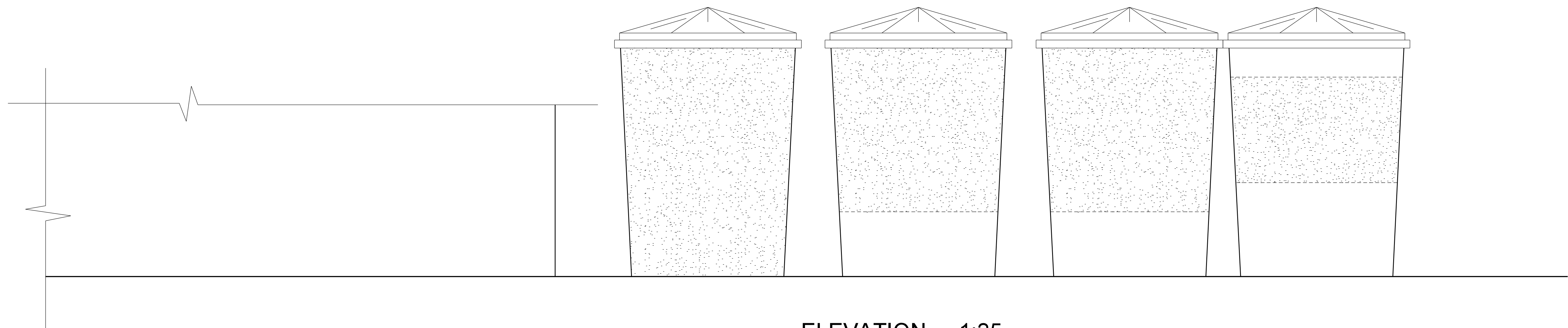


PLAN 1:25



ELEVATION 1:25

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	NOTES ADDED	HPL
08-2018	REVISED NOTES	SS

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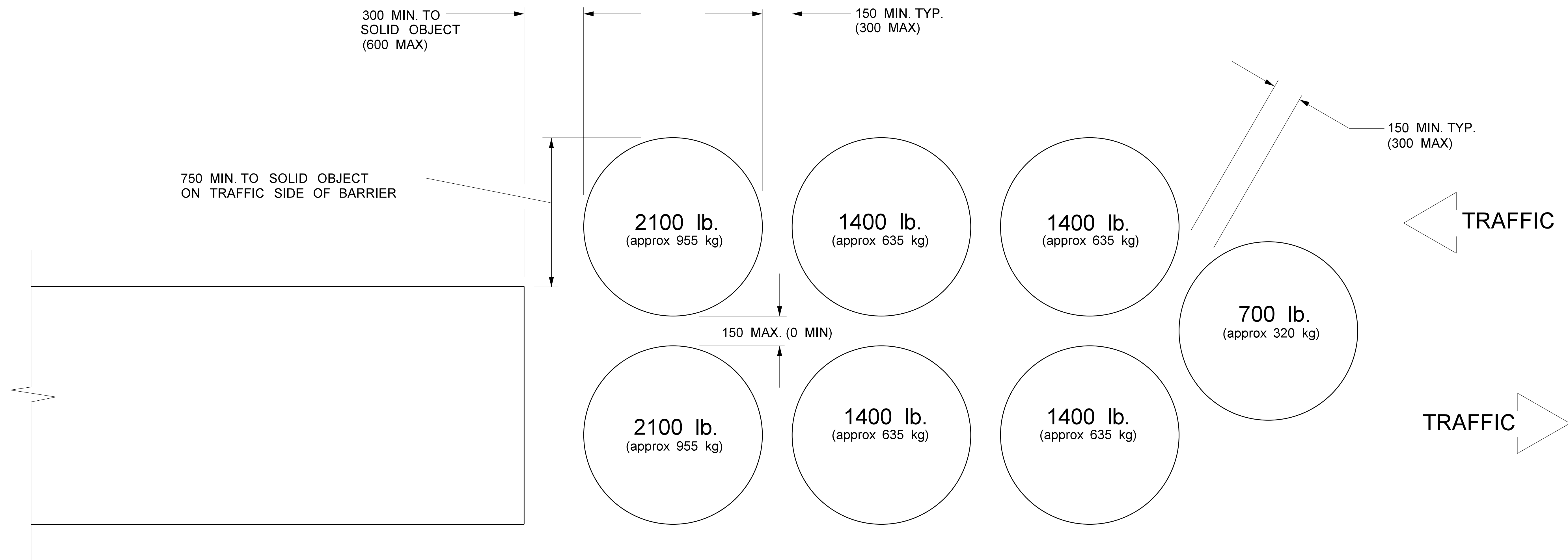
TRAFFIC ENGINEERING



**SAND-FILLED  
BARRELS**  
UNIDIRECTIONAL LAYOUT  
POSTED SPEED  
OF 50 km/h

SHEET NO	1 OF 2
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PLAN 1:25

**DESIGN CALCULATIONS FOR A POSTED VELOCITY OF 50 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		50.00		50.00	
1	700	35.98	5.18	43.26	2.70
2	2800	14.06	4.72	26.64	4.99
3	2800	5.50	0.72	16.41	1.89
4	4200	1.65	0.12	8.48	0.85

**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

**Manitoba Infrastructure**  
TRAFFIC ENGINEERING



**SAND-FILLED BARRELS**  
BIDIRECTIONAL LAYOUT  
POSTED SPEED OF 50 km/h

SHEET NO	2 OF 2
DATE:	2001 - 09
DRAWN:	TRAFFIC ENGINEERING
<b>TSFB50</b>	