE STATE SPENDING UNIT. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACT SHALL COVER THE QUANTITIES ACTUALLY ORDERED FOR DELIVERY DURING THE TERM OF THE CONTRACT, WHETHER MORE OR LESS THAN THE QUANTITIES SHOWN.</p> <p>ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A WRITTEN STATE CONTRACT ORDER (FORM NUMBER WV-39) TO THE VENDOR FOR COMMODITIES COVERED BY THIS CONTRACT. THE ORIGINAL COPY OF THE WV-39 SHALL BE MAILED TO THE VENDOR AS AUTHORIZATION FOR SHIPMENT, A SECOND COPY</p>						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE			TELEPHONE		DATE	
TITLE		FEIN		ADDRESS CHANGES TO BE NOTED ABOVE		

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TRAFFIX DEVICES INC
160 AVENIDA LA PATA

SAN CLEMENTE CA 92673

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TRAFFIC ENGINEERING DIVISION
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DATE PRINTED

TERMS OF SALE

SHIP VIA

F.O.B.

FREIGHT TERMS

04/16/2012

BID OPENING DATE:

05/02/2012

BID OPENING TIME

01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
MAILED TO THE PURCHASING DIVISION, AND A THIRD COPY RETAINED BY THE SPENDING UNIT.						
BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.						
THE TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT SHALL SUPERSEDE ANY AND ALL SUBSEQUENT TERMS AND CONDITIONS WHICH MAY APPEAR ON ANY ATTACHED PRINTED DOCUMENTS SUCH AS PRICE LISTS, ORDER FORMS, SALES AGREEMENTS OR MAINTENANCE AGREEMENTS, INCLUDING ANY ELECTRONIC MEDIUM SUCH AS CD-ROM.						
REV. 01/17/2012 EXHIBIT 4						
LOCAL GOVERNMENT BODIES: UNLESS THE VENDOR INDICATES IN THE BID HIS REFUSAL TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO COUNTY, SCHOOL, MUNICIPAL AND OTHER LOCAL GOVERNMENT BODIES, THE BID SHALL EXTEND TO POLITICAL SUBDIVISIONS OF THE STATE OF WEST VIRGINIA. IF THE VENDOR DOES NOT WISH TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO ALL POLITICAL SUBDIVISIONS OF THE STATE, THE VENDOR MUST CLEARLY INDICATE SUCH REFUSAL IN HIS BID. SUCH REFUSAL SHALL NOT PREJUDICE THE AWARD OF THIS CONTRACT IN ANY MANNER.						
REV. 3/88 PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE						

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LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
AGENCY AS A CONDITION OF AWARD.						
NOTICE						
A SIGNED BID MUST BE SUBMITTED TO:						
DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130						
THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:						
SEALED BID						
BUYER: ALAN CUMMINGS - FILE 33						
RFQ. NO.: 8512C2040						
BID OPENING DATE: 05/02/2012						
BID OPENING TIME: 1:30 P.M.						
PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:						

TRAFFIX DEVICES, INC.
160 Avenida La Pata
San Clemente, CA 92673
(949) 361-5663

949 361 9205

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LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
CONTACT PERSON (PLEASE PRINT CLEARLY): ----- JULE EDWARDS -----						
ANY INDIVIDUAL SIGNING THIS BID IS CERTIFYING THAT: (1) HE OR SHE IS AUTHORIZED BY THE BIDDER TO EXECUTE THE BID OR ANY DOCUMENTS RELATED THERE TO ON BEHALF OF THE BIDDER, (2) THAT HE OR SHE IS AUTHORIZED TO BIND THE BIDDER IN A CONTRACTUAL RELATIONSHIP, AND (3) THAT THE BIDDER HAS PROPERLY REGISTERED WITH ANY STATE AGENCIES THAT MAY REQUIRE REGISTRATION.						
***** THIS IS THE END OF RFQ 8512C2040 ***** TOTAL:						\$ 5,213.00
<div>TRAFFIX DEVICES, INC. 160 Avenida La Pata San Clemente, CA 92673 (949) 361-5663</div>						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE			TELEPHONE		DATE	
TITLE		FEIN		ADDRESS CHANGES TO BE NOTED ABOVE		

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Specifications

Purpose: The purpose of this contract shall be to furnish materials required for the maintenance of Energy Absorption System Energite III Sand Barrels, Energy Absorption System Fitch Sand Barrels, Plastic Safety Systems CrashGard Sand Barrels, and Traffic Devices Sand Barrels.

1.0 DEFINITIONS

- A. The "Agency" shall be defined as the West Virginia Division of Highways
- B. The "Vendor" shall be defined as the successful bidder.
- C. The "Contract" shall be defined as the binding agreement that is entered into between the State of West Virginia and the Vendor to provide the services as herein specified.
- D. "Release Order" shall be defined as order placed against the Contract by the Agency.
- E. Mandatory Requirements: The terms "must", "will", "shall", "minimum", "maximum", or "is/are required" identify a mandatory item or factor. Decisions regarding compliance with any mandatory requirements shall be at the sole discretion of the State.

2.0 SCOPE OF WORK

- 2.1 Technical Requirements: The successful Vendor shall provide complete sand barrel units and replacement lids for either the Energy Absorption System Energite III Sand Barrel system, the Energy Absorption System Fitch Sand Barrel system, the Plastic Safety Systems CrashGard Sand Barrel system, or the Traffic Devices Sand Barrel system.
 - 2.1.1 Complete descriptions of the components to be supplied are included as part of the bid schedule. The bid schedule also includes references to the appropriate manufacturer installation drawing, also included as part of this Contract for reference.
 - 2.1.2 Approved Products Listing
 - 2.1.2.1 The individual sand barrel systems listed within this RFQ are sand barrel systems currently listed on the WVDOH APL. A copy of the current APL may be viewed at the website <http://www.transportation.wv.gov/highways/mcst/Documents/APPROVED%20PRODUCTS%20LIST%20traffic%20safety%20devices%202011-12.pdf> (see Type V category).

2.1.2.2 The Approved Products List establishes a list of "certified" manufacturers that meet the acceptable level of quality and is not intended to reflect a preference or favor any particular brand or Vendor. Any manufacturer capable of meeting the established level of quality may become an "certified" manufacturer and be added to the APL in accordance with the procedures found in MP (Materials Procedure) MP 700.00.55 Guidelines for Establishing Approved Lists of Materials and Sources. A copy of MP 700.00.55 may be found at:

<http://www.transportation.wv.gov/highways/mcst/Pages/MaterialProcedures.aspx>

The state reserves the right to waive minor irregularities in bids or specifications in accordance with section 148-1-4(F) of the West Virginia Legislative Rules and Regulations.

2.2 Delivery

2.2.1 This Contract may be utilized by multiple recipients statewide, each having a unique delivery address.

2.2.2 Release Orders shall be delivered in full within a maximum of twenty-one (21) Calendar Days ARO. If the Vendor is unable to deliver in full within twenty-one (21) Calendar Days, the Vendor shall be subject to a daily (per Calendar Day) penalty at the purchasing organizations discretion for each Calendar Day beyond twenty-one (21) Calendar Days ARO, until the order is received in full. This penalty shall be assessed by subtracting the penalty from the original total value of the Release Order. The penalty shall not exceed the original total amount of the Release Order. The penalty shall be calculated based on the Table shown at the following address:

<http://www.transportation.wv.gov/highways/contractadmin/specifications/Pages/LiquidDatedDamages.aspx>

The original total amount of the Release Order shall be substituted for the "Original Contract Amount" when using this Table

2.2.3 All large components shall be shipped adequately secured on pallets for ease in unloading. Large components shall be easily identifiable or the packaging shall be labeled indicating the contained parts. All accessory hardware and relatively small components shall be appropriately packaged and labeled. Any material delivered not meeting the above requirements shall be subject to being returned to

the Vendor at the Vendor's expense. In this case, the Vendor shall be responsible for the shipment of the returned materials back to the purchasing organization, packaged as specified above. In addition, the provisions of 2.2.2 shall remain in effect. The order shall be considered "delivered in full" at the time of delivery of the returned materials back to the purchasing organization. Furthermore, the number of days for completion of the order shall be calculated as specified in 2.2.2. If expedited delivery was requested for the order, the provisions of Section 4.2.3 shall apply to the entire order if the returned materials are not delivered back to the purchasing organization within ten (10) Calendar Days of the original receipt of the order by the Vendor.

2.2.4 Delivery is an integral part of this contract and failure to comply will be cause to initiate a WV-82, Vendor Performance Form. This form will officially notify the West Virginia Division of Purchasing and the Vendor of unsatisfactory performance in the execution of this contract and the requirements herein.

3.0 FREIGHT

3.1 All shipments are to be FOB Destination.

3.2 The Vendor shall be responsible for all freight charges incurred as a result of the purchases under this Contract. For orders where expedited delivery is requested and authorized by the Agency, the Vendor may invoice for these charges provided that it will be given as a "pass through" cost to the Agency. No markup shall be permitted for expedited delivery. See Section 4.2.3 for more information.

4.0 ORDERING AND INVOICING

4.1 Release Orders

4.1.1 For all orders, the Agency will issue to the Vendor a WV-39 Release Order. Issuance of the Release Order shall contain the type of merchandise to be purchased and shall serve as the authorization to process the order.

4.2 Payment

4.2.1 The State of West Virginia currently utilizes a VISA purchasing card program which is issued through a local bank. The Vendor must accept the State of West Virginia purchasing card for payment of all orders placed against this Contract.

4.2.2 The Vendor must supply a credit card receipt, sales receipt, or cash register receipt. In addition, all orders shall be shipped with an itemized packing list(s). The packing list(s) shall show all items included in the shipment as well as items on backorder. Charges must not be applied until all merchandise on the WV-39 Release Order is received in full by the Agency.

4.2.3 For orders where expedited delivery has been requested by the Agency per Section 3.2, the Vendor may add actual shipping costs (prepaid) to the invoice as a separate item. In this case, the Vendor shall attach a copy of the freight bill to the invoice sent to the Agency. All such orders shall be delivered in full within ten (10) Calendar Days ARO. If any such order is not received in full within ten (10) Calendar Days ARO, the Vendor may not add shipping costs as described above to the invoice and the order will be treated as a normal non-expedited order with the provisions of Section 2.2.2 to apply.

5.0 CONTRACT STRUCTURE & CONTRACT BID EVALUATION

5.1 Contract Sections

5.1.1 This Contract shall be considered to consist of four (4) Sections. Section I consists of Items 1 through 3. Section II consists of Items 4 through 5. Section III consists of Items 6 through 9. Section IV consists of Items 10 and 11.

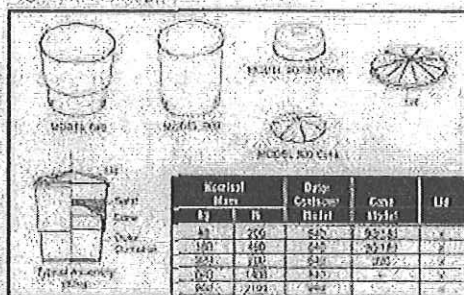
5.2 Bidding & Award

5.2.1 The Vendor should choose and provide pricing for only one (1) of the Sections described above. If the Vendor provides pricing for more than one (1) Section, the "total cost" for each Section shall be calculated separately. The total cost for each Section shall be the total of the values in the "TOTAL AMOUNT" column in each Section. The Section with the lowest total cost will be the Section considered to be the one (1) Section that the Vendor is bidding on the Contract, and will be considered the "total cost" of the Vendor's bid.

5.2.2 The Vendor with the lowest "total cost" associated with their bid will be awarded the Contract. Only one Section shall be awarded, and only one Vendor shall be awarded the Contract. The Vendor must provide a price for all items in one (1) Section of the Contract or their bid will be disqualified.

Energite® III/ Fitch® Universal Module Systems

Figure 1A-Energite® III



Energite III System Components

Crash Performance

The Energite® III/Fitch® Universal Module Systems have been successfully tested to NCHRP Report 350, Test Level 3 for non-redirection, rating crash cushions. NCHRP 350 differs from NCHRP 230 in that the heavy vehicle is now a pickup truck with a higher center-of-gravity plus the impact severity has increased by 6.7% due to the impact speed of 100 km/h (62 mph).

The inertial barrel systems break up during impact. As the impacting vehicle passes through the array, its speed is slowed by transfer of its momentum to the sand, allowing for safe, steady deceleration.

Caution: Inertial barrels are not recommended for sites where redirection capabilities are warranted.

Figure 1B-Fitch® Universal Module System

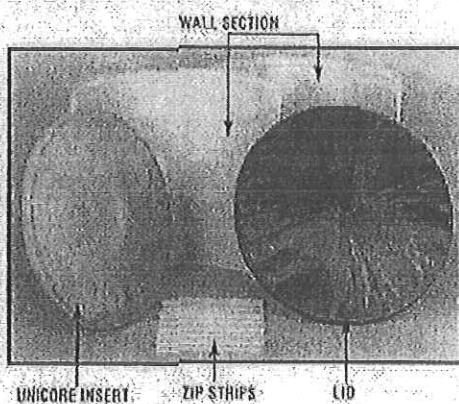
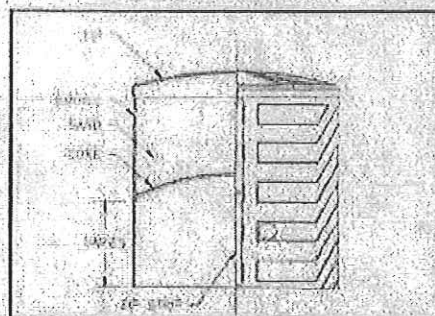
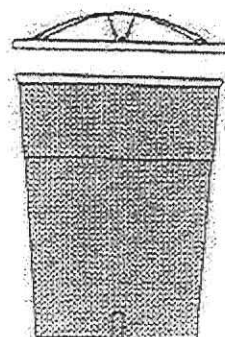


Figure 1C-Fitch® Universal Module System



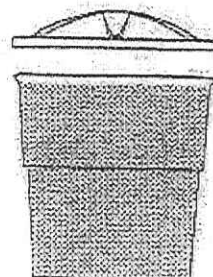
For Customer Service call
1-888-32-ENERG



100-443887-110

740210
250 KG
EASSEL

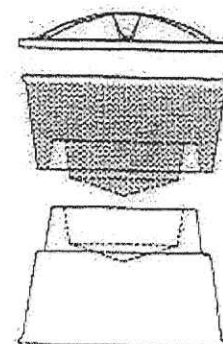
PART 40210-0
ASSEMBLY FOR
200 K_g MODULE
2100 #



54500
LTD

J-40T X0
 6-40 K2
 BAYNET

PART 848140-0
ASSEMBLY FOR
640 Kg. MACHINE
1600



P-800
LIC

#40247-5
J20, 100, 20 Kg
HALF BARREL
CONTAINER

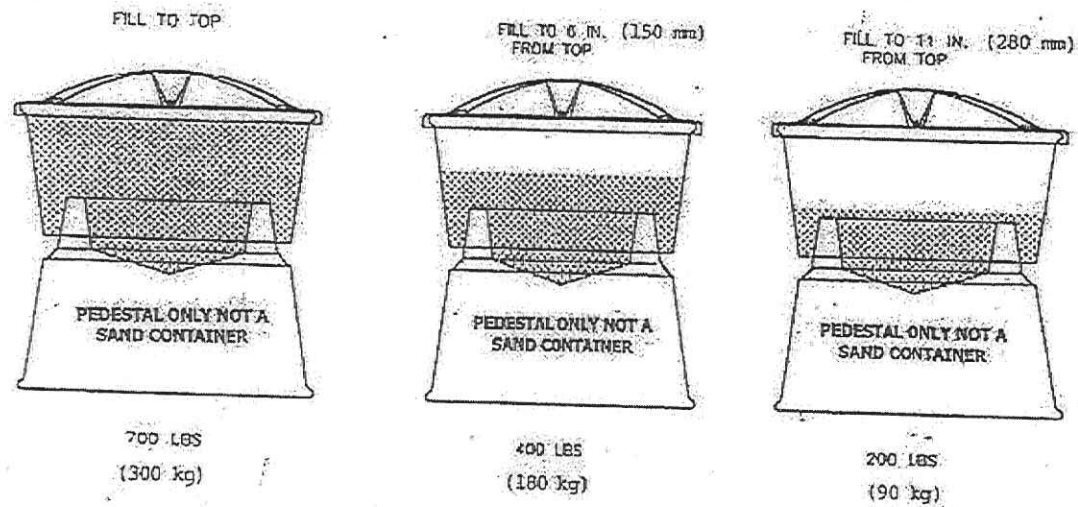
P46243-P
BACK
HALF ORRTEL

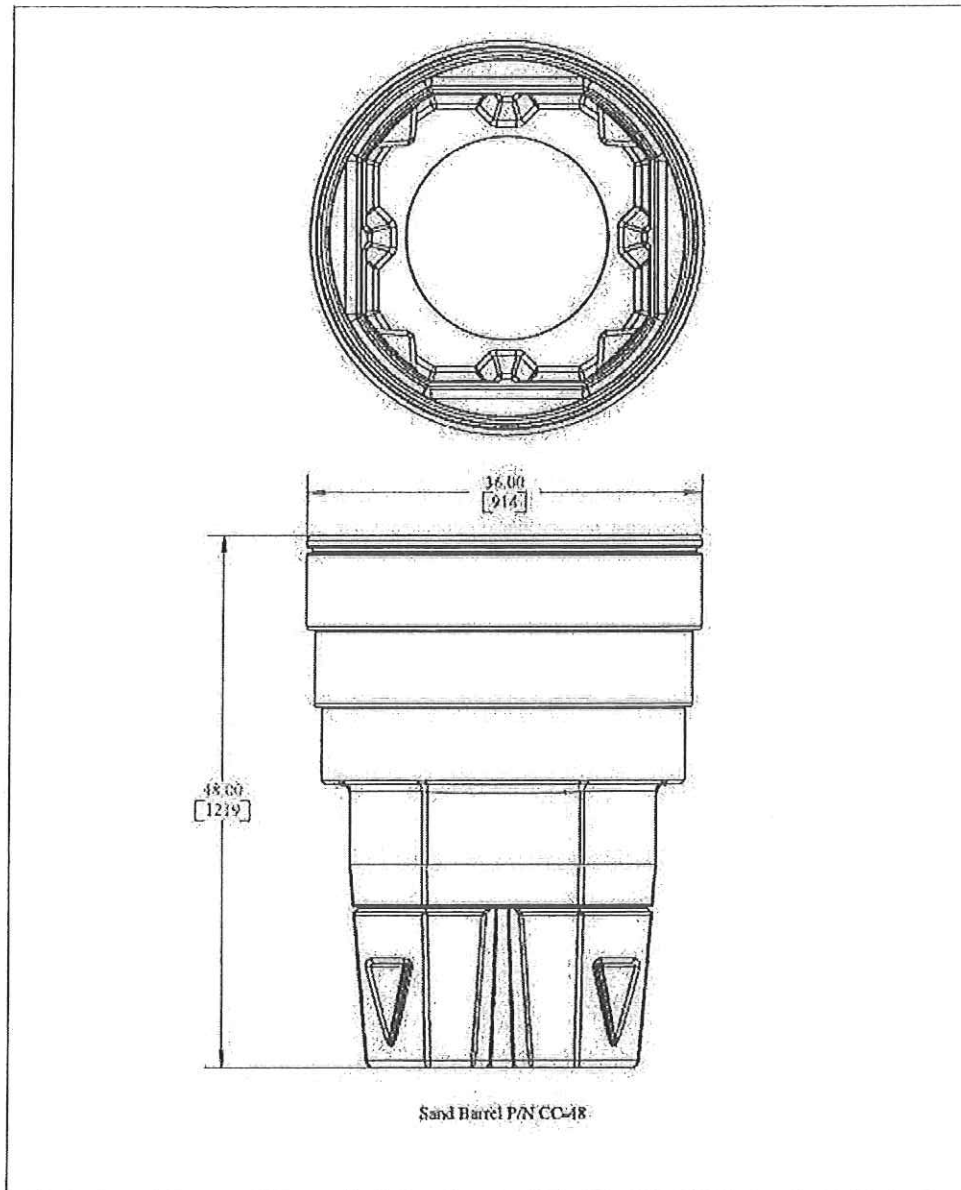
PART 443700-AN
ASSEMBLY FOR
STD. 180. SO. Xp. MOBILE

NOTES:

[illegible]

NOTE THAT THERE IS NOW ONLY **ONE** SAND
CONTAINER FOR 200LB, 400LB & 700LB





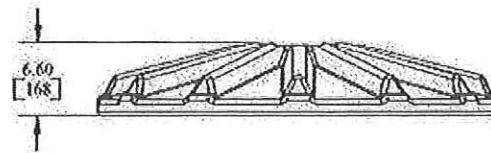
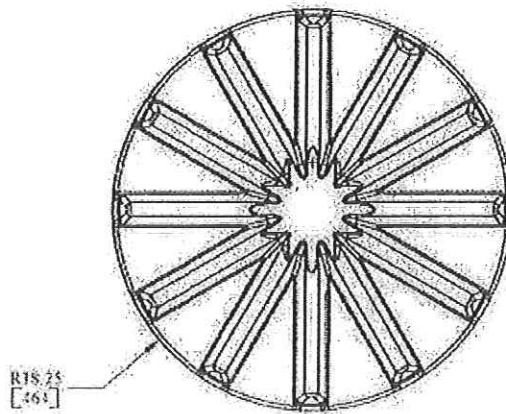
CrashGard Sand Barrel

Plastic Safety Systems, Inc.

Designator
to be assigned

SHEET NO.
4 of 6

DATE:
1/19/07



Lid P/N CC4.36

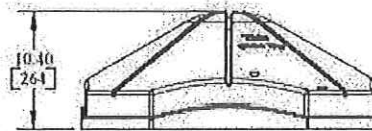
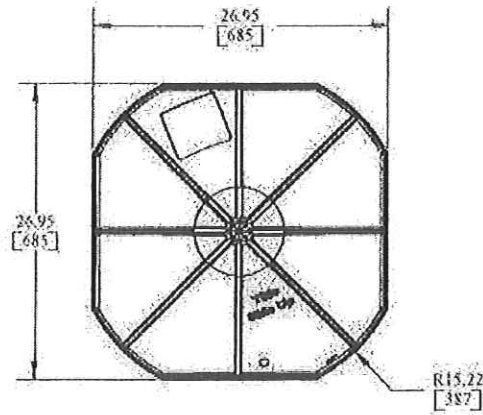
CrashGard Sand Barrel

Plastic Safety Systems, Inc.

Designator
to be assigned

SHEET NO.
5 of 6

DATE
1/19/07



Insert P/N CC-127

CrashGard Sand Barrel

Plastic Safety Systems, Inc.

Designator
to be assigned

SHEET NO.
6 of 6

DATE:
1/19/07

TYPICAL WVDOH DELIVERY POINTS, DELIVERY CONTACTS, AND INVOICING ADDRESSES

Delivery Address	Delivery Contact	Delivery Contact Phone Number	Invoicing Address
WVDOH - D1 Sign Shop 75 Pickens Rd. Nitro, WV 25143	Mike Priddy	304-759-0708 304-558-3001*	WVDOH - D1 Headquarters 1334 Smith Street Charleston, WV 25301
WVDOH - D2 Sign Shop 801 Madison Ave Huntington, WV 25704	Dale Kennedy	304-528-5906 304-528-5600*	WVDOH - D2 Headquarters 801 Madison Avenue Huntington, WV 25712
WVDOH - D3 Sign Shop 720 Depot St. Parkersburg, WV 26101	Tom Potts	304-420-4815 304-420-4645*	WVDOH - D3 Headquarters 624 Depot Street Parkersburg, WV 26102
WVDOH - D4 Sign Shop US-19 - 1 mile N. of Clarksburg (gore yard) Clarksburg, WV 26301	Rick Reed	304-627-2401 304-842-1500*	WVDOH - D4 Headquarters I-79 & Meadowbrook Road Clarksburg, WV 26302
WVDOH - D5 Sign Shop US-50 - 14 miles E. of Keyser Burlington, WV 26710	Doug Placka	304-289-3521 304-289-3521*	WVDOH - D5 Headquarters P.O. Box 99 (Route 50) Burlington, WV 26710
WVDOH District 6 Sign Shop 1 DOT Drive, Bldg. 3 Moundsville, WV 26041	Jim Wurtzbacher	304-843-3658 304-238-4008*	WVDOH - D6 Headquarters 1 DOT Drive Moundsville, WV 26041
WVDOH - D7 Sign Shop US-33 - 1/2 mile E. of Weston Weston, WV 26452	Tyrone Campbell	304-269-0460 304-269-0414*	WVDOH - D7 Headquarters 255 Depot Street Weston, WV 26452
WVDOH - D8 Sign Shop Rt. 219 - 1 mile N. of Elkins Elkins, WV 26241	Mike Westfall	304-637-0215 304-637-0220*	WVDOH - D8 Headquarters US 219 North Elkins, WV 26241
WVDOH - D9 Sign Shop US-219 - 1-1/2 miles N. of Lewisburg Country Club Rd. - Brush Rd. Lewisburg, WV 24901	Harry Perkins	304-647-7551 304-647-7450*	WVDOH - D9 Headquarters 103 1/2 Church Street Lewisburg, WV 24901
WVDOH - D10 Sign Shop 270 Hardwood Lane Princeton, WV 24740	Curtis Whitlow	304-487-5283 304-487-5228*	WVDOH - D10 Headquarters 270 Hardwood Lane Princeton, WV 24740
WVDOH - Traffic Services Complex 180 Dry Branch Rd. Charleston, WV 25306	Chuck Swigger Bruce Miller	304-558-6356 304-558-9454	WVDOH - Traffic Engineering Div. Bldg. 5 - Room A550 1900 Kanawha Blvd. E. Charleston, WV 25305

* District/Division headquarters phone number

BID SCHEDULE

Quantities listed in this RFQ are approximations only. It is understood and agreed that the contract shall cover the quantities actually ordered for delivery during the term of the contract, whether more or less than the quantities shown. Award will be based on lowest total cost.

ITEM NUMBER	UNIT OF MEASURE	ESTIMATED QUANTITY	DESCRIPTION	PART DETAIL SHEET(S)	UNIT PRICE	EXTENDED TOTAL AMOUNT	(DOH USE ONLY) INVENTORY SUBCODE
			Energy Absorption Systems Energite III Sand Barrels		NO BID		
1	EA.	18	Energite III complete barrel, 200# through 1400# (includes container, lid, and insert. Specify [200# - 400#] or [700#] insert to be supplied with barrel)	1	NO BID		511000
2	EA.	8	Energite III complete barrel, 2100# (includes container and lid)	1			512000
3	EA.	1	Energite III lid	1			513000
			Energy Absorption Systems Fitch Sand Barrels				
4	EA.	26	Fitch complete barrel, 200#, 400#, 700#, 1400#, 2100# (includes container, zip strips, lid, and Unicore insert)	1			521000
5	EA.	1	Fitch lid	1			522000
			Traffix Devices Sand Barrels				
6	EA.	10	Traffix Devices complete barrel, 200# through 700# (includes pedestal, sand container, and lid)	2, 3	\$ 209.60	2,096.00	531000
7	EA.	8	Traffix Devices complete barrel, 1400# (includes lid)	2, 3	\$ 186.70	1,493.60	532000
8	EA.	8	Traffix Devices complete barrel, 2100# (includes lid)	2, 3	\$ 196.10	1,568.80	533000
9	EA.	1	Traffix Devices lid	2, 3	\$ 54.60	54.60	534000

TRAFFIX DEVICES, INC.
160 Avenida La Pata
San Clemente, CA 92673
(949) 361-5663

BID SCHEDULE (CONTINUED)

ITEM NUMBER	UNIT OF MEASURE	ESTIMATED QUANTITY	DESCRIPTION	PART DETAIL SHEET(S)	UNIT PRICE	EXTENDED TOTAL AMOUNT	(DOH USE ONLY) INVENTORY SUBCODE
			Plastic Safety Systems CrashGard Sand Barrels				
10	EA.	26	PSS complete barrel, 200#, 400#, 700#, 1400#, 2100# (includes barrel P/N CC-48, lid P/N CC-L36, and insert P/N CC-I27	4, 5, 6	NO BID		
11	EA.	1	PSS lid P/N CC-L36	5	NO BID		
CONTRACT TOTAL						→ \$5,213.00	

WVDOH PERSONNEL

An online form is in place in order for District personnel to submit a documented report to the Traffic Engineering Division regarding issues associated with material orders. This form is intended to serve as a manner in which District personnel may quickly and easily submit a documented report to the Traffic Engineering Division regarding issues associated with ordering, delivery and receipt, quality, or order reconciliation issues associated with any of the materials ordered. This form may also be used to report issues with the installation or post-installation performance of materials. This form is located in the "Traffic" section of the WVDOH intranet site (Click on "Traffic" on the left side of the page, then click on "PO Contract Report" on the left side of the page). The direct address for the location of this form is <http://sharepoint.wv.gov/sites/dot/highways/traffic/pocontractreport/Pages/default.aspx>. Once the report is submitted, an email verification will be automatically sent and an email notice will be sent to the Traffic Engineering Division. All reports submitted will be responded to by the Traffic Engineering Division. The Traffic Engineering Division will work with the individual at the District submitting the report to obtain additional needed facts or documentation such as photos or product samples, and will contact and work with the Contract Vendor and Materials Division if needed in order to reconcile the issues in a manner acceptable to all parties if possible. Typically, as a final step to address reported issues, the Traffic Engineering Division will complete and submit a WV-82 Vendor Performance Form in order to officially document any issues and their outcome. The initial point of contact for any submitted reports is Bruce Miller. If you have any questions or would like to follow up on the status of a report that has been submitted, please contact Mr. Miller at 558-9454 or bruce.f.miller@wv.gov.

TRAFFIX DEVICES, INC.
160 Avenida La Pata
San Clemente, CA 92673
(949) 361-5663

**TraFFix
Devices Inc.**



Product Warranty

TraFFix Devices, Inc. warrants the design, material and workmanship of our products for a period of twelve months (12), to be free of any manufacturer's defects.

Exemptions from this general warranty include but are not limited to: "wear items," deterioration or fatigue from ordinary wear and tear, impacts and other abuse occurring within the warranty period.

TraFFix Devices, Inc.
160 Avenida La Pata
San Clemente, CA 92673

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with **West Virginia Code**, §5A-3-37. (Does not apply to construction contracts). **West Virginia Code**, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**

____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,

____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,

____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,

2. **Application is made for 2.5% resident vendor preference for the reason checked:**

____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

3. **Application is made for 2.5% resident vendor preference for the reason checked:**

____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

4. **Application is made for 5% resident vendor preference for the reason checked:**

____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: _____

Signed: _____

Date: _____

Title: _____

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code §61-5-3*), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: IRATEX DEVICES, INC.

Authorized Signature: [Signature] Date: 4/25/12

State of CALIFORNIA

County of ORANGE, to-wit:

Taken, subscribed, and sworn to before me this 25 day of April, 2012.

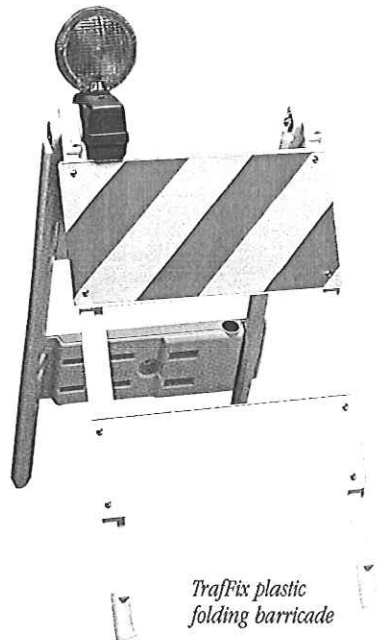
My Commission expires Sept 18, 2013, 2013.

AFFIX SEAL HERE

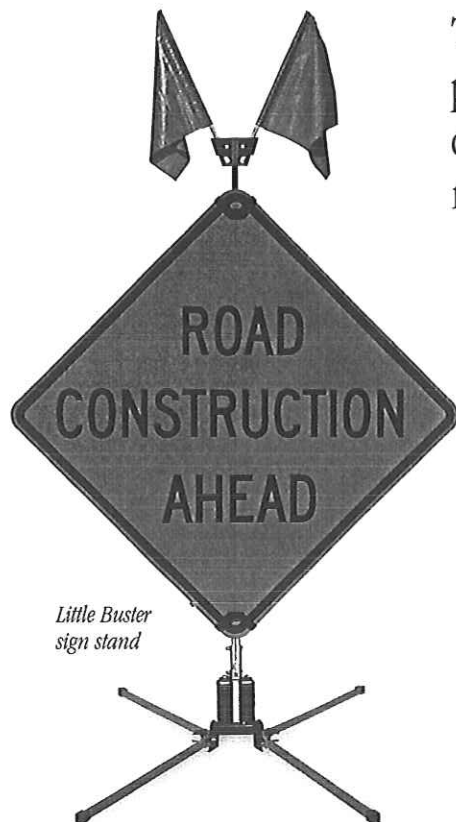
NOTARY PUBLIC. [Signature]



We've Got You Covered.



*TrafFix plastic
folding barricade*

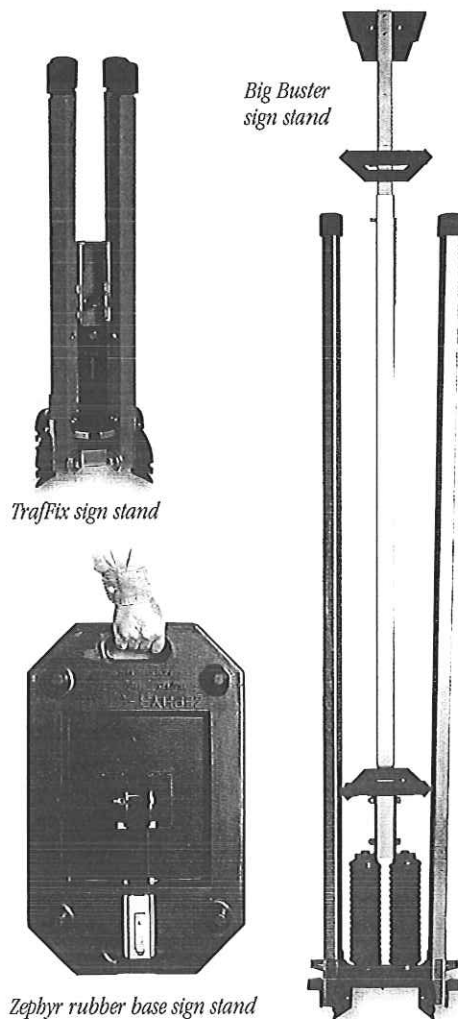


*Little Buster
sign stand*



*Big Sandy
impact attenuator
sand barrels*

TrafFix Devices has a wide variety of products that have been tested and certified to meet the crashworthy requirements of NCHRP-350.



TrafFix sign stand

Zephyr rubber base sign stand

*Big Buster
sign stand*

**TrafFix
Devices Inc.**



220 Calle Pintoresco
San Clemente, CA 92672
(949) 361-5663
FAX (949) 361-9205
www.traffixdevices.com

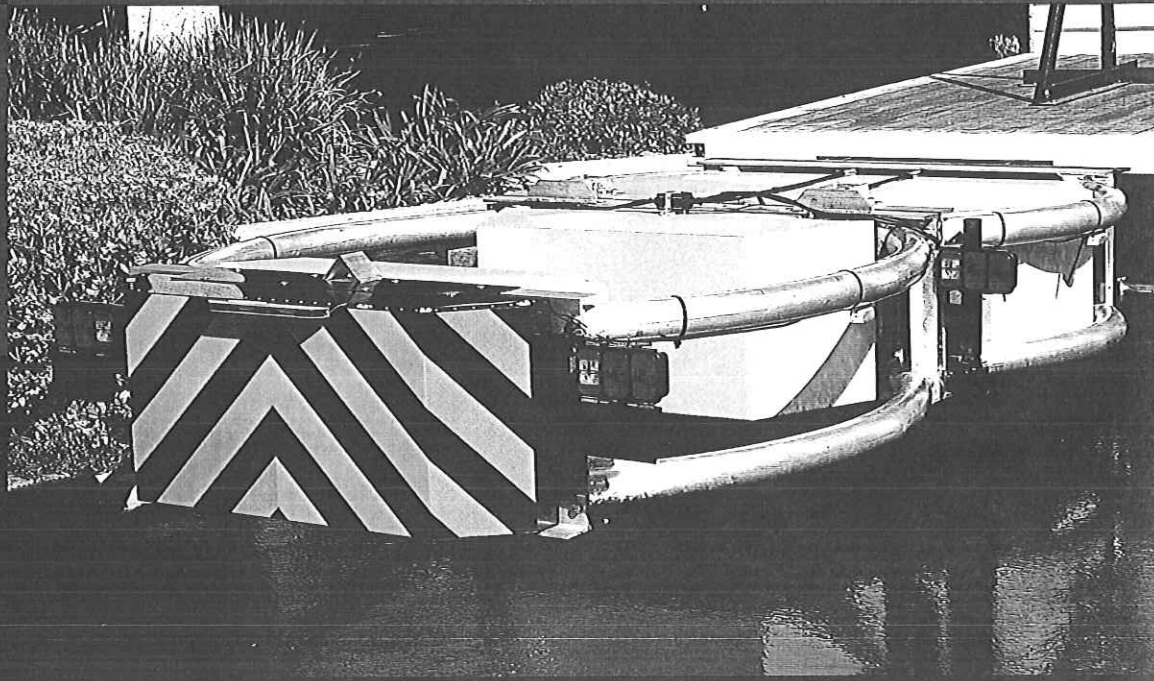
Scorpion™

Truck Mounted Attenuator

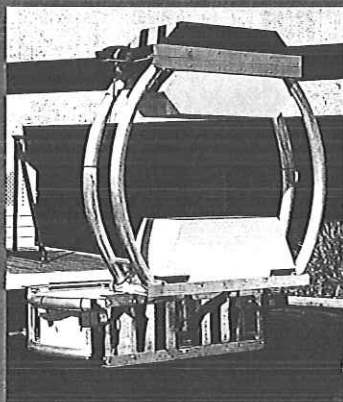
From **TraFFix Devices**

Introducing the Scorpion TMA Different by Design

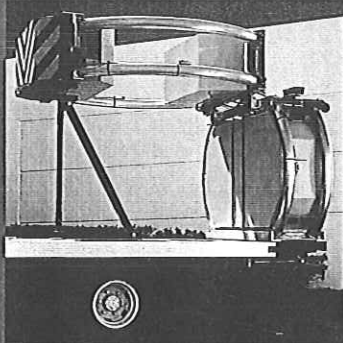
The Scorpion TMA has been tested and PASSED ALL optional and mandatory requirements suggested in the NCHRP-350 Report for TL-3 evaluation criteria-for speeds up to 62.5 mph (100km/h)



The Scorpion measures only 13 feet long when fully extended



*90° angle for travel and storage
(Approximately 12 feet high)*



*180° angle for high speed travel
and storage over the truck bed
(Approximately 10 ft. 6 in. high)*

- ◆ The hydraulic system allows the cartridge to be partially raised for maximum road clearance and maneuverability
- ◆ Scorpion's low profile and open tubular design is beneficial in minimizing wind resistance and drag, allowing you to drive at freeway speeds safely, as well as increasing rear visibility and gas mileage
- ◆ Scorpion's lightweight aluminum construction minimizes rust and other corrosive elements and weighs only 1,450 lbs. (About 2/3 the weight of competitive products.)
- ◆ With its modular design, Scorpion crushes in progressive stages upon impact thus reducing repair costs
- ◆ Scorpion's durable construction and heavy duty tubular side rails minimize incidental back-up or turning damage
- ◆ The unique curved design redirects side angle impacts away from the exposed corner of the truck
- ◆ Scorpion can be easily and quickly mounted to or removed from the truck

Patents pending.

**TraFFix
Devices Inc.**



220 Calle Pintoresco
San Clemente, CA 92672
(949) 361-5663
FAX (949) 361-9205
www.traffixdevices.com

RECEIVED JUL 09 2002



KRUEPER ENGINEERING & ASSOCIATES, INC.

CIVIL ENGINEERING • SURVEYING • ACCIDENT ANALYSIS AND CONSULTING

568 NORTH MOUNTAIN VIEW AVENUE, SECOND FLOOR • SAN BERNARDINO, CALIFORNIA 92401-1291 • 909-884-2159
FAX No. 909-888-8910

June 24, 2002

Please Refer To Our File No.

X202

**CERTIFICATION OF KARCO ENGINEERING
CRASH TEST DATA REPORT
REFERENCE HNG-T4
TRAFFIC SAND BARREL MODULES
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

This is to certify that the July 10, 1998, dated letter, together with the attachment (Enclosure 1), to Mr. David Gertz, Director of Engineering, TraffIX Devices, Inc., has been reviewed, evaluated, and is hereby, with the undersigned's stamp as a registered civil engineer of the State of California and a registered Traffic Engineer of the State of California, so certified.

This includes the crash test report for the TraffIX Sand Barrel Modules and recommendations for Test Level 3, non-redirective crash cushion.

Respectfully submitted,
KRUEPER ENGINEERING & ASSOCIATES, INC.

Harry J. Krueper, P.E.
R.C.E. 12953
R.T.R. 240

HJK:dh



12953





U.S. Department
of Transportation
**Federal Highway
Administration**

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

September 4, 1998

Refer to: HNG-14

Mr. Dave Gertz
Director of Engineering
TrafFix Devices Inc.
220 Calle Pinteroesco
San Clemente, California 92672

(MIXING OF BARRELS)

Dear Mr. Gertz:

In your August 11 letter to Mr. Richard Powers of my staff, you asked if your TrafFix Devices sand barrels could be mixed within an array of sand barrels manufactured by Energy Absorption, Inc. (Energite III) or by Roadway Safety Service (Fitch). As long as the appropriate weight of sand is in the replacement module or modules and the total array is adequately designed for specific site conditions, we consider the different makes of sand barrels to be approximately equal and they may be used interchangeably.

In response to your second question, I am enclosing a copy of a July 17, 1987, Federal Highway Administration memorandum: "Inertial Crash Cushions - Avoiding Problems With Frozen Sand" that addresses the issue of pea gravel as a filler material in lieu of sand. The recommended grading roughly corresponds to an AASHTO Size Number 89 gradation which is similar to the Illinois Number 12 Aggregate cited in your letter. You will note, however, that the use of an aggregate other than sand is not recommended for general use.

Any additional questions should be addressed to Mr. Powers at (202) 366-1320:

Sincerely yours,

Dwight A. Horne

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

Enclosure



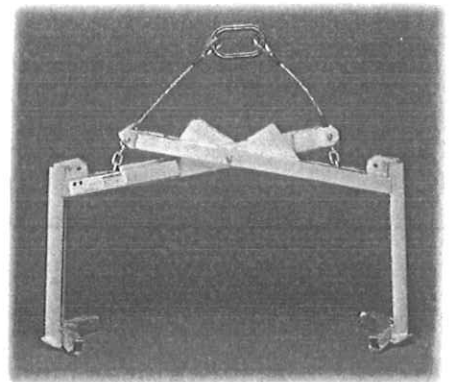
TrafFix Big Sandy Impact Attenuator Sand Barrels

Now there is an Impact Attenuator Sand Barrel that is easy to move and provides external verification of the barrels correct weight of sand.



48000 Series

- Different configurations of barrels are used to create all of the weights used in current standard array geometries (200,400,700,1400, and 2100 lbs).
- External sand weight verification is easy – just use the right configuration barrel to obtain the correct weight.
- Sand leaking is eliminated because each sand container is one piece – no edge seals.
- Shipping, storing, and installation is easy because there are no cone inserts.



Optional lifting and dumping ring available – barrel shoulder allows for easy lifting and emptying.



U.S. Department
of Transportation
**Federal Highway
Administration**

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

July 10, 1998

Refer to: HNG-14

Mr. Dave Gertz
Director of Engineering
TrafFix Devices Inc.
220 Calle Pintesco
San Clemente, California 92672

Dear Mr. Gertz:

In your June 9 letter to Mr. Richard Powers of my staff, you requested the Federal Highway Administration (FHWA) to accept your TrafFix Devices sand barrel system as a National Cooperative Highway Research Program (NCHRP) Report 350 non-redirecting crash cushion at test level 3 (TL-3). To support this request, you included a copy of a report dated May 18, 1998, that was prepared by KARKO Engineering, entitled "Crash Test Report for TrafFix Sand Barrel Modules Tested to NCHRP 350 Recommendations for TL-3 Nonredirective Crash Cushions" and 16-mm films of the crash tests that were run. You later sent Mr. Powers a video tape of the same tests and additional drawings and material specifications upon his request.

The TrafFix Devices sand barrels are made from rotomolded high density polyethylene plastic in four sizes. The largest barrel is 1220-mm tall and will hold 950 kg of sand. The second largest is 915-mm high and will hold 640 kg of sand. The third barrel is assembled on site by locking two different sizes of half-barrels together and is also 915-mm high. In one orientation, the third barrel will hold 320 kg of sand; when inverted, it can be filled with 180 or 90 kg of sand. All modules are 900-mm wide (outside diameter) at the top and have a wall thickness of 7.62 mm. Each is covered with a plastic lid. Drawings of the three component modules and of the tested 12-module array are shown in Enclosure 1.

The NCHRP Report 350 recommends five tests for a non-redirective crash cushion, specifically, tests 3-40 through 3-44. These tests were all run and their results are summarized in Enclosure 2.

Based on our review of the information you presented, we agree that the Traffix sand barrels, in the twelve-module array that was tested, satisfy the evaluation criteria for a TL-3 crash cushion and may be used on the National Highway System (NHS) when selected by a highway agency. This acceptance is based only on the crash performance of the tested array and the assumption that the modules you produce will be manufactured to the same dimensions and specifications as the tested modules. Since this product is patented, its use on Federal-aid projects, except exempt, non-NHS projects, is subject to the conditions listed in Title 23, Code of Federal Regulations, Section 635.411 when its use is specified by the contracting authority. Enclosure 3 is a copy of this regulation for your ready reference. Please call Mr. Powers at (202) 366-1320 if you have any questions regarding this action.

Sincerely yours,



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

3 Enclosures



U.S. Department
of Transportation
**Federal Highway
Administration**

Memorandum

Washington, D.C. 20590

Subject: Inertial Crash Cushions - Avoiding
Problems With Frozen Sand

Date: July 17, 1987

From: Director, Office of Engineering

Reply to
Attn. of: HNG-14

To: Regional Federal Highway Administrators
Direct Federal Highway Administrator

The Federal Highway Administration has conducted full-scale crash tests of Energite and Fitch inertial (sand) crash cushions to determine the effect of frozen sand. Tests were conducted with an 1,800-pound and a 4,500-pound vehicle impacting both types of inertial systems in which the sand had been frozen, and the results were compared to those from similar tests with unfrozen crash cushions.

Test results indicate that frozen sand significantly reduces the performance and safety of inertial systems. Typically, crash tests of either a small or large vehicle with an inertial system with frozen sand results in larger values of occupant impact velocity and occupant ridedown acceleration than occur with comparable crash tests with unfrozen sand. Additionally, crash tests of barrels with frozen sand typically result in large lumps of frozen sand being scattered around the impact site. In one case a 400-pound lump was thrown approximately 60 feet. In another, smaller lumps were thrown beyond 100 feet. This scattering of frozen debris could lead to other accidents at the impact site.

For those areas where freezing of sand in the inertial systems might occur, steps should be taken to reduce this possibility. Suggested countermeasures are:

1. Use dry, free draining sand to fill the barrels -- a moisture content of 3 percent or less is recommended.
2. Provide positive drainage pathways for moisture in the sand by using weep holes or slots in the sand containment unit and at the bottom of the barrel. Where this might result in a sand leakage problem, the use of an engineering fabric (filter fabric) as a retainer might be considered.
3. Provide rainproof ventilation pathways at the top of the barrel.

(Tests have shown that countermeasures 2 and 3 are not sufficient to ensure that all sands will dry out within a reasonable time. However, drainage and ventilation are likely to have enough benefit to justify requesting them.)

4. Secure lids to the barrels to prevent dislocation. Replace broken or cracked lids and/or barrels.
5. Where there is evidence that measures beyond those outlined above are needed, one of the following is suggested:
 - a. Mix an antifreeze agent with the sand. Use of rock salt (NaCl) mixed at a rate of no more than 5 percent by weight, salt to sand, as an antifreeze agent is suggested. Use of calcium chloride (CaCl_2) or other compounds which can bond or cement sand particles together is not recommended.
 - b. Use pea gravel for the inertial material. One hundred percent of this material should pass a 1/2-inch sieve, no more than 5 percent should pass a number 50 sieve, and no more than 2 percent should pass a number 100 sieve.

(An inertial system using pea gravel has been crash tested with a large passenger vehicle and the test results were within the specified occupant injury criteria of NCHRP 230. Test experience indicates the debris scatter pattern will be larger with pea gravel than with sand. Where a crash cushion is close to a travelway, with either sand or pea gravel, severe impacts are likely to scatter debris into adjacent traffic lanes. When this happens vehicles running through the debris may experience problems because of reduced roadway friction. However, prompt action by emergency personnel to control traffic and clear the roadway should alleviate any potential safety problems. Where this is done the use of pea gravel should not create problems significantly different from those with sand. Further, pea gravel will not hold enough moisture to cause a problem under freezing temperature conditions. Thus, we see no reason to preclude the use of pea gravel at this time).

Any questions regarding this memorandum should be directed to the Geometric and Roadside Design Branch.

L. A. Starn
for Ronald E. Heinz



U.S. Department
of Transportation
**Federal Highway
Administration**

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

September 4, 1998

Refer to: HNG-14

Mr. Dave Gertz
Director of Engineering
TraFFix Devices Inc.
220 Calle Pintoresco
San Clemente, California 92672

Dear Mr. Gertz:

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Any additional questions should be addressed to Mr. Powers at (202) 366-1320.

Sincerely yours,

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

Enclosure



U.S. Department
of Transportation

**Federal Highway
Administration**

November 3, 1999

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

RECEIVED NOV 13 1999

HMHS-CC52A

Mr. Dave Gertz
Director of Engineering
TraFFix Devices, Inc.
220 Calle Pintoresco
San Clemente, CA 92672

Dear Mr. Gertz:

In your October 6, 1999, letter to Mr. Richard Powers of my staff, you requested the Federal Highway Administration's (FHWA) acceptance of a minor change to the TraFFix Sand Barrel design that had been formally accepted by my office on October 10, 1998. This change was to use the same containers *in the same orientation* for the 200, 400, and 700-pound (90, 180, and 320-kg) modules, with the 700-pound (320-kg) module filled to the top with sand. The original design required the 700-pound (320-kg) module to be inverted and filled to 1-inch (25 mm) from the top with sand.

To verify performance of the modified design, you conducted the National Cooperative Highway Research Program (NCHRP) Report 350 tests 3-30 and 3-31, both head-on impacts at 100 km/h with an 820-kg car and a 2000-kg pickup truck, respectively. Crash performance in both tests was nearly identical to the original tests 3-30 and 3-31 and all evaluation criteria were satisfactorily met. Consequently, your requested design change may be considered acceptable and the TraFFix Sand Barrels, in the new configuration, may be used on the National Highway System.

Sincerely yours,

Dwight A. Horne
Director, Office of Highway Safety Infrastructure

Based on our review of the information you presented, we agree that the Traffix sand barrels, in the twelve-module array that was tested, satisfy the evaluation criteria for a TL-3 crash cushion and may be used on the National Highway System (NHS) when selected by a highway agency. This acceptance is based only on the crash performance of the tested array and the assumption that the modules you produce will be manufactured to the same dimensions and specifications as the tested modules. Since this product is patented, its use on Federal-aid projects, except exempt, non-NHS projects, is subject to the conditions listed in Title 23, Code of Federal Regulations, Section 635.411 when its use is specified by the contracting authority. Enclosure 3 is a copy of this regulation for your ready reference. Please call Mr. Powers at (202) 366-1320 if you have any questions regarding this action.

Sincerely yours,



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

3 Enclosures

Form No.
1050

PRODUCT SPECIFICATIONS
TrafFix Devices Sand Barrel

Approval
Date: 10/1/99

1. SCOPE

1.1 Product – These specifications describe a plastic barrel which is filled with sand and used in arrays for providing vehicle crash cushions. The barrels are covered by a plastic lid and have a lifting flange for purposes of attaching a lifting ring to move the barrels. Three separate barrels are available. The largest holds 2,100 lb. (960 kg.), the second largest holds 1,400 lb. (640 kg.) And the third can be filled to 700 lb. (320 kg.), 400 lb. (180 kg.) and 200 lb. (90 kg.) The third size barrel is assembled in the field by locking two different sizes of half-barrels together and filling to one of three different fill heights as marked on the barrel.

2. PRODUCT SPECIFICATIONS

2.1 Construction – The barrels furnished will be rotomolded using industry accepted standards of processing and show minimal variation in weight, dimensions, physical properties and color.

2.2 Materials – All barrels will be manufactured from high density polyethylene plastics (.948g/cm). The plastic will be UV stabilized with 1.7g/kg. Hindered-amine light stabilizer. Barrels will be manufactured with a three layer structure, having the inner layer foamed using a chemical blowing agent, and the outer and inner layers will be colored yellow with 19.8 g./kg. of dry blend yellow colorant.

2.3 Weights – All barrels will be manufactured with the following part weights.

A. Part #48247S	200-700 lb. (90-320 kg.) Capacity	wt = 16 ± 1 lb. (7.3 kg. \pm .5 kg.)
B. Part #48247P	Base Support	wt = 17 ± 1 lb. (7.7 kg. \pm .5 kg.)
C. Part #48140	1,400 lb. (640 kg.) Capacity	wt = 23 ± 1 lb (10.4 kg. \pm .5 kg.)
D. Part #48210	2,100 lb. (960 kg.) Capacity	wt = 29 ± 1 lb. (13.2 kg. \pm .5 kg.)

2.4 Test – All barrels will be Q.C. tested for part weight, color, thickness, drain holes, and lid fit

2.5 Warranty – Each plastic barrel will come with a five-year, pro-rated repair or replacement warranty against U.V. weathering degradation.

Form No.
2050

**INSTALLATION INSTRUCTION
TRAFFIX DEVICES SAND BARREL**

Approval
Date: 10/1/99

1. ORDERING INSTRUCTIONS

1.1 Part Numbers – Barrels are normally ordered using part numbers 48210-0, 48140-0 and 48247-AB. These assemblies include the lid. For part number #48247-AB the assembly has two half barrels that lock together to form one barrel.

2. FIELD SITE CONDITIONS AND LAYOUT

2.1 Surface Conditions – Inspect the area where the sand barrels will be placed. Make sure that the surface is concrete or asphalt if specified in the plans. Also make sure that the grade is not more than 3 degrees and that the surface is smooth and on plane.

2.2 Array Layout – Review the plans and determine the center line for the rows of barrels. Mark the center line with a chalk line. Position the barrel lids centered on the line with the correct spacing between the lids. Mark around the lids with chalk to establish the barrel positions. Remove the lids and place the sand barrels in the correct position.

3. FIELD ASSEMBLY

3.1 Barrel Assembly – All part #48247S half barrels have six butyl caulk strips that are used as contact adhesives. When upper half barrels #48247S are installed on top of #48247P and rotated the two barrels will interlock and the two can be lifted without separation.

3.2 Barrel Disassembly – After half barrels #48247S and #48247P have been interlocked they will be difficult to separate unless the following procedure is followed. Use the barrel lifting ring to elevate the assembly and pry the half barrels apart along several locations around the circumference.

3.3 Sand Filling – All barrels are marked with the sand fill lines indicated on the outside of the barrels. Place all barrels in the correct location as designated in the site plans. Sand filling is best done by having a concrete truck deliver the sand and pouring the sand into the barrel. **WARNING** - sand used in barrels needs to disperse on impact do not use sand unless it has been washed and has less than 5% water content.

3.4 Lid Attachment – Lids are designed to fit tightly to prevent theft. Place lid on barrel with the lid fitted on the barrel at the inside of the array position. Apply pressure at the rim to snap the lid on. Work on each side up to the front. Push down for final set of lid.

3.5 Lid Removal – If the lid needs to be removed a pry-bar or fiberglass batten will easily remove the lid. Slip the pry-bar vertically between the lid and the rim of the barrel and start prying along rim.

4. LIFTING BARRELS

4.1 Work Zones – Check to see if wooden pallets are approved for work zones, if they are, move pallet into position with a fork lift. For work zones not using pallets, move barrels with the optional aluminum lifting ring.

4.2 Permanent Sites – For locations where the barrels are set on a prepared surface use the lifting ring to position barrels. Barrels use two different diameter lifting flanges. Use the aluminum insert in the lifting ring when lifting the smaller diameter flange found on the 700-400 lb. (320 – 180 kg.) capacity barrel.

5. INSPECTION

5.1 Sand Height – Sand barrels can be easily inspected using several methods. Refer to the marking on the barrel for the correct sand height. Hit the side of the barrel and view the barrel on the shaded side. A change of sound and a difference in light transmission should be noticed at the top of the sand.

Form No.
4015

**MANUFACTURING SPECIFICATIONS
TRAFFIX DEVICES SAND BARREL**

Approval
Date 1/14/00

1. **Processing Procedures** – The rotomolding cycle that has been established (Proprietary) will not be altered in time, temperature or rotation.

- A. Aluminum mold will be prepared with mold release on a regular basis to prevent dimensional changes in the Sand Barrels.
- B. Top rim circumference will measure $2.95\text{m} \pm .01\text{m}$ such that all lids will fit on all barrels.
- C. Uniform wall thickness will be maintained with an average thickness of 7mm. Wall section will consists of three layers. Unfoamed inner and outer layer will be 1.5mm, foamed core will be 4mm.
- D. All barrels will be drilled with 6mm Drainage holes and contains six strips of butyl caulk for adhering the two half barrels together.

2. **Materials** – All sand barrels will be manufactured from High Density Polyethylene plastic with the following specifications:

A. Density	0.948 g/cm ³
B. Melt Index	80 g/min.
C. Flex Modules	1,102 M.Pa
D. Tensile Strength	22.4 M.Pa
E. Heat Distortion Temp.	72° c
F. Low Temp Imp - 40° c	135.58 joules
G. UV Stabilized (Compounded)	1.7g/Kg
H. Yellow Color (dry blend)	19.8g/Kg

3. **Weights** – All sand barrels will be manufactured with the following part weights:

A. Part # 48247-S*	90-320 Capacity	wt = 7.3 Kg \pm .5 Kg
* was 48400		
B. Part # 48247-P**	Base Support	wt = 7.7 Kg \pm .5 Kg
* was 48700		
C. Part # 48140	640 Capacity	wt = 10.4 Kg \pm .5 Kg
D. Part # 48210	960 Capacity	wt = 13.2 Kg \pm .5 Kg

4. **Tests** – The following test will be performed yearly for Q.A. verification:

- A. Thermal stress cycle (Hotbox test).
- B. U.V. Weathering (ASTM D 4329)

NOTE THAT THERE IS NOW ONLY **ONE** SAND CONTAINER FOR 200LB, 400LB & 700LB

FILL TO TOP



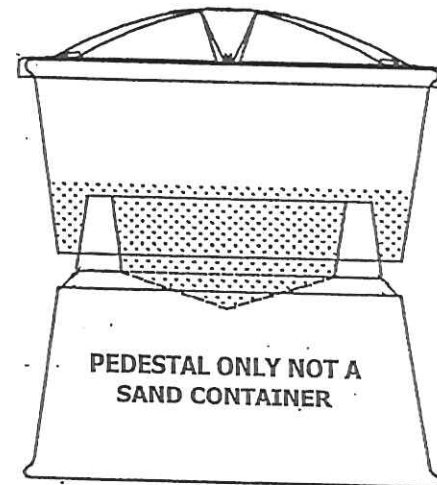
700 LBS
(320 kg)

FILL TO 6 IN. (150 mm)
FROM TOP

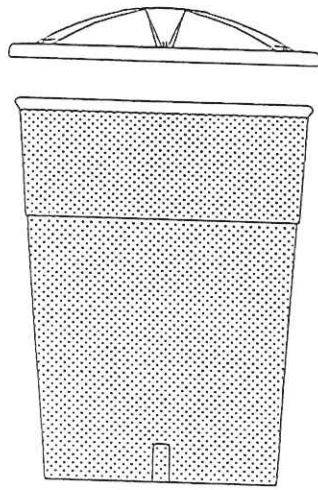


400 LBS
(180 kg)

FILL TO 11 IN. (280 mm)
FROM TOP



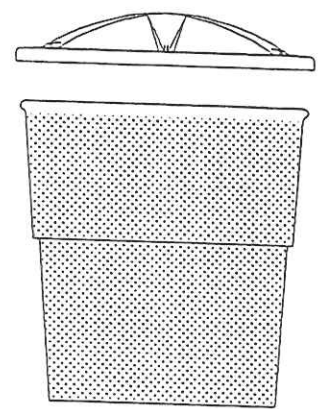
200 LBS
(90 kg)



#4800
LID

#48210
960 Kg
BARREL

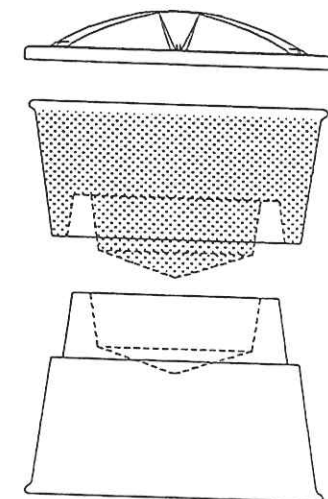
PART #48210-0
ASSEMBLY FOR
960 Kg MODULE



#4800
LID

#48140
640 Kg
BARREL

PART #48140-0
ASSEMBLY FOR
640 Kg MODULE



#4800
LID

#48247-S
320, 180, 90 Kg
HALF BARREL
CONTAINER

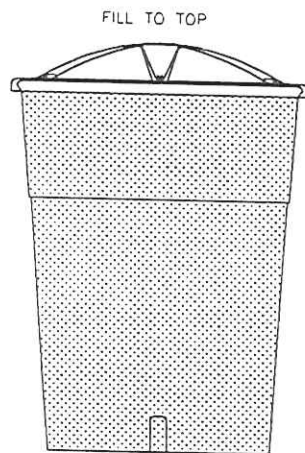
#48247-P
BASE
HALF BARREL

PART #48247-AB
ASSEMBLY FOR
320, 180, 90 Kg MODULE

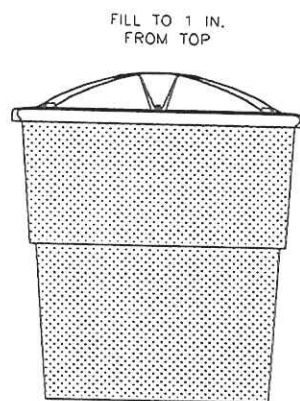
NOTES:

				TOLERANCES UNLESS OTHERWISE SPECIFIED		Title	
				DECIMALS ANGLES		BARREL ASSEMBLIES.	
				.XX = 0.005 1/16"		320, 180, 90 Kg MODULE	
				.XXX = 0.0005		Directory CAD File No. Drawing No. Rev	
				FRACTIONS 1/32 - 0		ASSEMBLY2	
				2/14/98		Scale: Size: C Sheet 1 of 1	
Revision	Revision Description	Approved	Date				
-	New part						

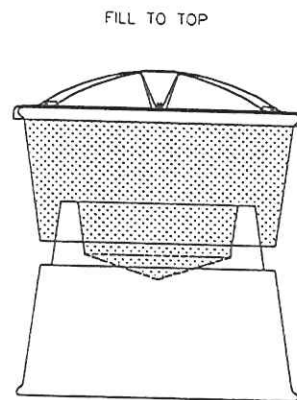
Traffix Devices, Inc.



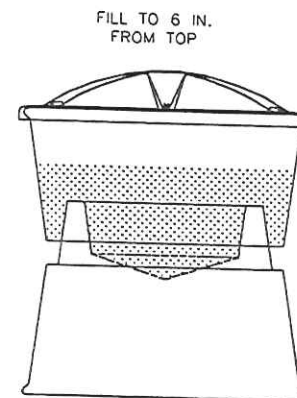
2100 LBS



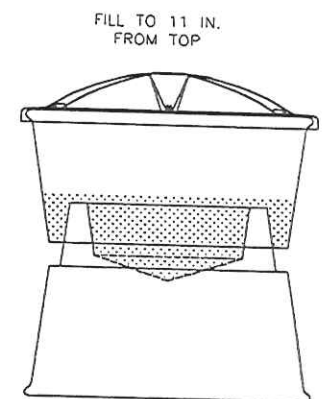
1400 LBS



700 LBS



400 LBS



200 LBS

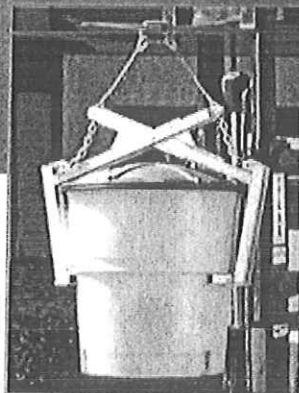
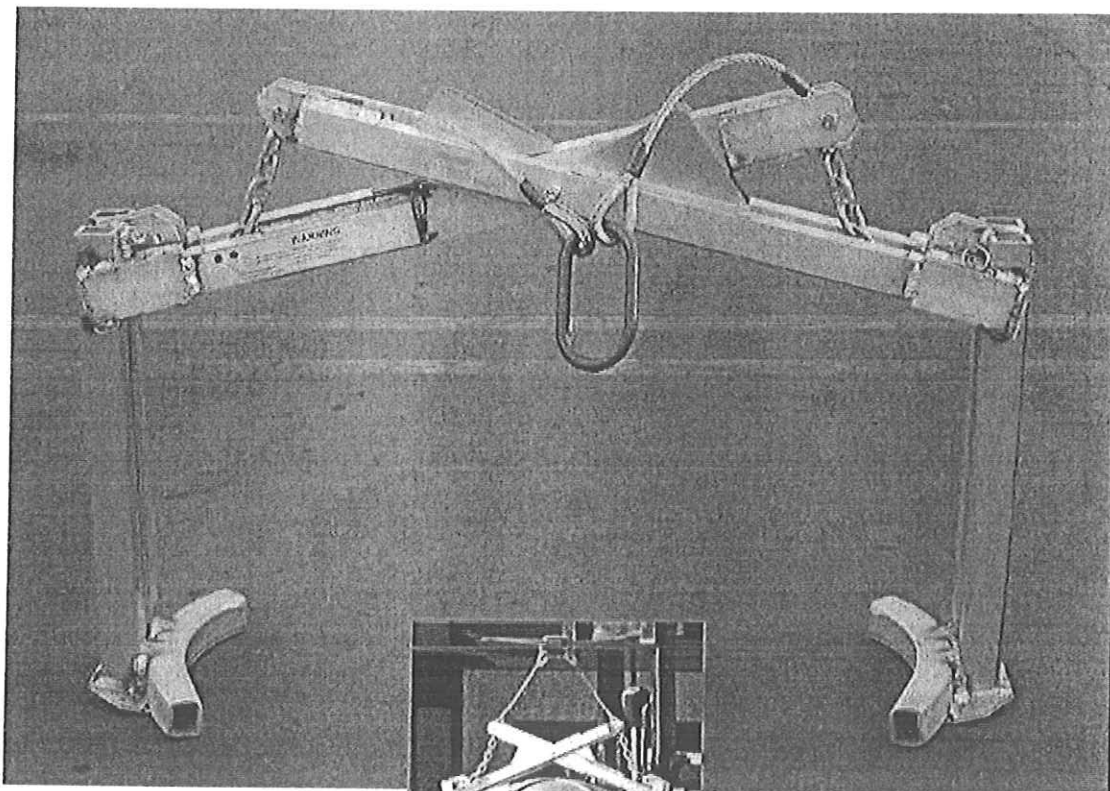
NOTES:

				TOLERANCES UNLESS OTHERWISE SPECIFIED	
				DECIMALS	FRACTIONS
				.XX = 1/50	11/32
				.XXX = 1/100	
				TOLERANCES ±1/32" ±.0	
Revision	New part	Revision Description	Approved	Date	
				7/14/98	

Title			
BARREL WEIGHTS, 200 thru 2100 LBS			
Directory	CAD File No.	Drawing No.	Rev
	BARRELWTSB		
Scale	Size		Sheet 1 of 1
	C		

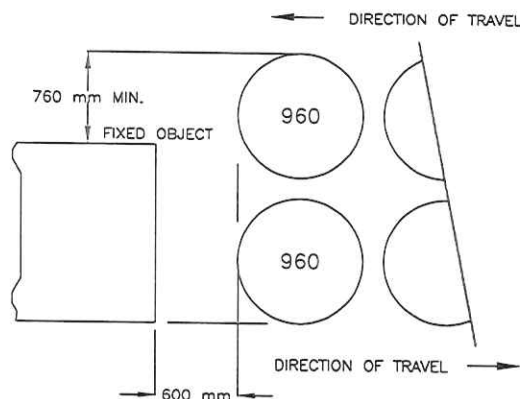
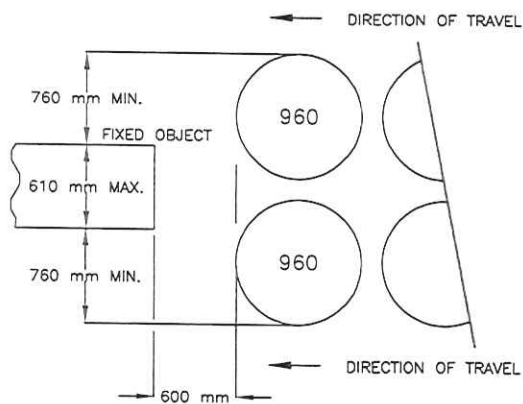
TrafFix Devices, Inc.

Big Sandy Lifting Ring



Part #
48000-LR

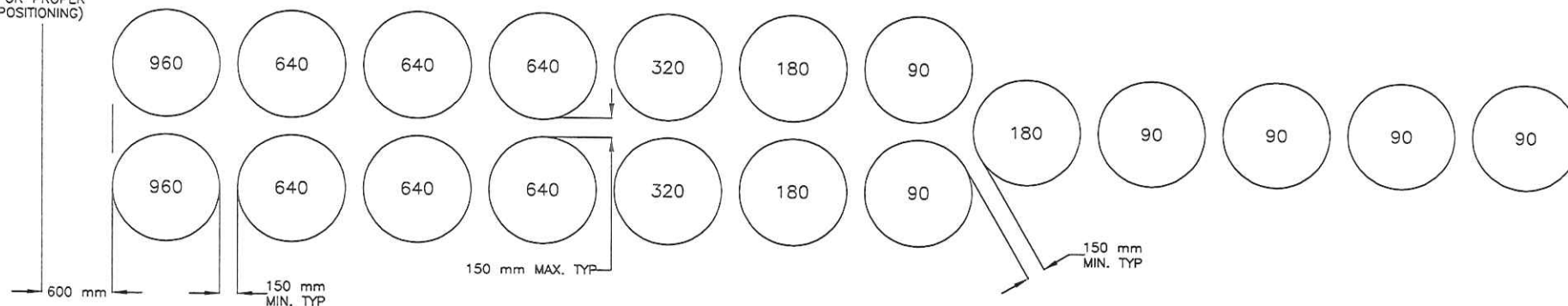
TrafFix Devices Inc.
220 Calle Pintoresco, San Clemente, CA 92672
(949) 361-5663 Fax (949) 361-9205
www.traffixdevices.com



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	INITIAL RELEASE	7/9/02	

THIS DRAWING IS AN EXAMPLE OF A TYPICAL ARRAY PLAN AND SHOULD IN NO WAY OVERRIDE WHAT IS SPECIFIED BY YOUR LOCAL OR STATE TRAFFIC ENGINEER. CONTACT YOUR LOCAL OR STATE TRAFFIC ENGINEER FOR SPECIFIC SITE RECOMMENDATIONS FOR EACH SITUATION.

FIXED OBJECT
(SEE ABOVE
FOR PROPER
POSITIONING)



5. PLACE THE TYPE P MARKER PANEL SO THAT THE BOTTOM OF THE PANEL IS AT THE BOTTOM OF THE MODULE.
4. MASS OF SAND AND OUTLINE OF EACH MODULE SHALL BE PAINTED ON THE SURFACE OF EACH MODULE LOCATION.
3. BIDIRECTIONAL CRASH CUSHION ARRAYS MAY BE ANGLED TOWARD APPROACHING TRAFFIC. AMOUNT OF ANGLE NOT TO EXCEED 10°.
2. EACH MODULE IS TO CONTAIN AMOUNT OF SAND INDICATED. ALL SAND MASSES ARE NOMINAL.
1. (XXX) INDICATES MODULE LOCATION AND MASS OF SAND IN KILOGRAMS FOR EACH MODULE. MODULE SPACING IS BASED ON THE GREATER DIAMETER OF THE MODULE.

NOTES: UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS ARE IN MILLIMETERS.

DRAWN BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
APPROVED BY: _____ DATE: _____

**Traffix
Devices Inc.**



220 Calle Pintoresco
San Clemente, CA 92672
(949) 351-5553
FAX (949) 351-9205
www.traffixdevices.com

**BARREL ARRAY,
110 KPH (68 MPH)**

SIZE
B

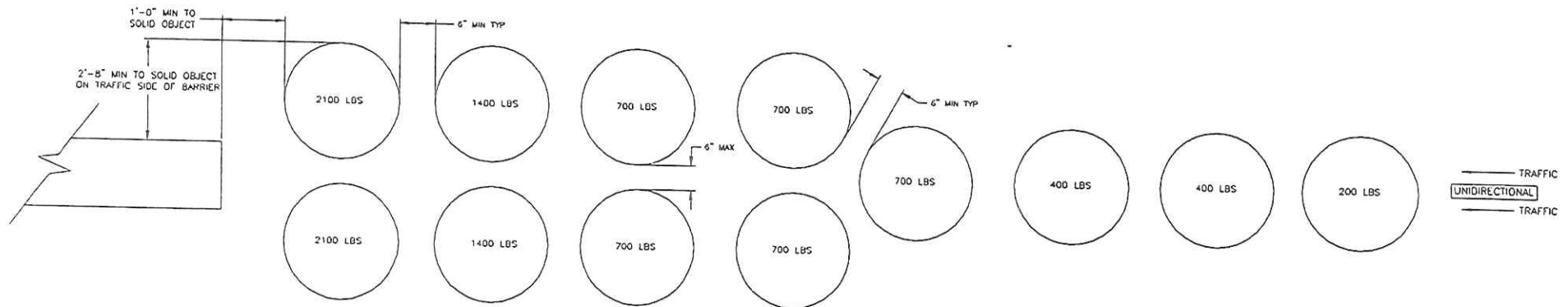
DWG NO.

BA110KM

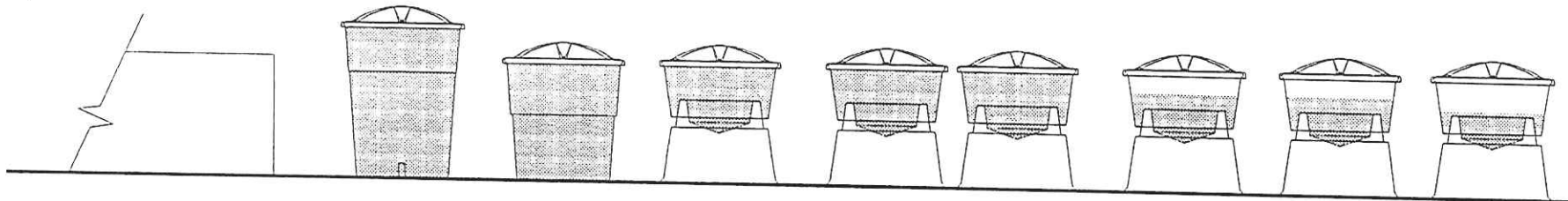
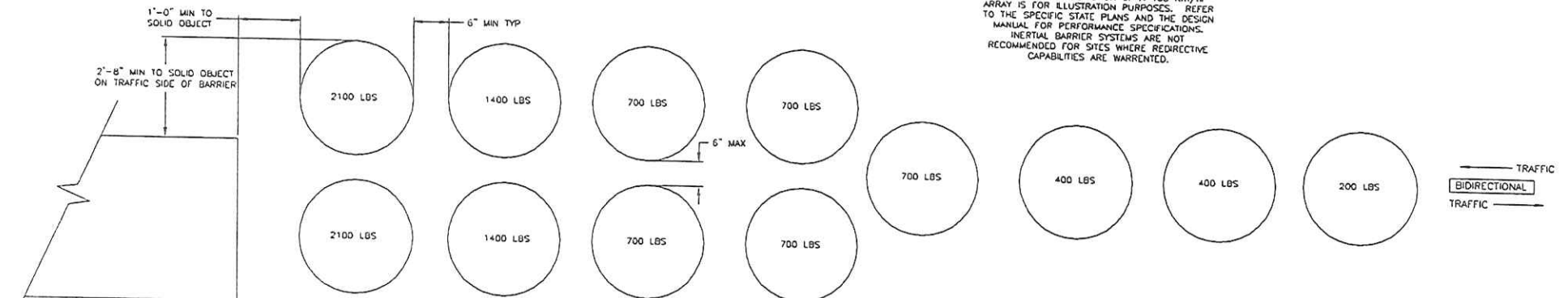
REV
A

SCALE **NONE**

SHEET **1 OF 1**



THE FOLLOWING DEPICTION OF A 100 Km/hr ARRAY IS FOR ILLUSTRATION PURPOSES. REFER TO THE SPECIFIC STATE PLANS AND THE DESIGN MANUAL FOR PERFORMANCE SPECIFICATIONS. INERTIAL BARRIER SYSTEMS ARE NOT RECOMMENDED FOR SITES WHERE REDIRECTIVE CAPABILITIES ARE WARRANTED.



NOTES:

TOLERANCES UNLESS OTHERWISE SPECIFIED				Title	
FRACTIONS				62 mph	
DECIMALS				STANDARD ARRAY	
INCHES				Drawing No.	
FEET				Scale	
Revisions				Date	
Revision				Description	
Approved				Date	
Drawn				Date	
Checked				Date	
In Charge				Date	
Project				Sheet 1 of 1	

TrafFix Devices, Inc.



U.S. Department
of Transportation
**Federal Highway
Administration**

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

September 4, 1998

Refer to: HNG-14

Mr. Dave Gertz
Director of Engineering
TraFFix Devices Inc.
220 Calle Pintoresco
San Clemente, California 92672

Dear Mr. Gertz:

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

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

November 3, 1999

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

RECEIVED NOV 03 1999

HMHS-CC52A

Mr. Dave Gertz
Director of Engineering
TraFFix Devices, Inc.
220 Calle Pintesresco
San Clemente, CA 92672

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To verify performance of the modified design, you conducted the National Cooperative Highway Research Program (NCHRP) Report 350 tests 3-30 and 3-31, both head-on impacts at 100 km/h with an 820-kg car and a 2000-kg pickup truck, respectively. Crash performance in both tests was nearly identical to the original tests 3-30 and 3-31 and all evaluation criteria were satisfactorily met. Consequently, your requested design change may be considered acceptable and the TraFFix Sand Barrels, in the new configuration, may be used on the National Highway System.

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Dwight A. Horne
Director, Office of Highway Safety Infrastructure



U.S. Department
of Transportation

**Federal Highway
Administration**

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

July 10, 1998

Refer to: HNG-14

Mr. Dave Gertz
Director of Engineering
TraFFix Devices Inc.
220 Calle Pinteroesco
San Clemente, California 92672

Dear Mr. Gertz:

In your June 9 letter to Mr. Richard Powers of my staff, you requested the Federal Highway Administration (FHWA) to accept your TraFFix Devices sand barrel system as a National Cooperative Highway Research Program (NCHRP) Report 350 non-redirecting crash cushion at test level 3 (TL-3). To support this request, you included a copy of a report dated May 18, 1998, that was prepared by KARKO Engineering, entitled "Crash Test Report for TraFFix Sand Barrel Modules Tested to NCHRP 350 Recommendations for TL-3 Nonredirective Crash Cushions" and 16-mm films of the crash tests that were run. You later sent Mr. Powers a video tape of the same tests and additional drawings and material specifications upon his request.

The TraFFix Devices sand barrels are made from rotomolded high density polyethylene plastic in four sizes. The largest barrel is 1220-mm tall and will hold 950 kg of sand. The second largest is 915-mm high and will hold 640 kg of sand. The third barrel is assembled on site by locking two different sizes of half-barrels together and is also 915-mm high. In one orientation, the third barrel will hold 320 kg of sand; when inverted, it can be filled with 180 or 90 kg of sand. All modules are 900-mm wide (outside diameter) at the top and have a wall thickness of 7.62 mm. Each is covered with a plastic lid. Drawings of the three component modules and of the tested 12-module array are shown in Enclosure 1.

The NCHRP Report 350 recommends five tests for a non-redirective crash cushion, specifically, tests 3-40 through 3-44. These tests were all run and their results are summarized in Enclosure 2.

Based on our review of the information you presented, we agree that the Traffix sand barrels, in the twelve-module array that was tested, satisfy the evaluation criteria for a TL-3 crash cushion and may be used on the National Highway System (NHS) when selected by a highway agency. This acceptance is based only on the crash performance of the tested array and the assumption that the modules you produce will be manufactured to the same dimensions and specifications as the tested modules. Since this product is patented, its use on Federal-aid projects, except exempt, non-NHS projects, is subject to the conditions listed in Title 23, Code of Federal Regulations, Section 635.411 when its use is specified by the contracting authority. Enclosure 3 is a copy of this regulation for your ready reference. Please call Mr. Powers at (202) 366-1320 if you have any questions regarding this action.

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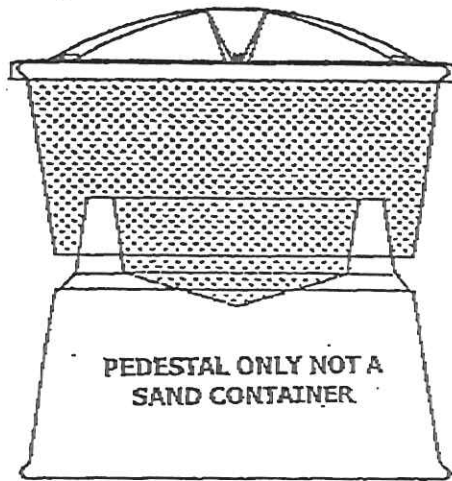


Dwight A. Horne
Chief, Federal-Aid and Design Division

3 Enclosures

NOTE THAT THERE IS NOW ONLY **ONE** SAND CONTAINER FOR 200LB, 400LB & 700LB

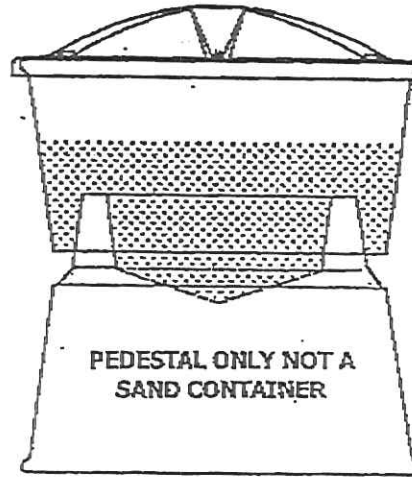
FILL TO TOP



PEDESTAL ONLY NOT A
SAND CONTAINER

700 LBS

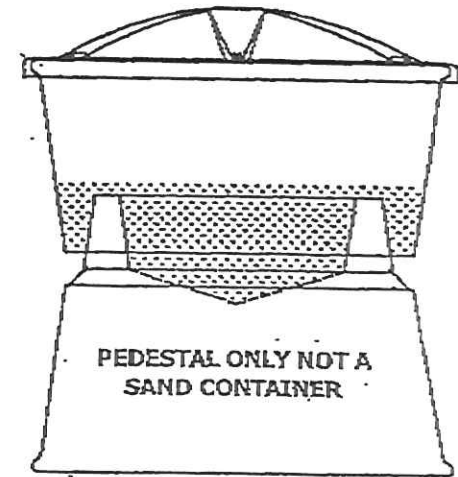
FILL TO 6 IN.
FROM TOP



PEDESTAL ONLY NOT A
SAND CONTAINER

400 LBS

FILL TO 11 IN.
FROM TOP



PEDESTAL ONLY NOT A
SAND CONTAINER

200 LBS