U.S. Department of Transportation
Federal Highway Administration

1200 New Jersey Ave., S.E.
Washington, DC 20590

April 16, 2008

In Reply Refer To: HSSD/B-174

Mr. Michael J. Burkett
President
Monroeville Industrial Molding
75 Ontario Street
Norwalk, OH 44857

Dear Mr. Burkett:

This letter is in response to your request for Federal Highway Administration (FHWA) acceptance of a roadside safety device for use on the National Highway System (NHS).

Name of device:	Monroeville 8 inch Composite Offset Block Monroeville 12 inch MGS Composite Offset Block
Type of device:	Blockouts for W-beam barrier systems
Test Level:	NCHRP Report 350 TL-3
Testing conducted by:	E-Tech Testing Services
Date of request:	January 30, 2008

You requested that we find these devices acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 “Recommended Procedures for the Safety Performance Evaluation of Highway Features.”

Requirements
Roadside safety devices should meet the guidelines contained in the NCHRP Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features". FHWA Memorandum “ACTION: Identifying Acceptable Highway Safety Features” of July 25, 1997, provides further guidance on crash testing requirements of longitudinal barriers.

Description
Both the standard w-beam guardrail, normally mounted at 27 ¾ inches to the top, and the Midwest Guardrail System (MGS) barrier, normally mounted at 31 inches to the top, require offset blocks to reduce the impact of vehicle wheels snagging on the posts. Burkett Molding, Inc., received FHWA acceptance letter B-109B, dated March 17, 2004, for an 8-inch deep offset block. As your company, Monroeville Industrial Molding now owns the rights to the Burkett offset blocks you have asked for a letter in your company’s name. You also had an additional test conducted using a 12-inch deep version of this offset block for use on the MGS. Your present request includes acceptance of the larger offset block.

The Monroeville offset blocks were installed in a 175-foot long test section of MGS w-beam guardrail. The line posts were 6 inches deep x 4 inches wide x 72 inches long galvanized steel and embedded to 40 inches. The line posts supported a length of need section of AASHTO standard RWM03a (12 ga) w-beam guardrail. The rail sections are spliced together with (8) AASHTO standard FBB01 guardrail bolts and recessed nuts such that the splices are positioned mid-span between posts. The 12-inch deep x 4-inch wide x 14-inch high "Monroeville P" plastic blockout is positioned between the post and rail and secured in place with a single 0.625-inch diameter FBC16 carriage bolt installed in the upstream bolt hole position.

Crash Testing
The test of the MGS barrier with the 12-inch Monroeville offset blocks is summarized in the test data sheet, enclosed for reference. The 2000P vehicle was contained by the barrier and remained in contact with it, experiencing a yaw of approximately 70 degrees. All occupant risk values met NCHRP Report 350 criteria. The Midwest Roadside Safety Facility, developer of the MGS barrier, concurred in the positive evaluation of the test using the Monroeville offset blocks.

Findings
The MGS barrier using the 12-inch Monroeville Offset Blocks described in the above and detailed in the enclosed drawing is acceptable for use on the NHS under the range of conditions tested, when proposed by a State.

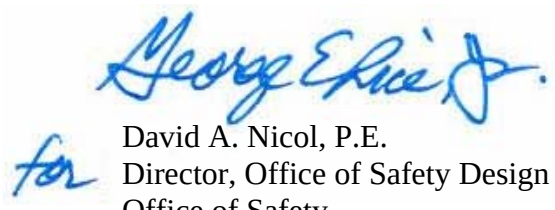
Also, the 8-inch offset blocks developed by Burkett Molding and manufactured by Monroeville Industrial Molding discussed in FHWA acceptance letter B-109B continue to be acceptable for use.

Standard Provisions
Please note the following standard provisions that apply to the FHWA letters of acceptance:

- This acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, we reserve the right to modify or revoke our acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that it will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.

- To prevent misunderstanding by others, this letter of acceptance is designated as number B-174 and B-109C and shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed at our office upon request.
- The Monroeville Offset Blocks are patented products and considered proprietary. If proprietary devices are specified by a highway agency for use on Federal-aid projects, except exempt, non-NHS projects, they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with the existing highway facilities or that no equally suitable alternative exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,



for David A. Nicol, P.E.
Director, Office of Safety Design
Office of Safety

2 Enclosures

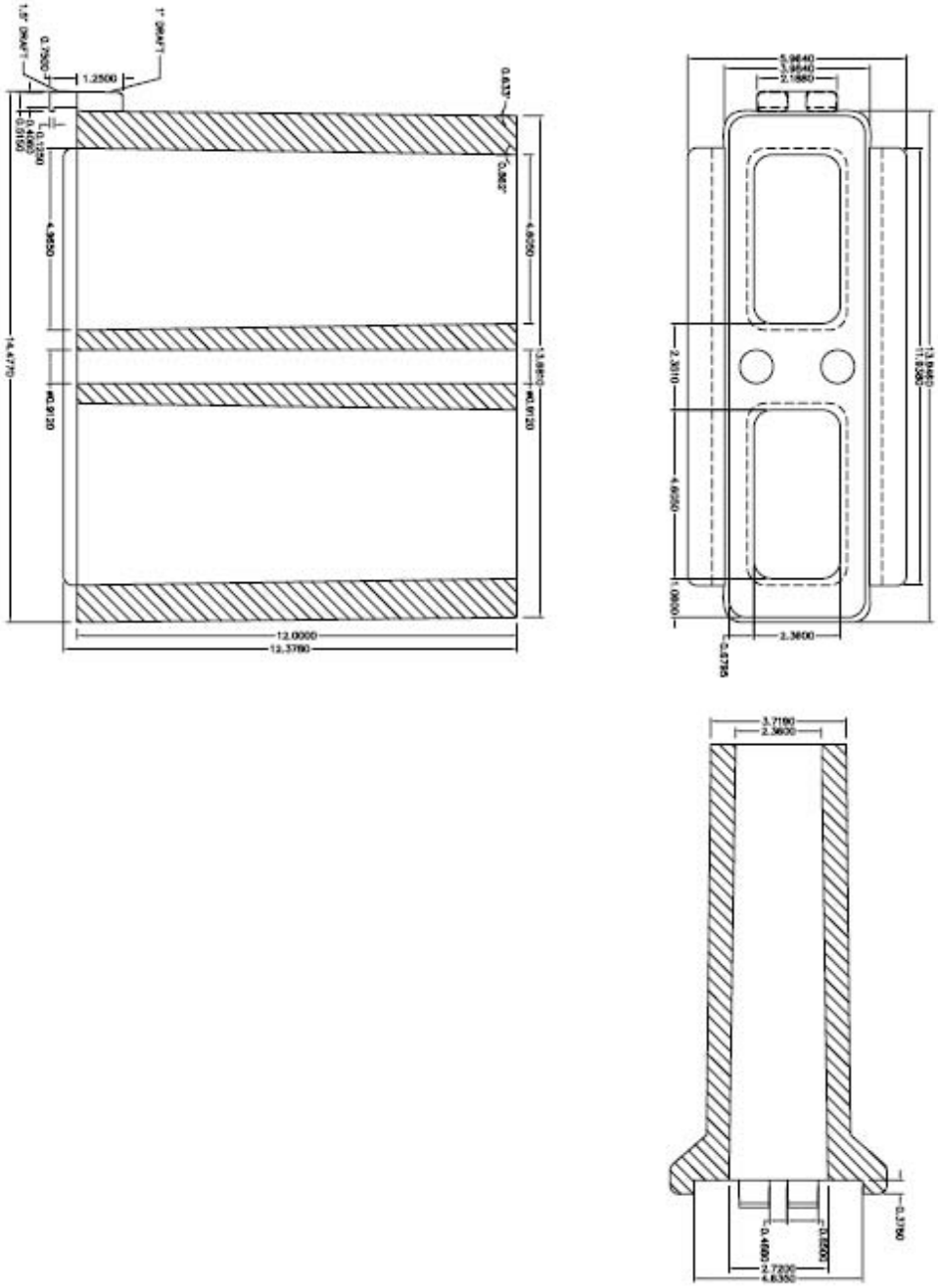
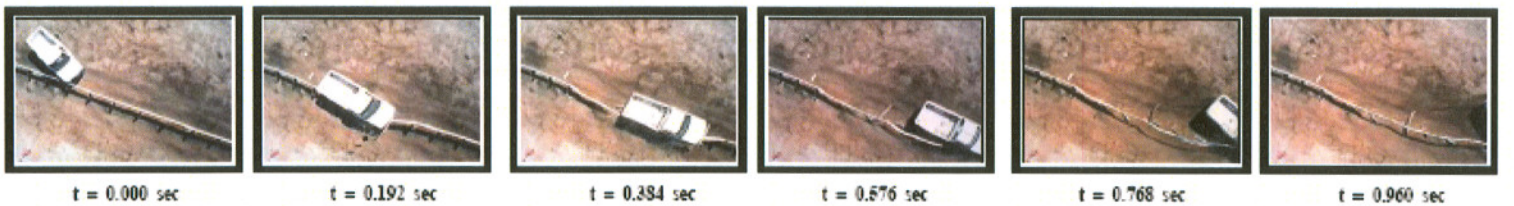
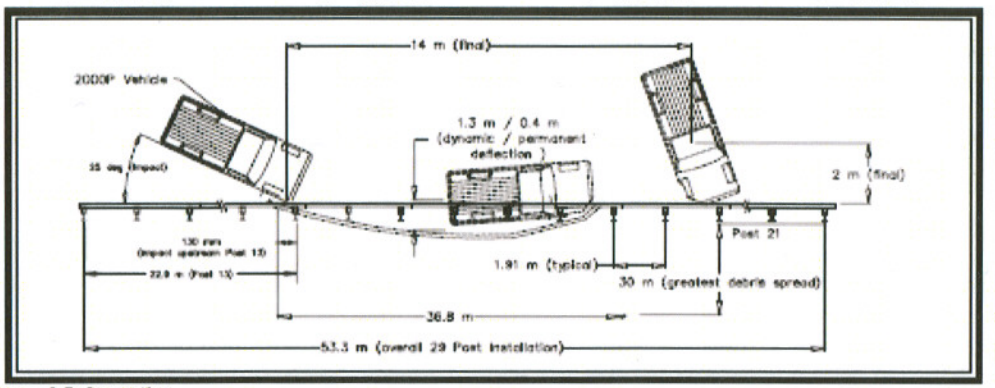


Illustration D-2. Monroeville 12" P Block (1 of 1)





General Information	
Test Agency	E-TECH Testing Services, Inc.
Test Designation	NCHRP 350 Test 3-11
Test No.	66-0515-001
Date	6/07/07
Test Article	
Type	Monroeville 12" P Block Plastic Blockout in MGS Standard Guardrail
Installation Length	53.3 m Guardrail (overall)
Material and key elements	MGS Standard W-Beam Guardrail with BCT Timber post end termination Plastic blockout 305 mm x 100 mm x 354 mm 3.2 kg 50-50 mix of LDPE/ HDPE regrind plastic
Foundation Type and Condition	NCHRP 350 Strong Soil, dry
Test Vehicle	
Type	Production Model
Designation	2000P
Model	2001 Chevrolet C2500 3/4 Ton Pickup
Mass (kg)	
Curb	2184
Test inertial	2011
Impact Conditions	
Speed (km/h)	100.4
Angle (deg)	25
Impact Severity (kJ)	139.6

Exit conditions	
Speed (km/h)	N/A
Angle (deg - veh. c.g.)	N/A
Occupant Risk Values	
Impact Velocity (m/s)	
x-direction	5.4
y-direction	-4.4
Ridedown Acceleration (g's)	
x-direction	-10.6
y-direction	-6.1
European Committee for Normalization (CEN) Values	
THIV (km/h)	24.3
PHD (g's)	10.7
ASI	0.8
Post-Impact Vehicular Behavior (deg - rate gyro)	
Maximum Roll Angle	-11.3
Maximum Pitch Angle	9.8
Maximum Yaw Angle	59.0
Test Article Deflections (m)	
Dynamic	1.3
Permanent	0.4
Vehicle Damage (Primary Impact)	
Exterior	
VDS	RFQ-2
CDC	01RFEW2
Interior	
VCDI	AS0000000
Maximum Deformation (mm)	Negligible

Figure 1. Summary of Results - Monroeville Plastic Blockout Test 66-0515-001