



N2TCB

The Complete Vehicle Restraint System

NMS Civil Engineering Ltd.

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The Product

N2TCB conforms to European Standard BS EN1317 parts 1 & 2 having successfully completed test TB32 & TB11

N2TCB comprises free standing universal temporary concrete barrier units manufactured to Highway Construction Detail Specification. Each unit has a length of 3000mm, a height of 800mm and a width of 450mm. The units are laid in line and bolted together to form a continuous Vehicle Restraint System (VRS).

Following the testing and subsequent approval N2TCB has attained Class **N2** status providing a restraint system for vehicles travelling at 70 mph.

N2TCB requires one of the narrowest working widths, achieving **W3** classification (working width of less than 1.0m).

It is approved for use by the Highways Agency as a N2TCB specified product with a working width of W3.

A new installation process has been designed and unlike most other systems the N2TCB does not require any anchoring therefore ensuring the existing construction remains undamaged. This makes N2TCB ideal for use on bridge decks and viaducts.

Due to its durability it is also suitable for permanent applications including protection of bridge piers and parapets.



CLASSIFICATION

Conforming to BS EN1317, having passed Test TB32 and TB11, the N2TCB has attained Class **N2** status in the impact test criteria as detailed in the table below.

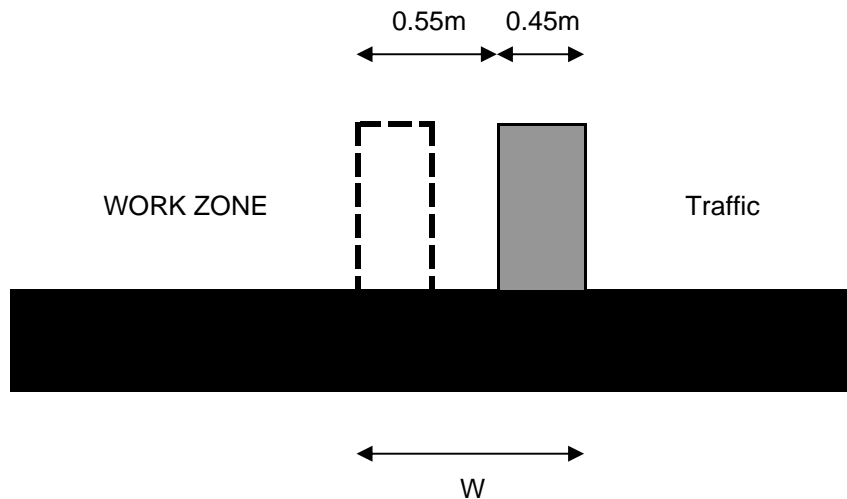
IMPACT TEST CRITERIA

Class	Test	Impact Speed (km/h)	Impact Angle (degrees)	Total Vehicle Mass (kg)
N1		80	20	1,500
N2	TB32	110	20	1,500

As a result of passing this more stringent test it also complies with the N1 classification.

Following the impact test and the measured deflection of the barrier system the N2TCB has attained the working width classification of **W3** with a level of required working width less than 1.0m.

N2TCB WORKING WIDTH



W = Working Width

WORKING WIDTH

Classes Of Working Width	Levels Of Working Width (m)
W1	< 0.6
W2	< 0.8
W3	< 1.0
W4	< 1.3
W5	< 1.7
W6	< 2.1
W7	< 2.5
W8	< 3.5



TECHNICAL

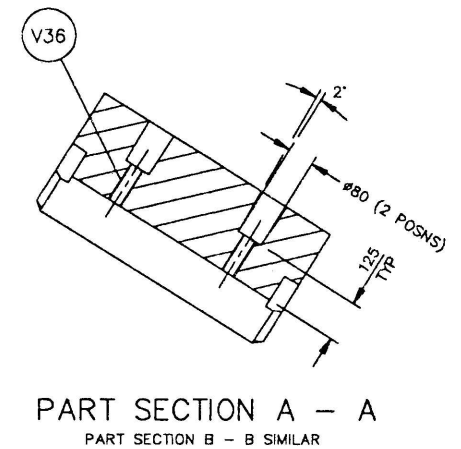
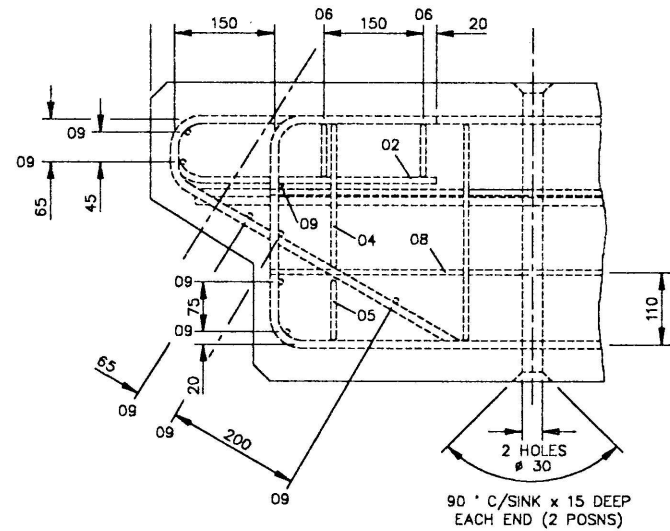
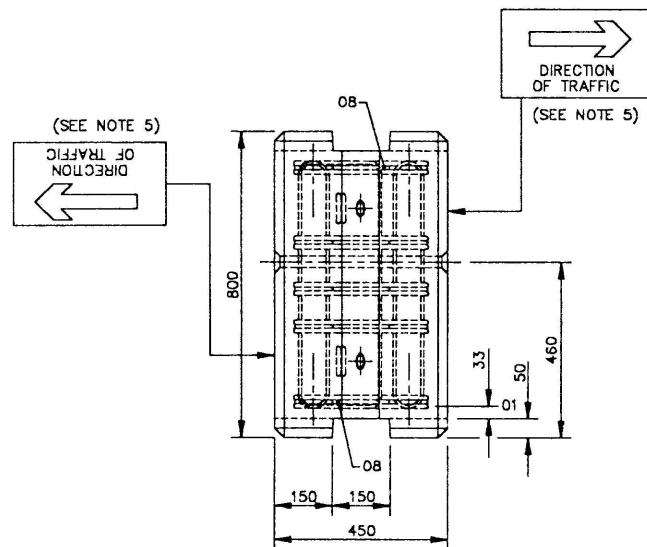
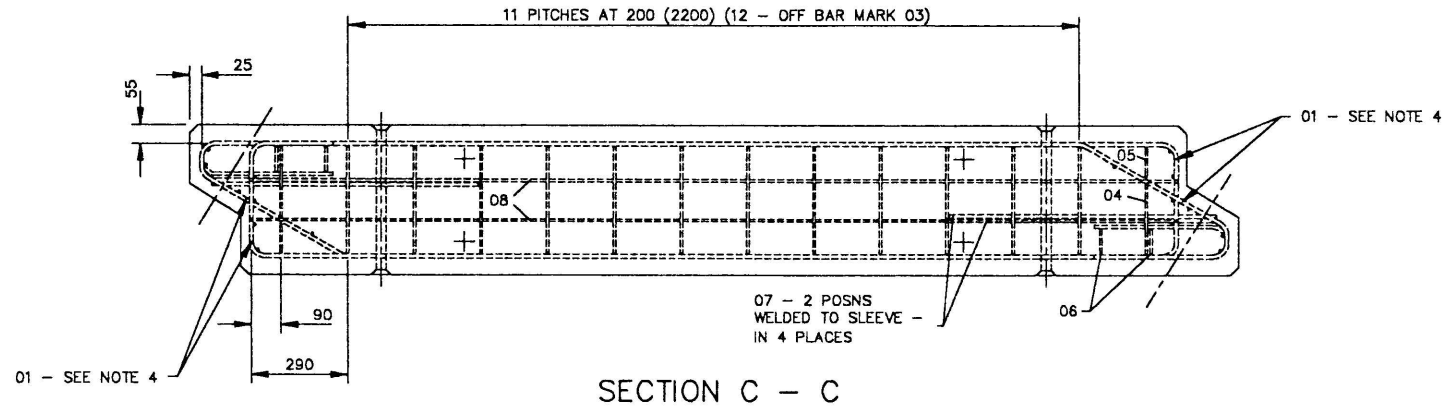
N2TCB universal units have been manufactured in accordance with Highway Construction Details to the design as detailed below. For details of the specific assembly components required for this system please contact Geoff Broster as detailed on the contacts page.

Highway Construction Detail Safety Barrier Component Drawings

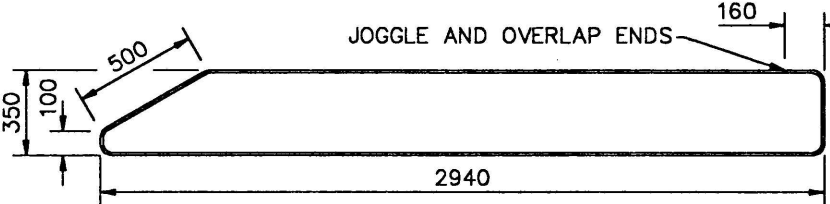
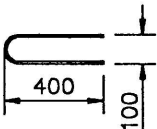
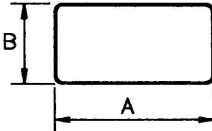
- Drawing No SB/08 – Temporary Concrete Safety Barrier (Universal Design) Sheet 1 of 2
- Drawing No SB/09 – Temporary Concrete Safety Barrier (Universal Design) Sheet 2 of 2
- Drawing No SB/10 – Temporary Concrete Safety Barrier (Universal Design) Reinforcement Schedule

Joint & Assembly Details

- N2TCB Scarf Joint detail including bolt and gasket detail
- Section through joint detail
- Assembly Components



HIGHWAY CONSTRUCTION DETAILS	SAFETY BARRIER COMPONENT DRAWINGS		TEMPORARY VERTICAL CONCRETE SAFETY BARRIER (PRECAST) INTERMEDIATE UNIT (UNIVERSAL DESIGN) (SHEET 2 OF 2)		Item No.	Drawing No.
					v28	SB/09
	Material: SEE NOTES	Finish: SEE NOTES	Issue	Date		

BAR MARK	TYPE	O/ALL LENGTH	No OFF	SHAPE CODE	SHAPE	
01	T12	6425	10	99		
02	T10	875	10	39		
					A	B
03	T8	2060	12	61	645	325
04	T8	1835	2	61	645	215
						

BAR MARK	TYPE	O/ALL LENGTH	No OFF	SHAPE CODE	SHAPE	
					A	B
05	T8	1660	2	82	645	90
06	T8	1635	4	82	645	80
07	T12	875	8	39		
08	T8	2790	2	20	STRAIGHT	
09	T8	645	16	20	STRAIGHT	

NOTES

- DIMENSIONS ARE IN MILLIMETRES
 - TOLERANCES TO BE IN ACCORDANCE WITH TABLE 4; BS.4466:1989
 - REINFORCEMENT TO BE IN ACCORDANCE WITH BS.4466:1989
- REINFORCEMENT DETAIL ABBREVIATIONS: -
T8 - HIGH YIELD BAR ϕ 8mm TO BS.4449 OR BS.4461
TYPE AND GRADE T

HIGHWAY CONSTRUCTION DETAILS

SAFETY BARRIER COMPONENT DRAWINGS

Material:
SEE NOTES

Finish:
SEE NOTES

Issue

Date

TEMPORARY VERTICAL CONCRETE SAFETY BARRIER (PRECAST) INTERMEDIATE UNIT (UNIVERSAL DESIGN) REINFORCEMENT SCHEDULE

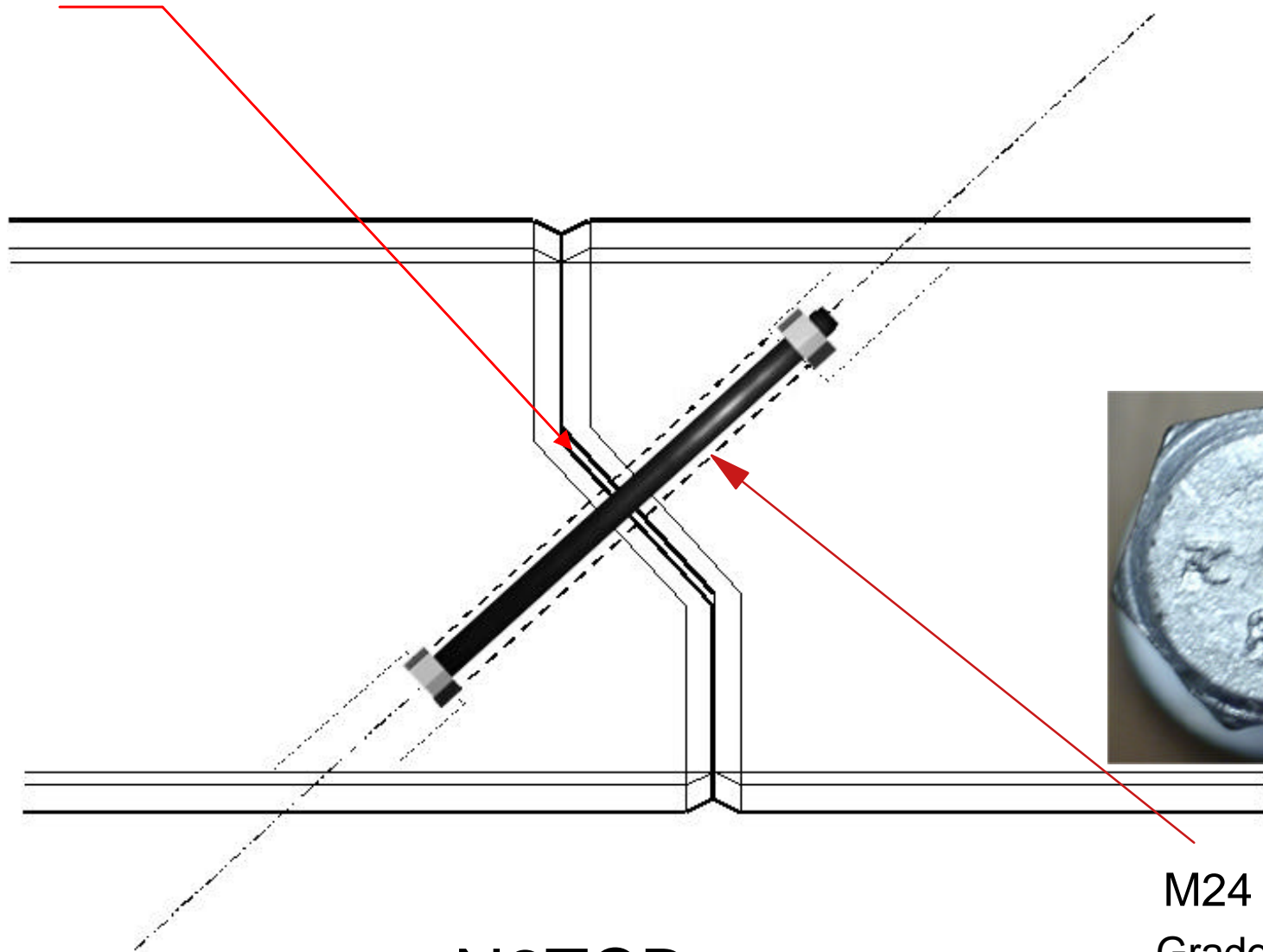
Item No.

Drawing No.

V28

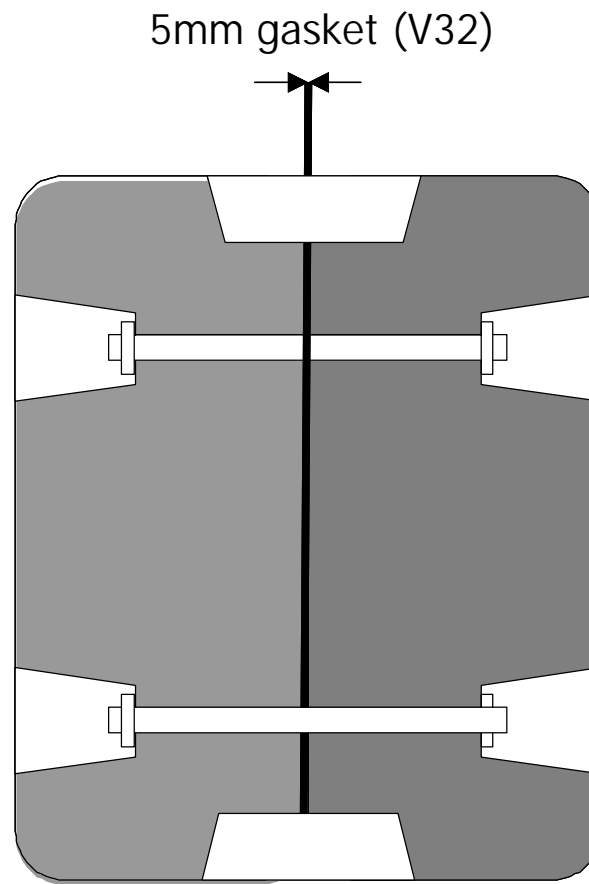
SB/10

V32 rubber gasket



M24 bolt
Grade 8.8

N2TCB



Section through joint.

Assembly Components

	N2TCB
Scarf Bolt	M24 grade 8.8
Scarf Washer	10mm x 65 dia.



MINIMUM REQUIREMENTS & MANUFACTURER RECOMMENDATIONS

N2TCB should only be laid on a hardened surface such as asphalt or concrete. The surface should be level and free from major changes in level. The width of hardened surface should be at least the working width to which the barrier has been accepted (ie. 1.0m). This VRS is a free standing system, which does not require any anchoring through the surface on which it is laid.

Barrier required for traffic flowing in one direction only as fig.1

- The minimum length for the system is 30 metres in the approach to the work zone, continuing through the length of the work zone and 15 metres beyond the limits of the work zone area. A total minimum length of 45 metres.
- For vehicles travelling at 50mph or greater we recommend an additional flare of 9 metres minimum length.
- A taper unit may also be installed to the end of the straight barrier or flare. As an alternative a crash cushion can be provided in lieu of the taper unit.



MINIMUM REQUIREMENTS & MANUFACTURER RECOMMENDATIONS CONT.

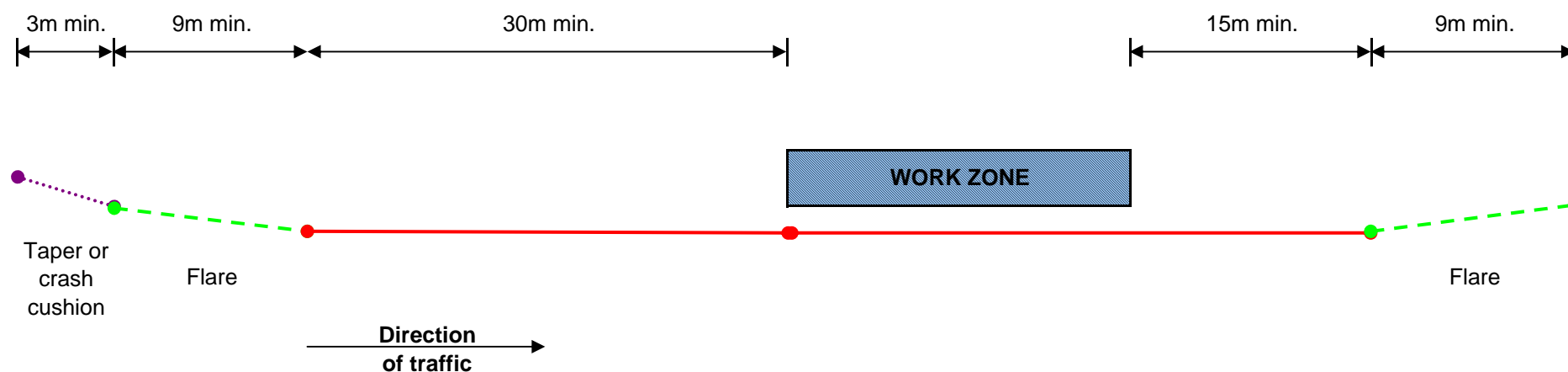
Barrier required for traffic flowing in both directions as fig.2

- The minimum length for the system is 30 metres in the approach and departure to the work zone area, with the barrier continuing through the length of the work zone. A total minimum length of 60 metres.
- For vehicles travelling at 50mph or greater we recommend an additional flare of 9 metres minimum length at both the approach and departure of the barrier.
- A taper unit may also be installed to the end of the straight barrier or flare. As an alternative a crash cushion can be provided in lieu of the taper unit.

In addition to both the above minimum system length recommendations any number of supplementary barrier units may be provided in order to meet any Customer specific requirements.




N2TCB MANUFACTURER RECOMMENDED MINIMUM LAYOUT REQUIREMENTS

Traffic Flow - One Direction Only



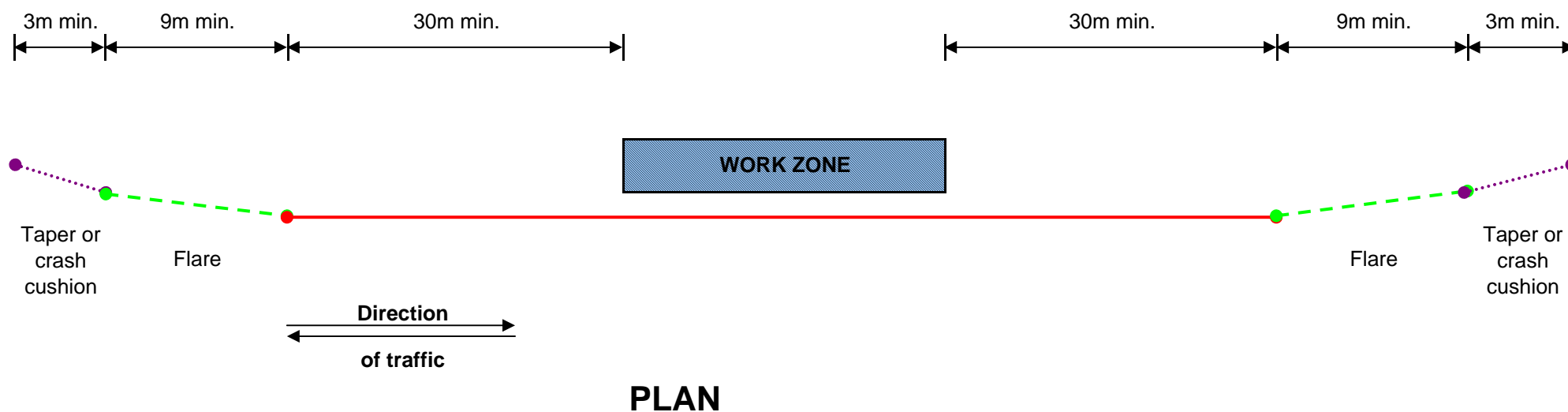
PLAN

Key

-  Minimum barrier system requirements
-  Manufacturer recommended optional flares
-  Optional Taper / crash cushion to suit Customer requirements

N2TCB MANUFACTURER RECOMMENDED MINIMUM LAYOUT REQUIREMENTS

Traffic Flow - Dual Direction



Key

- Minimum barrier system requirements
- - -●- - - Manufacturer recommended optional flares
- ...●... Optional Taper / crash cushion to suit Customer requirements



HEALTH & SAFETY

The NMS Civil Engineering Ltd generic method statement is available and is adequate for majority of projects. However bespoke method statements are prepared for specific projects where requested.

Using a systematic methodology NMS have performed structured risk assessments relevant to the generic method statement and fulfilling statutory requirements.

All N2TCB installers will be trained and registered with LANTRA to the requirements of the sector scheme for Vehicle Restraint Systems



CONTACTS

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