

IMPACT ATTENUATORS INDEX

SHT. No.	DESCRIPTION	EFFECTIVE DATE
IA-01	INDEX AND NOTES	DECEMBER 2018
IA-02	CRASH CUSHIONS APPROVED LIST	DECEMBER 2018
IA-03	INERTIAL CRASH CUSHIONS (ICC) OR MODULES APPROVED LIST	DECEMBER 2018
IA-04	INERTIAL CRASH CUSHIONS (ICC) OR MODULES TYPICAL INSTALLATION DETAILS	DECEMBER 2018
IA-05	TYPICAL LOCATION DETAILS X ≤ 2 MTS.	DECEMBER 2018
IA-06	TYPICAL LOCATION DETAILS X > 2 MTS.	DECEMBER 2018

GENERAL NOTES:

1. ALL WORKS, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE INSTALLATION OF TRAFFIC IMPACT ATTENUATORS (INERTIAL CRASH CUSHIONS OR MODULES) SHALL BE ACCORDING TO SPECIFICATION 620 AND THESE STANDARD DRAWINGS.
2. ALL CRASH CUSHIONS TRANSITIONS TO W-BEAM GUARDRAIL, CONCRETE BARRIER TYPE F OR SINGLE SLOPE SHALL BE AS INDICATED IN PLANS AND IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. CRASH CUSHIONS TRANSITIONS SHALL BE A SUBSIDIARY OBLIGATION UNDER SPECIFICATION 620 PAY ITEMS.
3. ALL CRASH CUSHIONS TRANSITIONS SHALL BE AS ESTABLISHED BY THE MANUFACTURER AND SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION UNDER SPECIFICATION 620 PAY ITEMS.
4. WHEREVER ICC IS MENTIONED IN THESE STANDARD DRAWINGS, IT SHALL BE CONSTRUED AS INERTIAL CRASH CUSHION.
5. FOR TYPICAL LOCATION DETAILS, X SHALL BE CONSTRUED AS AVAILABLE LOCATION SPACE.
6. WHEREVER MODULE IS MENTIONED IN THESE STANDARD DRAWINGS, IT SHALL BE CONSTRUED AS INERTIAL CRASH CUSHION.

	<p>PUERTO RICO DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS HIGHWAY AND TRANSPORTATION AUTHORITY</p>	STANDARD DRAWING APPROVAL				<p>IMPACT ATTENUATORS INDEX AND NOTES</p>	<p>IA-01</p>
		DATE:	RECOMMENDED BY:	DATE:	APPROVED BY:		
			 Jaime A. Lafuente González DESIGN AREA DIRECTOR		 Carlos M. Contreras Aponte EXECUTIVE DIRECTOR		

NOTES:

- EFFECTIVE ON JANUARY 1, 2019, ONLY CRASH CUSHIONS TESTED UNDER CRITERIA OF MANUAL ASSESSING SAFETY HARDWARE (MASH) SHALL BE INSTALLED IN HIGHWAYS BELONGS TO THE NATIONAL HIGHWAY SYSTEM (NHS). FOR HIGHWAYS THAT NO BELONGS TO NHS, CRASH CUSHIONS TESTED UNDER CRITERIA OF NCHRP 350 AND/OR MASH SHOULD BE INSTALLED AS INDICATED IN PLANS AND CONTRACT DOCUMENTS. CRASH CUSHIONS SHALL BE INSTALLED ACCORDING TO PLANS, THESE STANDARD DRAWINGS, SPECIFICATION 620 - IMPACT ATTENUATORS, AND MANUFACTURER'S RECOMMENDATIONS.
- ONLY MASH AND NCHRP 350 TESTED CRASH CUSHIONS INCLUDED IN THE APPROVED LIST BELOW SHALL BE SELECTED TO BE INSTALLED IN PROJECTS AS INDICATED IN PLANS, THESE STANDARD DRAWINGS, THE SPECIFICATION 620-IMPACT ATTENUATORS, AND MANUFACTURER'S RECOMMENDATIONS.

CRASH CUSHIONS	MANUFACTURER	MASH (NHS AND NON NHS)	NCHRP 350 (NO-NHS)
QUADGUARD ELITE® M-10, M-10 WIDE QUADGUARD M-10® M-10 WIDE	ENERGY ABSORTION SYSTEMS, INC. 70 W MADISON STREET, SUITE 2350 CHICAGO, IL 60602 PHONE: (312)-467-6750 WEB: ENERGYABSORPTION.COM	X	
SCI SMART CUSHION®	WORK AREA PROTECTION CORP. 2500 PRODUCTION DRIVE ST. CHARLES, IL 60174 PHONE: 800-327-4417 WEB: WORKAREAPROTECTION.COM	X	
REACT-350 II REACT 350	ENERGY ABSORTION SYSTEMS, INC. 70 W MADISON STREET, SUITE 2350 CHICAGO, IL 60602 PHONE: (312)-467-6750 WEB: ENERGYABSORPTION.COM		X
UNIVERSAL TAU-IIR UNIVERSAL TAU	LINDSAY TRANSPORTATION SOLUTIONS 180 RIVER ROAD RIO VISTA, CA 94571 PHONE:+1 (707)-374-6900 WEB: LINDSAY.COM		X

- THE CONTRACTOR SHALL INSTALL CRASH CUSHIONS (INCLUDING TRANSITIONS TO W-BEAM GUARDRAIL, CONCRETE BARRIERS TYPE F OR SINGLE SLOPE) OF THE TYPE AND TEST LEVEL ACCORDING TO THE TABLE BELOW, THESE STANDARD DRAWINGS, PLANS, SPECIFICATION 620-TRAFFIC IMPACT ATTENUATORS AND MANUFACTURER'S RECOMMENDATIONS.

NHS

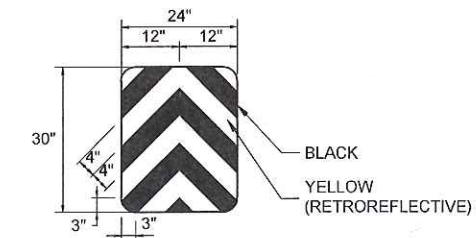
CRASH CUSHION TYPE	TEST LEVEL	CRASH CUSHION	APPLICATION
I (SELF RESTORING)	TL-2, TL-3	QUADGUARD ELITE® M-10, M-10 WIDE	LOCATION WHERE HIGH FREQUENCY OF IMPACT IS EXPECTED
II (REUSABLE)	TL-3 TL-2, TL-3	SCI SMART CUSHION® QUADGUARD M-10® M-10 WIDE	LOCATION WHERE LOW FREQUENCY OF IMPACT IS EXPECTED

NON-NHS

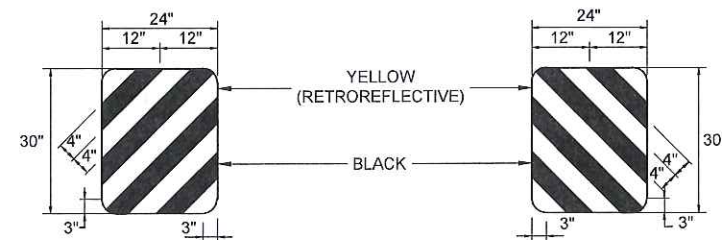
CRASH CUSHION TYPE	TEST LEVEL	CRASH CUSHION	APPLICATION
III (SELF RESTORING)	TL-2, TL-3 TL-2, TL-3 TL-2 TL-3	QUADGUARD ELITE® M-10, M-10 WIDE UNIVERSAL TAU-IIR® REACT-350® REACT-350 II®	LOCATION WHERE HIGH FREQUENCY OF IMPACT IS EXPECTED
IV (REUSABLE)	TL-3 TL-2, TL-3 TL-2, TL-3	SCI SMART CUSHION® QUADGUARD M-10® M-10 WIDE UNIVERSAL TAU®	LOCATION WHERE LOW FREQUENCY OF IMPACT IS EXPECTED

- THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AN INSTALLATION SUBMITTAL PACKAGE ACCORDING TO SPECIFICATION 620 AS A SUBSIDIARY OBLIGATION.
- INSTALL OBJECT MARKER AS A SUBSIDIARY OBLIGATION, ON THE THE NOSE OR FIRST CYLINDER OF THE CRASH CUSHION DEPENDING THE DIRECTION OF TRAFFIC, AS SHOWN ON DETAIL A. MOUNT THE OBJECT MARKER VERTICALLY CENTERED AS PER THE MANUFACTURER'S RECOMMENDATIONS. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM D4956 TYPE III.

- CONTRACTORS, SUBCONTRACTORS, MANUFACTURERS OR AUTHORIZED MANUFACTURER DISTRIBUTORS WHO WISH TO INCLUDE THEIR PRODUCTS INTO THE APPROVED LIST MUST SUBMIT THE FOLLOWING INFORMATION FOR CONSIDERATION OF THE PUERTO RICO HIGHWAY AND TRANSPORTATION AUTHORITY
 - CRASH TEST REPORT
 - NEW ROADSIDE SAFETY HARDWARE
 - PHYSICAL CRASH TEST REPORT DOCUMENTING SUCCESSFUL CRASH TESTING (RELATIVE TO THE AASHTO MASH TEST CRITERIA) CONDUCTED BY AN ISO 17025 ACCREDITED LABORATORY.
 - MODIFICATIONS TO EXISTING SUCCESSFULLY TESTED ROADSIDE SAFETY HARDWARE:
 - ENGINEERING ANALYSIS CONDUCTED BY AN ISO 17025 ACCREDITED CRASH TESTING LABORATORY THAT DETERMINES THE MODIFICATION DOES NOT AFFECT THE CRASHWORTHINESS OF THE ROADSIDE SAFETY HARDWARE BASED ON PREVIOUS CRASH TESTING (RELATIVE TO THE AASHTO MASH TEST CRITERIA). IF NECESSARY, CRASH TESTING MAY BE WARRANTED BASED ON THE RESULTS OF AN ENGINEERING ANALYSIS.
 - CRASH TEST RESULTS, VIDEOS, AND TEST SUMMARY SHEETS THAT ARE COMPLETED AND REPORTED BY ISO 17025 ACCREDITED LABORATORIES AND IN ACCORDANCE WITH AASHTO MASH.
 - RESEARCH (NCHRP REPORTS AND SYNTHESIS, INDIVIDUAL CRASH TEST REPORTS OR POOLED FUND STUDIES) CONDUCTED THROUGH ISO 17025 ACCREDITED CRASH TEST LABORATORIES (ACCREDITED LABORATORIES) OR QUALIFIED RESEARCHERS SHOWING A DEVICE MEETS AASHTO MASH. IF NO RESEARCH IS AVAILABLE, MENTION THAT RESEARCH IS NOT AVAILABLE.
 - MANUFACTURER'S CERTIFICATION THAT THE DEVICE MEETS AASHTO MASH CRITERIA SUPPORTED BY CONCURRENCE FROM THE ACCREDITED CRASH TESTING LAB.
 - SYSTEM DRAWINGS, WHICH AT A MINIMUM INCLUDE:
 - FULL DESCRIPTION (INCLUDING MATERIALS SPECIFICATIONS) AND DIMENSIONS
 - LIST AND DESCRIPTION OF ALL COMPONENTS
 - ANCHORAGE DETAILS
 - FOUNDATION DETAILS
 - TRANSITION DETAILS (BIDIRECTIONAL AND UNIDIRECTIONAL) FROM THE SYSTEM TO W-BEAM GUARDRAIL, CONCRETE BARRIERS TYPE F AND SINGLE SLOPE . OTHER CONDITIONS FOR TRANSITIONS SHOULD BE SUBMITTED.
 - INSTALLATION AND/OR PRODUCT MANUALS
 - FHWA ELEGIBILITY LETTER
 - REVIEW AND INPUT FROM OTHER STATE DOT (DESIGN, CONSTRUCTION, AND MAINTENANCE)
 - TEST SECTION AS REQUIRED BY THE PUERTO RICO HIGHWAY AND TRANSPORTATION AUTHORITY.



TYPE R
TRAFFIC ON BOTH SIDE



TRAFFIC ON LEFT SIDE TRAFFIC ON RIGHT SIDE
TYPE P
OBJECT MARKER TYPE 3

DETAIL-A
N.T.S.



PUERTO RICO
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY AND TRANSPORTATION AUTHORITY

STANDARD DRAWING APPROVAL			
DATE:	RECOMMENDED BY:	DATE:	APPROVED BY:
	<i>J. Lafuente</i>		<i>C. Contreras</i>
	Jaime A. Lafuente González DESIGN AREA DIRECTOR		Carlos M. Contreras Aponle EXECUTIVE DIRECTOR

IMPACT ATTENUATORS
CRASH CUSHIONS
APPROVED LIST

IA-02
DECEMBER 2018

NOTES:

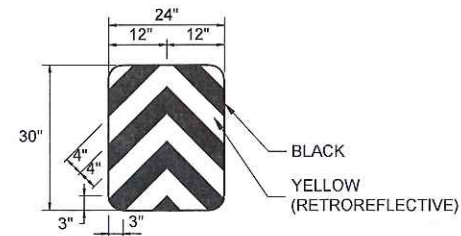
- EFFECTIVE ON JANUARY 1, 2019, ONLY INERTIAL CRASH CUSHIONS (ICC) TESTED UNDER CRITERIA OF MANUAL ASSESSING SAFETY HARDWARE (MASH) SHALL BE INSTALLED IN HIGHWAYS BELONGS TO THE NATIONAL HIGHWAY SYSTEM (NHS). FOR HIGHWAYS THAT NO BELONGS TO NHS , ICC TESTED UNDER CRITERIA OF NCHRP 350 AND/OR MASH SHOULD BE INSTALLED AS INDICATED IN PLANS AND CONTRACT DOCUMENTS. ICC SHALL BE INSTALLED ACCORDING TO PLANS, THESE STANDARD DRAWINGS, SPECIFICATION 620 - IMPACT ATTENUATORS, AND MANUFACTURER'S RECOMMENDATIONS.
- ONLY MASH AND NCHRP 350 TESTED ICC INCLUDED IN THE APPROVED LIST BELOW SHALL BE SELECTED TO BE INSTALLED IN PROJECTS AS INDICATED IN PLANS, THESE STANDARD DRAWINGS, THE SPECIFICATION 620-IMPACT ATTENUATORS, AND MANUFACTURER'S RECOMMENDATIONS.

NHS

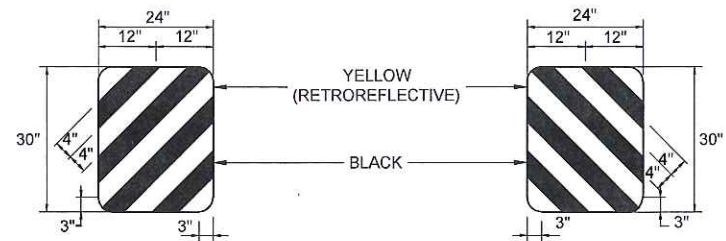
INERTIAL CRASH CUSHION (ICC) TYPE	INERTIAL CRASH CUSHION (ICC)	MANUFACTURER
V (MASH COMPLIANCE)	BIG SANDY®	TRAFFIX DEVICES, INC. 160 AVENIDA LA PATA SAN CLEMENTE, CA 92672 PHONE: (954) 997-9997 WEB: TRAFFIXDEVICES.COM
	CRASHGARD®	PLASTIC SAFETY SYSTEMS, INC. 2444 BALDWIN ROAD CLEVELAND, OH 44104 PHONE: 800-662-6338 WEB: PSS-INOVAIONS.COM

NON-NHS

INERTIAL CRASH CUSHION (ICC) TYPE	INERTIAL CRASH CUSHION (ICC)	MANUFACTURER
VI (NCHRP-350 AND/OR MASH COMPLIANCE)	BIG SANDY®	TRAFFIX DEVICES, INC. 160 AVENIDA LA PATA SAN CLEMENTE, CA 92672 PHONE: (954) 997-9997 WEB: TRAFFIXDEVICES.COM
	CRASHGARD®	PLASTIC SAFETY SYSTEMS, INC. 2444 BALDWIN ROAD CLEVELAND, OH 44104 PHONE: 800-662-6338 WEB: PSS-INOVAIONS.COM
	ENERGITE III® FITCH UNIVERSAL®	ENERGY ABSORTION SYSTEMS, INC. 70 W MADISON STREET, SUITE 2350 CHICAGO, IL 60602 PHONE: (312)-467-6750 WEB: ENERGYABSORTION.COM



TYPE R
TRAFFIC ON BOTH SIDE



TYPE P
OBJECT MARKER TYPE 3

DETAIL-A
N.T.S.

- THE CONTRACTOR SHALL INSTALL ICC FOR SPEED MENTIONED IN THE PLANS, ACCORDING TO MANUFACTURER'S CRASH TESTED ARRAYS, THESE STANDARD DRAWINGS, AND SPECIFICATION 620-IMPACT ATTENUATORS.
- THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AN INSTALLATION SUBMITTAL PACKAGE ACCORDING TO SPECIFICATION 620 AS A SUBSIDIARY OBLIGATION.
- INSTALL OBJECT MARKER AS A SUBSIDIARY OBLIGATION, ON THE FRONT OF THE FIRST MODULE DEPENDING THE DIRECTION OF TRAFFIC, AS SHOWN ON DETAIL A. MOUNT THE OBJECT MARKER VERTICALLY CENTERED AS PER THE MANUFACTURER'S RECOMMENDATIONS. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM D4956 TYPE III.
- CONTRACTORS, SUBCONTRACTORS, MANUFACTURERS OR AUTHORIZED MANUFACTURER DISTRIBUTORS WHO WISH TO INCLUDE THEIR PRODUCTS INTO THE APPROVED LIST MUST SUBMIT THE FOLLOWING INFORMATION FOR CONSIDERATION OF THE PUERTO RICO HIGHWAY AND TRANSPORTATION AUTHORITY:

a. CRASH TEST REPORT

i. NEW ROADSIDE SAFETY HARDWARE

- PHYSICAL CRASH TEST REPORT DOCUMENTING SUCCESSFUL CRASH TESTING (RELATIVE TO THE AASHTO MASH TEST CRITERIA) CONDUCTED BY AN ISO 17025 ACCREDITED LABORATORY.

ii. MODIFICATIONS TO EXISTING SUCCESSFULLY TESTED ROADSIDE SAFETY HARDWARE:

- ENGINEERING ANALYSIS CONDUCTED BY AN ISO 17025 ACCREDITED CRASH TESTING LABORATORY THAT DETERMINES THE MODIFICATION DOES NOT AFFECT THE CRASHWORTHINESS OF THE ROADSIDE SAFETY HARDWARE BASED ON PREVIOUS CRASH TESTING (RELATIVE TO THE AASHTO MASH TEST CRITERIA). IF NECESSARY, CRASH TESTING MAY BE WARRANTED BASED ON THE RESULTS OF AN ENGINEERING ANALYSIS.

b. CRASH TEST RESULTS, VIDEOS, AND TEST SUMMARY SHEETS THAT ARE COMPLETED AND REPORTED BY ISO 17025 ACCREDITED LABORATORIES AND IN ACCORDANCE WITH AASHTO MASH.

c. RESEARCH (NCHRP REPORTS AND SYNTHESIS, INDIVIDUAL CRASH TEST REPORTS OR POOLED FUND STUDIES) CONDUCTED THROUGH ISO 17025 ACCREDITED CRASH TEST LABORATORIES (ACCREDITED LABORATORIES) OR QUALIFIED RESEARCHERS SHOWING A DEVICE MEETS AASHTO MASH. IF NO RESEARCH IS AVAILABLE, MENTION THAT RESEARCH IS NOT AVAILABLE.

d. MANUFACTURER'S CERTIFICATION THAT THE DEVICE MEETS AASHTO MASH CRITERIA SUPPORTED BY CONCURRENCE FROM THE ACCREDITED CRASH TESTING LAB.

e. SYSTEM DRAWINGS, WHICH AT A MINIMUM INCLUDE:

- FULL DESCRIPTION (INCLUDING MATERIALS SPECIFICATIONS) AND DIMENSIONS
- LIST AND DESCRIPTION OF ALL COMPONENTS
- SITE PREPARATION DETAILS

f. INSTALLATION AND/OR PRODUCT MANUALS

g. FHWA ELIGIBILITY LETTER

h. REVIEW AND INPUT FROM OTHER STATE DOT (DESIGN, CONSTRUCTION, AND MAINTENANCE)

i. TEST SECTION AS REQUIRED BY THE PUERTO RICO HIGHWAY AND TRANSPORTATION AUTHORITY.



PUERTO RICO
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY AND TRANSPORTATION AUTHORITY

STANDARD DRAWING APPROVAL

DATE:	RECOMMENDED BY: 	DATE:	APPROVED BY:
	Jaime A. Lafuente González DESIGN AREA DIRECTOR		Carlos M. Contreras Agente EXECUTIVE DIRECTOR

IMPACT ATTENUATORS
INERTIAL CRASH CUSHIONS (ICC)
OR MODULES APPROVED LIST

IA-03

DECEMBER 2018

**INERTIAL CRASH CUSHION (ICC)
SITE CONDITIONS AND PLACEMENT REQUIREMENTS**

CONDITION	REQUIREMENTS	ILLUSTRATION
1. ANGLE OF ICC ARRAY IN RELATION TO CENTER LINE OF OBSTACLE.	NOT MORE THAN 10°	
2. BIDIRECTIONAL TRAFFIC	OFFSET ARRAY TO AVOID IMPACT TO THE REAR MODULE FROM WRONG-WAY VEHICLES	
3. ICC SPACING : ICC TO MODULE ICC TO HAZARD	0.15 USUAL 0.30 - 0.60	
4. "COFFIN" CORNER	SHIELD 0.75 OUTSIDE OF HAZARD	
5. SLOPING SITES (LATERAL AND LONGITUDINAL)	10:1 MAXIMUM	
6. CURBS AND RAISED ISLANDS	NO MORE THAN 4" HIGH	

NOTES:

1. REAR ICC ARRAY SHALL OVERLAP (IN WIDTH) THE FIXED OBJECT ON EACH SIDE BY A MINIMUM OF 0.75 M.
2. THE ENTIRE AREA OF THE ICC INSTALLATION AND APPROACHES SHALL BE GRADED SO THAT THE MAXIMUM SLOPE DOES NOT EXCEED 10:1 IN ANY DIRECTION.
3. ICC'S ARRAY SHALL BE PLACED ON ASPHALT CONCRETE, CONCRETE SURFACE OR GRASS AREAS ACCORDING TO SPECIFICATION 620.
4. ALL ICC'S ARRAYS SHALL BE INCLUDED IN THE INVENTORY REPORT AS INDICATED IN SPECIFICATION 620.
5. THE ICC LID SHALL BE SECURED ON THE ICC BY DRILLING FOUR RIVETS IN A CROSS PATTERN OR AS INDICATED BY THE MANUFACTURER.



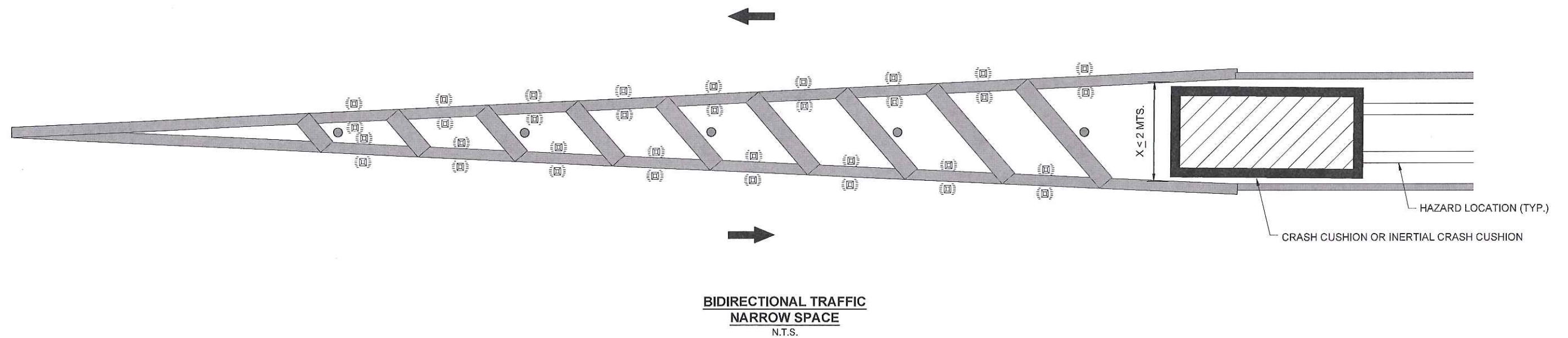
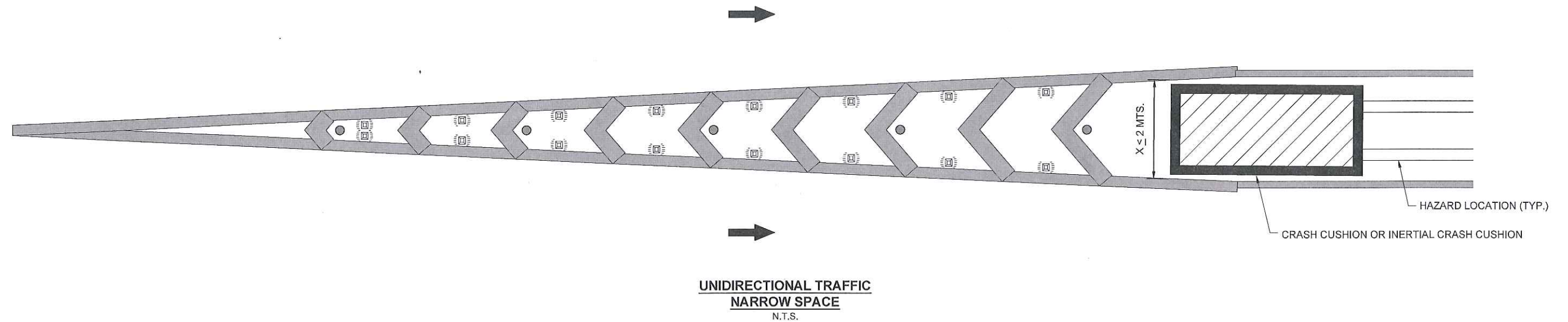
PUERTO RICO
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY AND TRANSPORTATION AUTHORITY

STANDARD DRAWING APPROVAL





DATE:	RECOMMENDED BY: Jaime A. Lafuente González DESIGN AREA DIRECTOR	DATE:	APPROVED BY: Carlos M. Contreras Aponte EXECUTIVE DIRECTOR
-------	---	-------	--

**IMPACT ATTENUATORS
INERTIAL CRASH CUSHIONS (ICC)
OR MODULES TYPICAL
INSTALLATION DETAILS**

IA-04
DECEMBER 2018



LEGEND:

-  TRAFFIC DIRECTION
-  REFLECTIVE RAISED PAVEMENT MARKERS (RRPM)
TWO FACES - WHITE OR YELLOW AND RED
(SEE NOTE 4)
-  DELINEATOR
(SEE NOTE 1)
-  AVAILABLE LOCATION SPACE


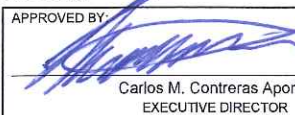
NOTES:

1. DELINEATOR SHALL BE ACCORDING TO PLANS AND SPECIFICATION 621.
2. PAVEMENT MARKINGS SHALL BE ACCORDING TO PLANS AND SPECIFICATION 618.
3. IMPACT ATTENUATORS (INERTIAL CRASH CUSHIONS OR CRASH CUSHIONS) SHALL BE ACCORDING TO PLANS AND SPECIFICATION 620.
4. REFLECTIVE RAISED PAVEMENT MARKERS SHALL BE ACCORDING TO SPECIFICATION 640 AND CONTRACT DOCUMENTS.



PUERTO RICO
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY AND TRANSPORTATION AUTHORITY

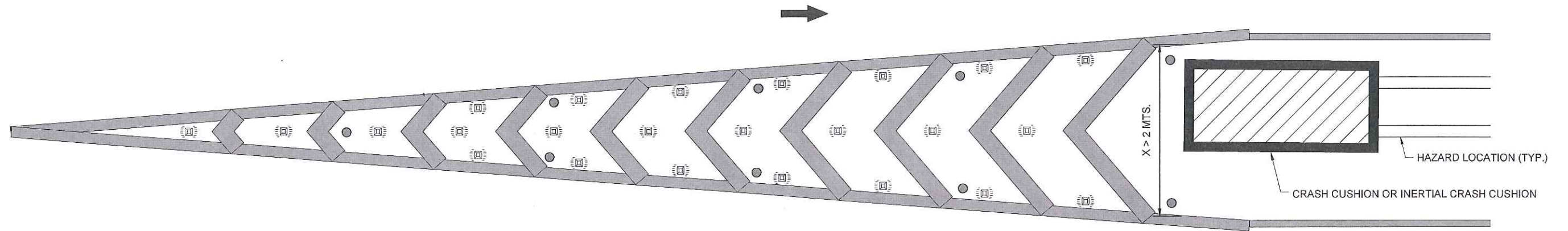
STANDARD DRAWING APPROVAL

DATE:	RECOMMENDED BY: 	DATE:	APPROVED BY: 
	Jaime A. Lafuente González DESIGN AREA DIRECTOR		Carlos M. Contreras Aponte EXECUTIVE DIRECTOR

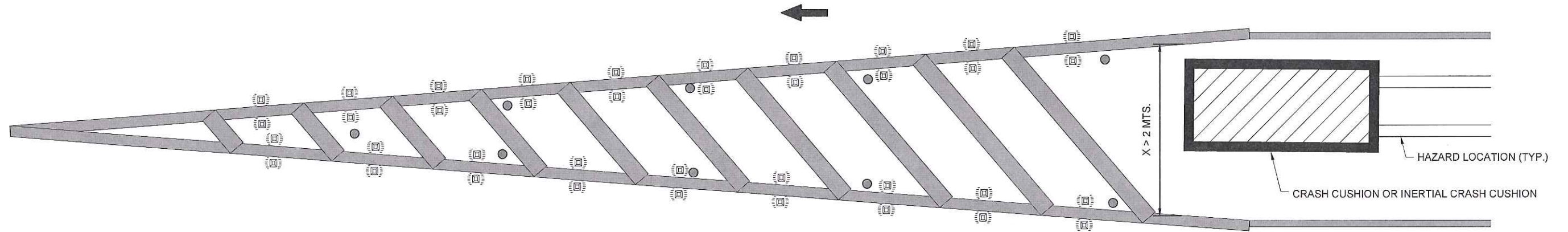
IMPACT ATTENUATORS
TYPICAL LOCATION DETAILS
X ≤ 2 MTS.

IA-05

DECEMBER 2018







UNIDIRECTIONAL TRAFFIC
N.T.S.



BIDIRECTIONAL TRAFFIC
N.T.S.

LEGEND:

-  TRAFFIC DIRECTION
-  REFLECTIVE RAISED PAVEMENT MARKERS (RRPM) TWO FACES - WHITE OR YELLOW AND RED (SEE NOTE 4)
-  DELINEATOR (SEE NOTE 1)
-  AVAILABLE LOCATION SPACE



NOTES:

1. DELINEATOR SHALL BE ACCORDING TO PLANS AND SPECIFICATION 621.
2. PAVEMENT MARKINGS SHALL BE ACCORDING TO PLANS AND SPECIFICATION 618.
3. IMPACT ATTENUATORS (INERTIAL CRASH CUSHIONS OR CRASH CUSHIONS) SHALL BE ACCORDING TO PLANS AND SPECIFICATION 620.
4. REFLECTIVE RAISED PAVEMENT MARKERS SHALL BE ACCORDING TO SPECIFICATION 640 AND CONTRACT DOCUMENTS.



PUERTO RICO
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY AND TRANSPORTATION AUTHORITY

STANDARD DRAWING APPROVAL

DATE:	RECOMMENDED BY:  Jaime A. Lafuente González DESIGN AREA DIRECTOR	DATE:	APPROVED BY:  Carlos M. Contreras Aponte EXECUTIVE DIRECTOR
-------	--	-------	---

IMPACT ATTENUATORS
TYPICAL LOCATION DETAILS
X > 2 MTS.

IA-06

DECEMBER 2018