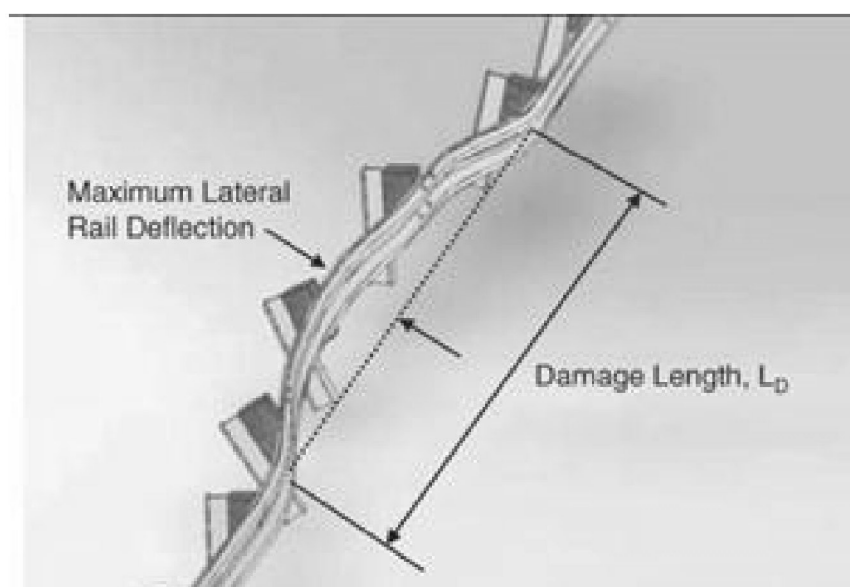
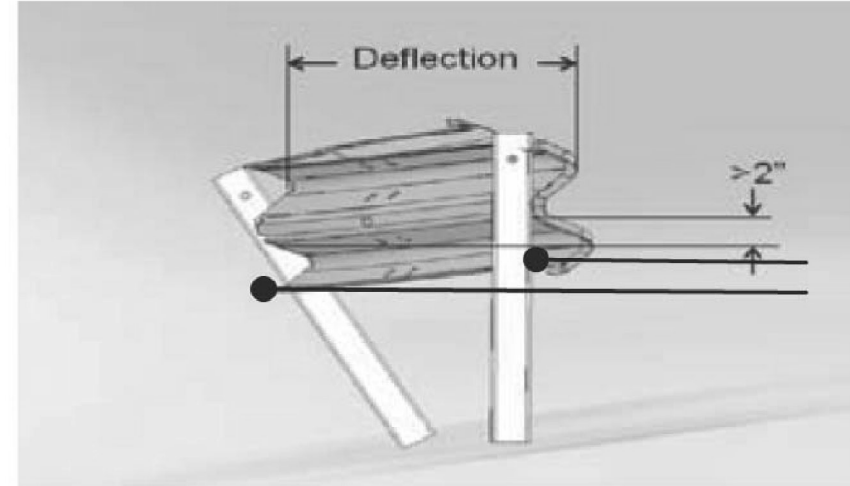
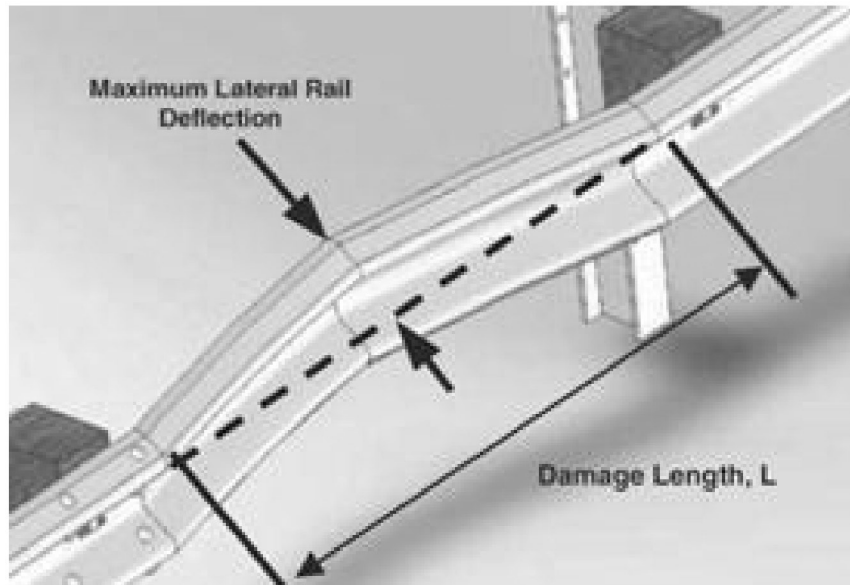
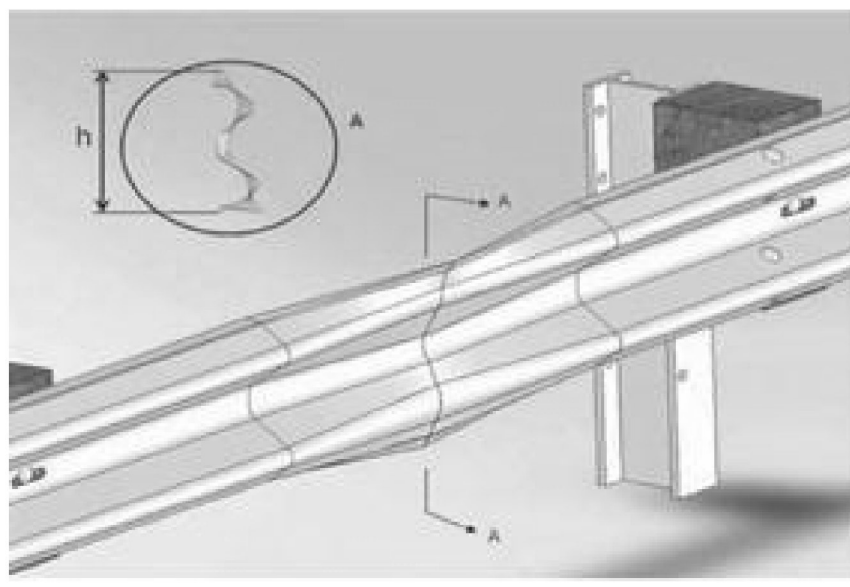
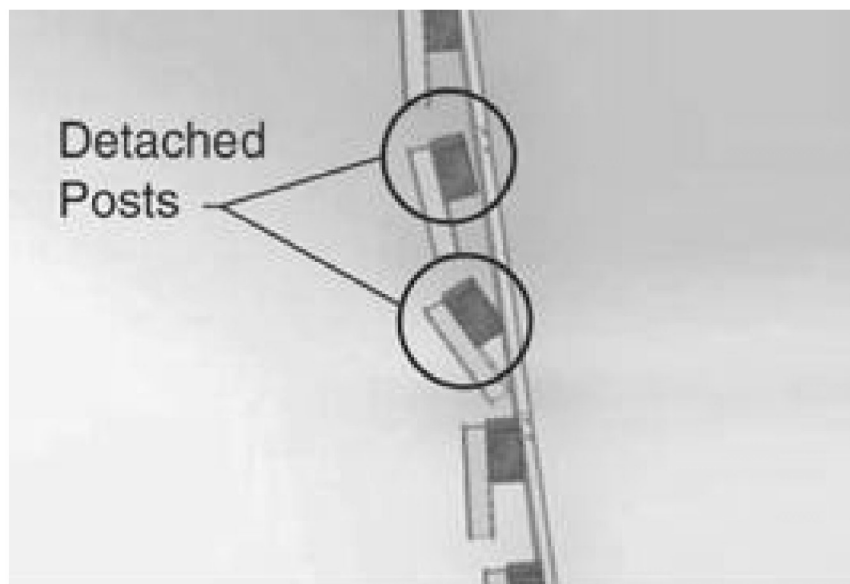
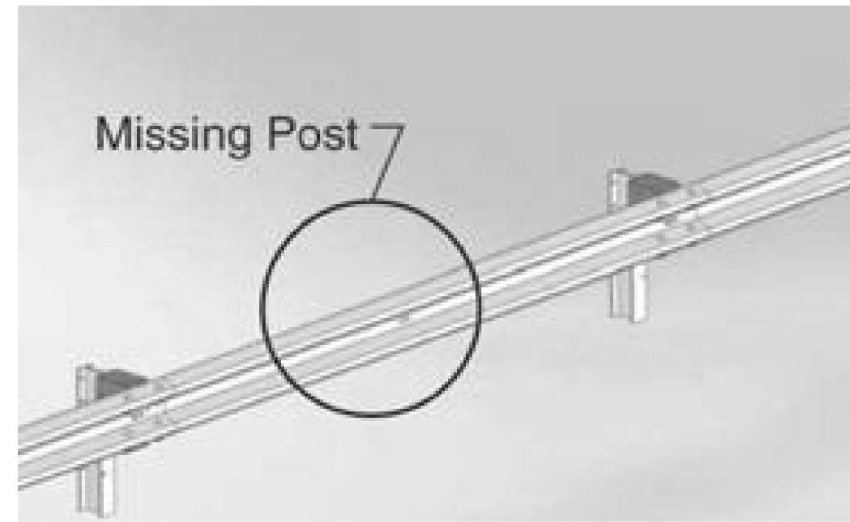
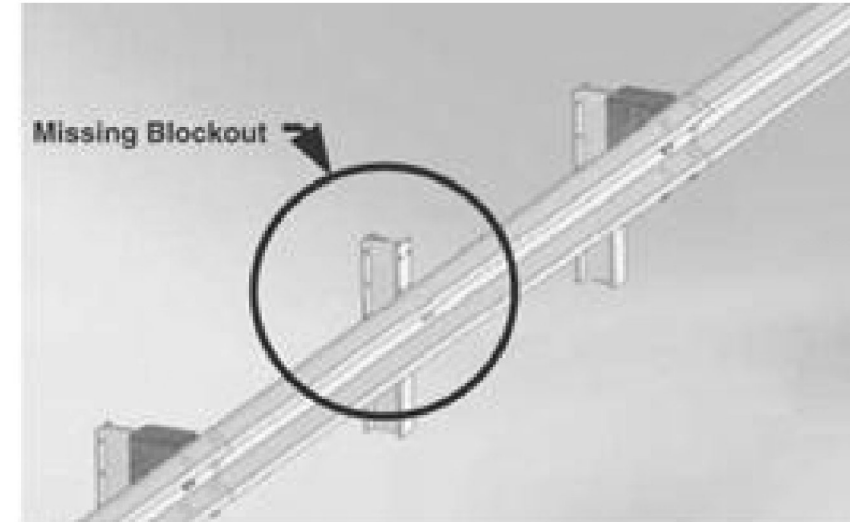
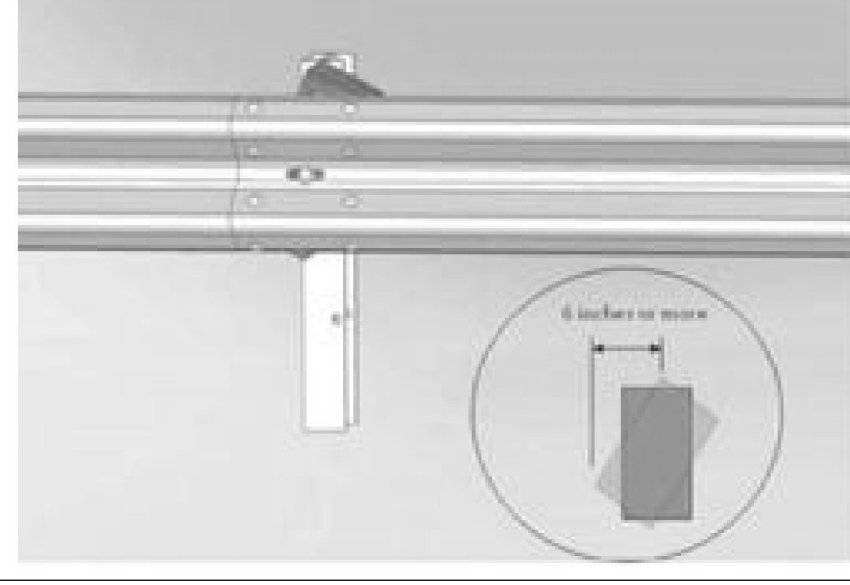

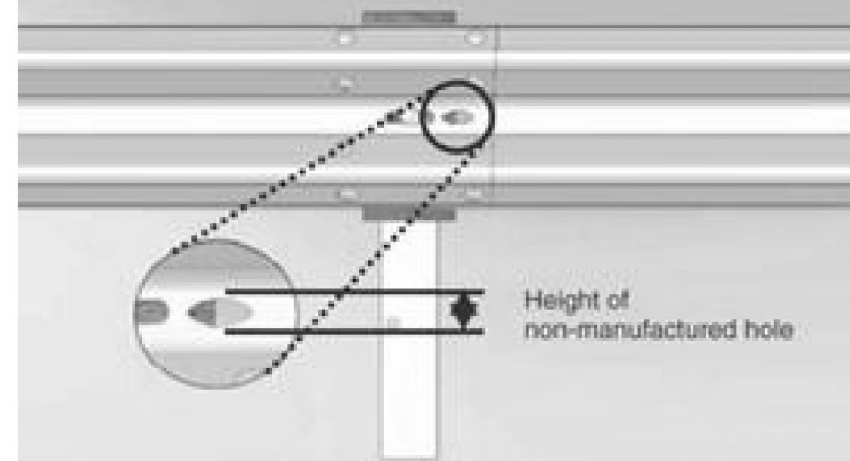


**GUARDRAIL REPLACEMENT GUIDELINES**

DAMAGE TYPE	REPAIR THRESHOLD	RELATIVE PRIORITY	MEASUREMENT
POST AND RAIL DEFLECTION	ONE OR MORE OF THE FOLLOWING THRESHOLDS:  <ul style="list-style-type: none"> <li>MORE THAN 9 IN. OF LATERAL DEFLECTION ANYWHERE OVER A 25 FT LENGTH OF RAILTOP OF RAIL</li> <li>HEIGHT 2 OR MORE IN. LOWER THAN ORIGINAL TOP OF RAIL HEIGHT</li> </ul>	HIGH	
	6 - 9 IN. LATERAL DEFLECTION ANYWHERE OVER A 25-FT LENGTH OF RAIL	MEDIUM	
	LESS THAN 6 IN. OF LATERAL DEFLECTION OVER A 25-FT LENGTH OR RAIL	LOW	(WEAK POST W-BEAM SHOWN ONLY FOR CLARITY. EACH MEASUREMENT TAKEN AT THE RAIL'S MIDDLE FOLD)
RAIL DEFLECTION ONLY	6 - 9 IN. OF LATERAL DEFLECTION BETWEEN ANY TWO ADJACENT POSTS.  NOTE: FOR DEFLECTION OVER 9 IN., USE POST/RAIL DEFLECTION GUIDELINES	MEDIUM	
	LESS THAN 6 IN. OF LATERAL DEFLECTION BETWEEN ANY TWO ADJACENT POSTS	LOW	
RAIL FLATTENING	ONE OR MORE OF THE FOLLOWING THRESHOLDS:  <ul style="list-style-type: none"> <li>RAIL CROSS SECTION HEIGHT MORE THAN 17 IN. (SUCH AS MAY OCCUR IF RAIL IS FLATTENED)</li> <li>RAIL CROSS SECTION HEIGHT LESS THAN 9 IN. (SUCH AS A DENT TO TOP EDGE)</li> </ul>	MEDIUM	
	RAIL CROSS SECTION HEIGHT BETWEEN 9 AND 17 IN.	LOW	
POSTS SEPARATED FROM RAIL	<ul style="list-style-type: none"> <li>2 OR MORE POSTS WITH BLOCKOUT ATTACHED WITH POST/RAIL SEPARATION LESS THAN 3 IN.</li> <li>1 OR MORE POSTS WITH POST/RAIL SEPARATION WHICH EXCEEDS 3 IN.</li> </ul>	MEDIUM	
			NOTE: 1. IF THE BLOCKOUT IS NOT FIRMLY ATTACHED TO THE POST, USE THE MISSING BLOCKOUT GUIDELINES. 2. DAMAGE SHOULD ALSO BE EVALUATED AGAINST POST/RAIL DEFLECTION GUIDELINES.
	<ul style="list-style-type: none"> <li>1 POST, WITH BLOCKOUT ATTACHED, WITH POST/RAIL SEPARATION LESS THAN 3 IN.</li> </ul>	LOW	

DAMAGE TYPE	REPAIR THRESHOLD	RELATIVE PRIORITY	MEASUREMENT
MISSING/BROKEN POSTS	1 OR MORE POSTS  <ul style="list-style-type: none"> <li>MISSING</li> <li>CRACKED ACROSS THE GRAIN</li> <li>BROKEN</li> <li>ROTTED</li> <li>WITH METAL TEARS</li> </ul>	HIGH	
MISSING BLOCKOUT	ANY BLOCKOUTS  <ul style="list-style-type: none"> <li>MISSING</li> <li>CRACKED ACROSS THE GRAIN</li> <li>CRACKED FROM TOP OR BOTTOM OF BLOCKOUT THROUGH POST BOLT HOLE</li> <li>ROTTED</li> </ul>	MEDIUM	
TWISTED BLOCKOUTS	ANY MISALIGNED BLOCKOUTS, TOP EDGE OF BLOCK 6 IN. OR MORE FROM BOTTOM EDGE  NOTE: REPAIRS OF TWISTED BLOCKOUT ARE RELATIVELY QUICK AND INEXPENSIVE	LOW	
DAMAGE AT A RAIL SPLICE	MORE THAN 1 SPLICE BOLT: <ul style="list-style-type: none"> <li>MISSING</li> <li>DAMAGED</li> <li>VISIBLY MISSING ANY UNDERLYING RAIL</li> <li>TORN THROUGH RAIL</li> </ul>	HIGH	
	1 SPLICE BOLT: <ul style="list-style-type: none"> <li>MISSING</li> <li>DAMAGED</li> <li>VISIBLY MISSING ANY UNDERLYING RAIL</li> <li>TORN THROUGH RAIL</li> </ul>	MEDIUM	
NON-MANUFACTURED HOLE (SUCH AS CRASH-INDUCED HOLES, LUG-NUT DAMAGE, OR HOLES RUSTED-THROUGH THE RAIL	<ul style="list-style-type: none"> <li>MORE THAN 2 HOLES LESS THAN 1IN. HEIGHT IN A 12.5-FT LENGTH OF RAIL</li> <li>ANY HOLES GREATER THAN 1IN. IN HEIGHT</li> <li>ANY HOLE WHICH INTERSECTS EITHER THE TOP OR BOTTOM EDGE OF THE RAIL</li> </ul>	HIGH	
	1 - 2 HOLES LESS THAN 1IN. IN HEIGHT IN A 12.5-FT LENGTH OF RAIL	MEDIUM	

NOTES:

- THESE ARE GUIDELINES FOR THE EVALUATION OF EXISTING GUARDRAIL. THESE ARE GUIDELINES ONLY AND THE CONTRACTOR SHALL REPLACE GUARDRAIL AS DIRECTED BY THE ENGINEER.
- GUIDELINES ARE FROM THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 656, "CRITERIA FOR RESTORATION OF LONGITUDINAL BARRIERS", COPYRIGHT 2010.

PROJECT NAME:	ROXBURY-NORTHFIELD
PROJECT NUMBER:	ER STP 0187(13)
FILE NAME:	z13ci84typ.dgn
PROJECT LEADER:	M. FOISY
DESIGNED BY:	I. MAYNARD
CHECKED BY:	G. EDWARDS
PLOT DATE:	5/25/2016
DRAWN BY:	I. MAYNARD
<b>GUARDRAIL DETAIL SHEET 11</b>	SHEET 42 OF 476

