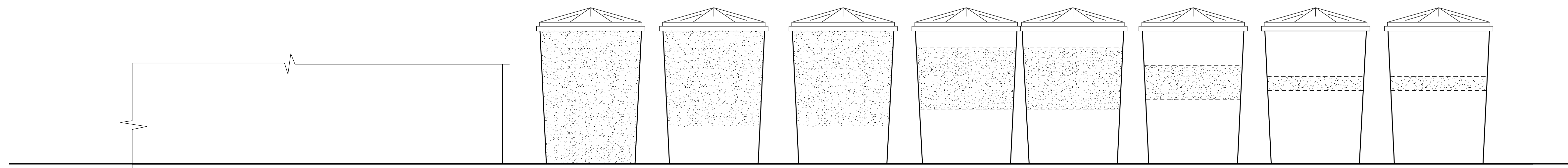


PLAN 1:50



ELEVATION 1:50

**NOTES:**

1. REFER TO THE MANUFACTURER'S MANUAL FOR PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THIS CRASH ATTENUATOR.
2. THIS SYSTEM IS NOT RECOMMENDED FOR SITES WHERE REDIRECTIVE CAPABILITIES ARE REQUIRED.
3. -- INDICATES RELATIVE LOCATION OF SAND.
4. SAND SHALL CONTAIN A MINIMUM 5% ROCK SALT (NaCl), BY WEIGHT.
5. EXIT VELOCITY  $\leq$  15 km/h AT REAR OF SYSTEM  
DECELERATION  $\leq$  12 g's AT ANY POINT IN SYSTEM
6. ALL SCALES ARE APPROXIMATE.
7. LATERAL CROSS SLOPE SHALL NOT EXCEED 20H:1V (5 %).

REVISIONS		
DATE	DESCRIPTION	BY
07-2011	T. BLOCK REVISED	DC
07-2013	ADDED NOTE REVISED LAYOUT	DC
08-2018	REVISED NOTES	SS

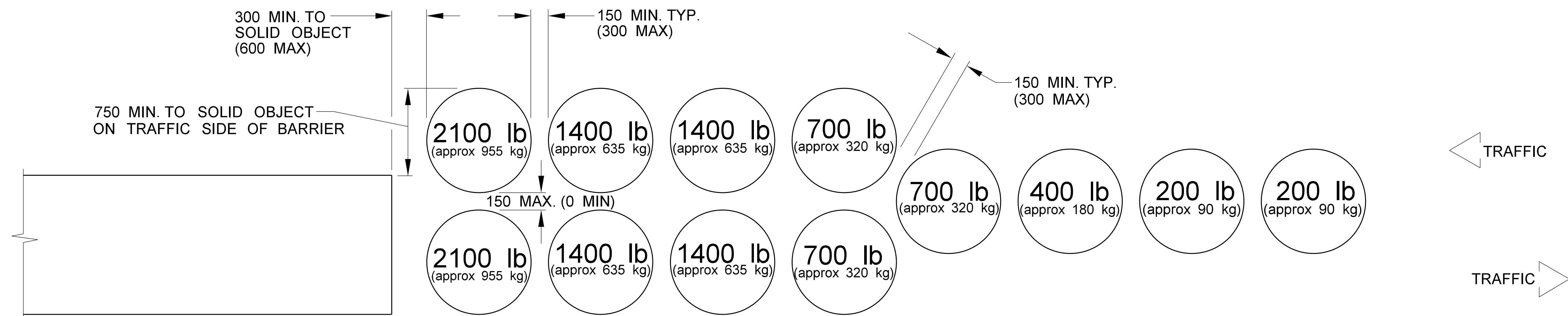


TRAFFIC ENGINEERING



**SAND-FILLED  
BARRELS**  
UNIDIRECTIONAL LAYOUT  
POSTED SPEED  
OF 90 km/h

SHEET NO	1 OF 2
DATE:	2001 - 09
DRAWN:	TRAFFIC ENGINEERING
<b>TSFB90</b>	



PLAN 1:50

DESIGN CALCULATIONS FOR A POSTED VELOCITY OF 90 km/h. (SEE NOTE 1)

ROW	816.5 kg CAR			2041.2 kg TRUCK	
	SAND WT (lb)	EXIT VEL (km/h)	AVG g's FOR ROW	EXIT VEL (km/h)	AVG g's FOR ROW
0		90.00		90.00	
1	200	80.98	6.63	86.16	2.91
2	200	72.87	5.37	82.49	2.66
3	400	59.60	7.56	75.74	4.59
4	700	42.89	7.37	65.53	6.21
5	1400	24.10	5.41	49.95	7.74
6	2800	9.42	2.12	30.77	6.66
7	2800	3.68	0.32	18.95	2.53
8	4200	1.10	0.05	9.79	1.50

NOTES:

1. THE DESIGN CALCULATIONS APPLY ONLY FOR A FRONTAL IMPACT IN EITHER A UNIDIRECTIONAL OR BIDIRECTIONAL LAYOUT.
2. ALL SCALES ARE APPROXIMATE.

REVISIONS		
DATE	DESCRIPTION	BY
07-2011	T. BLOCK REVISED	DC
07-2013	REVISED LAYOUT	DC



TRAFFIC ENGINEERING



**SAND-FILLED BARRELS**  
 BIDIRECTIONAL LAYOUT  
 POSTED SPEED OF 90 km/h

SHEET NO	2 OF 2
DATE:	2001 - 09
DRAWN:	TRAFFIC ENGINEERING
<b>TSFB90</b>	