

Colorado Procedure 79-20

Standard Practice for

Evaluating MIT Scan Images for Uncut Dowel Baskets

1. SCOPE

- 1.1. This practice is used to determine the acceptance of dowel bars in PCCP when dowel bars are installed with metallic dowel baskets and the shipping braces are not cut before concrete placement. Dowels placed with metallic dowel baskets that have the shipping braces or with the non-metallic basket will be accepted using the joint score.
- 1.2. Uncut shipping braces on metallic dowel basket interferes with the MIT Scan and creates ghost bars, uninterpretable data, or missing bars.
- 1.3. Materials Bulletin 2011-1 provides general guidance on the operation of the MIT Scan-2. The Materials Bulletin can be located at:

<https://www.codot.gov/business/designsupport/materials-and-geotechnical/materials-bulletins/2011-1-July%2014-2011/view>
- 1.4. This practice shows example MIT Scan-2 image maps and a corresponding picture of the dowel basket alignment without concrete. The example images show only one lane of pavement with 5 bars per wheel path spaced 1 foot apart. Two bars in the center of the lane are not installed per CDOT standard plans
- 1.5. This CP provides examples of the most common dowel basket alignments. Further assistance can be obtained by contacting the Concrete and Physical Properties Lab.

2. DOWEL BAR BASKET IMAGES

2.1 Figure 79-1 shows a properly aligned dowel basket under the MIT Scan-2 tracks. Figure 79-2 shows the corresponding MIT Scan-2 image map. This joint would be accepted without requiring corrective work.



Figure 79-1

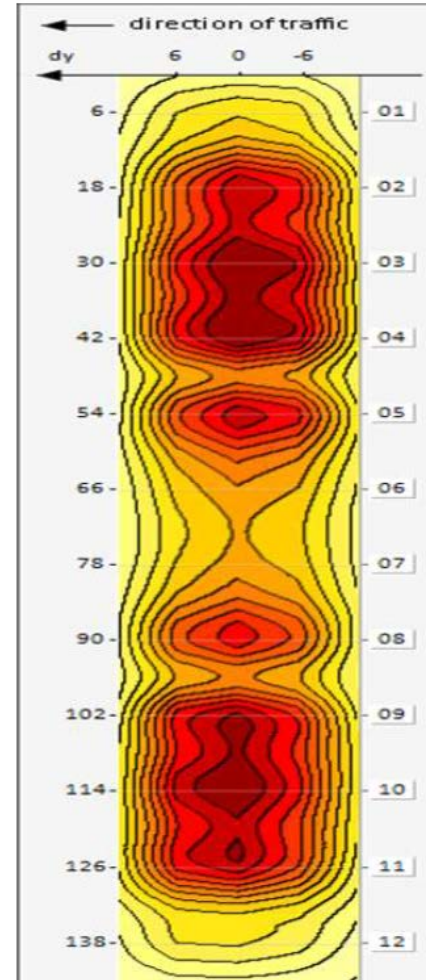


Figure 79-2

2.2 Figure 79-3 shows a basket that is not centered on the saw cut joint but otherwise aligned. The saw cut is indicated by the black line on the MIT Scan-2 tracks. Figure 79-4 shows the corresponding MIT Scan-2 image map. Further investigation of this joint with cores or a pachometer should be conducted to determine if the minimum 6 inches of embedment on each side of the joint is achieved. If 6 inches of embedment on each side of the joint is not achieved, the joint is rejected and requires corrective work.



Figure 79-3

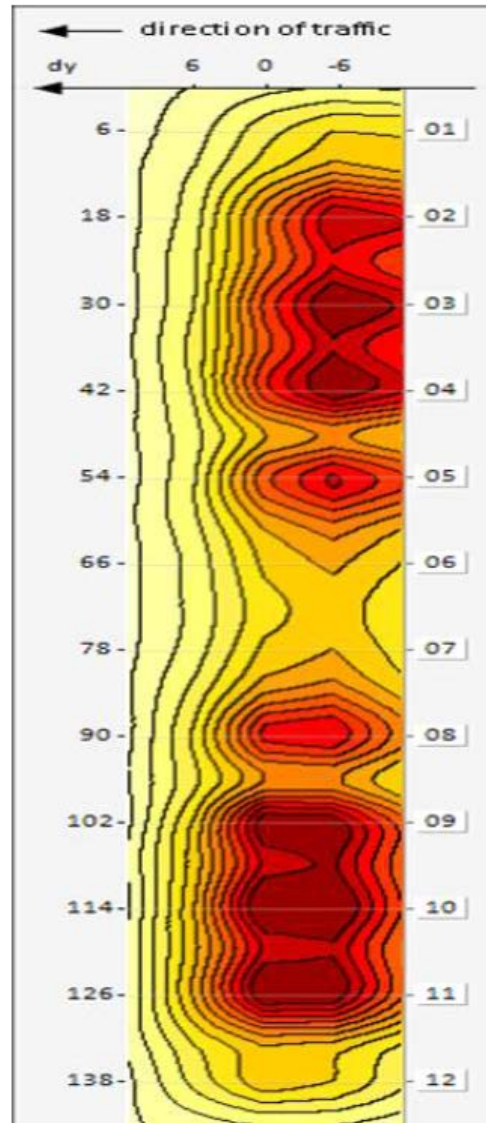


Figure 79-4

2.3 Figure 79-5 shows a skewed basket to the saw cut joints. The saw cut is indicated by the black line on the MIT Scan-2 tracks. Figure 79-6 shows the corresponding MIT Scan-2 image map. This joint should be further evaluated to determine if the saw cut is skewed and the basket is properly aligned or if the saw cut is correct and the basket is skewed. If the saw cut is skewed and the bars are properly aligned and each bar has the minimum embedment on each side of the saw cut, the joint can be accepted, otherwise, it is rejected and corrective work must be performed. If the saw cut is correct, this would be a locked joint and would require corrective work if adjacent joints are also locked.



Figure 79-5

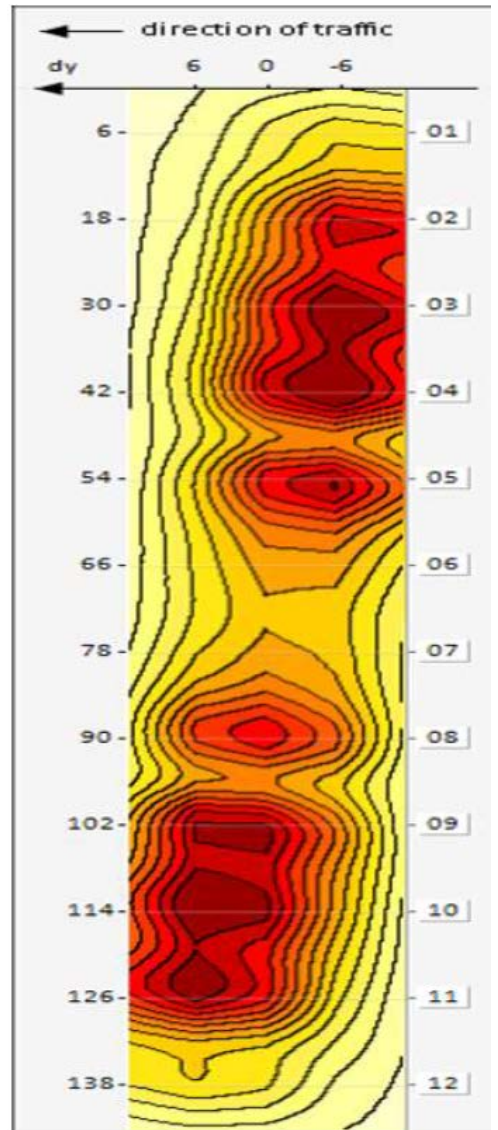


Figure 79-6

2.4 Figure 79-7 shows a basket that has been tilted. Figure 79-8 shows the corresponding MIT Scan-2 image map. This joint should be further evaluated by coring or a pachometer to determine the overall rotational misalignment of each bar. A joint score can be used to determine the acceptability of the joint using the criteria in subsection 412.13 and if corrective work is required. A single joint like this can be left in place without corrective work if the adjacent joints are correct and there is the required minimum cover above and below the dowel bars. Otherwise the joint requires corrective work.



Figure 79-7

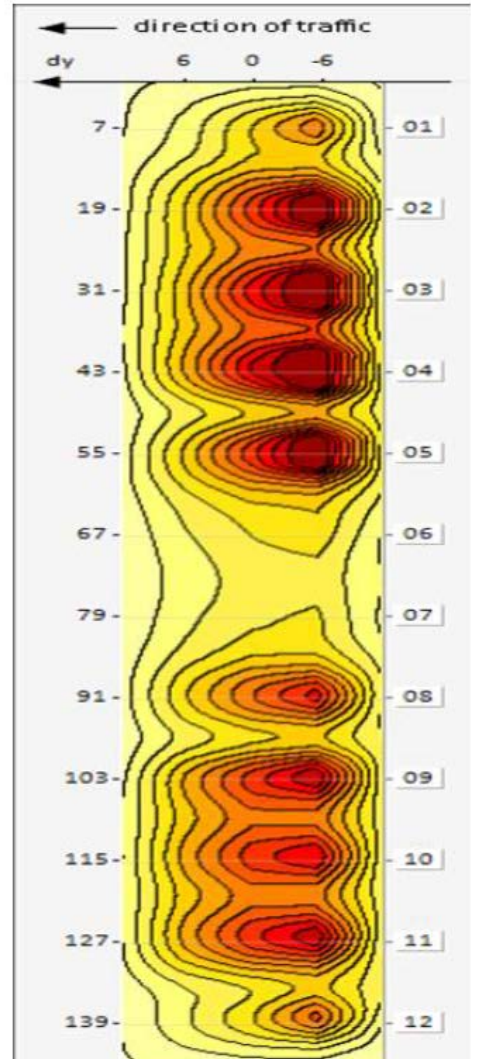


Figure 79-8

2.5 Figure 79-9 shows a basket that is deeper on one end than the other, but is otherwise aligned. Figure 79-10 shows the corresponding MIT Scan-2 image map. This joint should be further evaluated by coring or a pachometer to determine if there is the required minimum cover above and below the dowel bars. If there is the proper cover above and below the dowel bars, the joint can be accepted, otherwise, corrective work would be required.



Figure 79-9

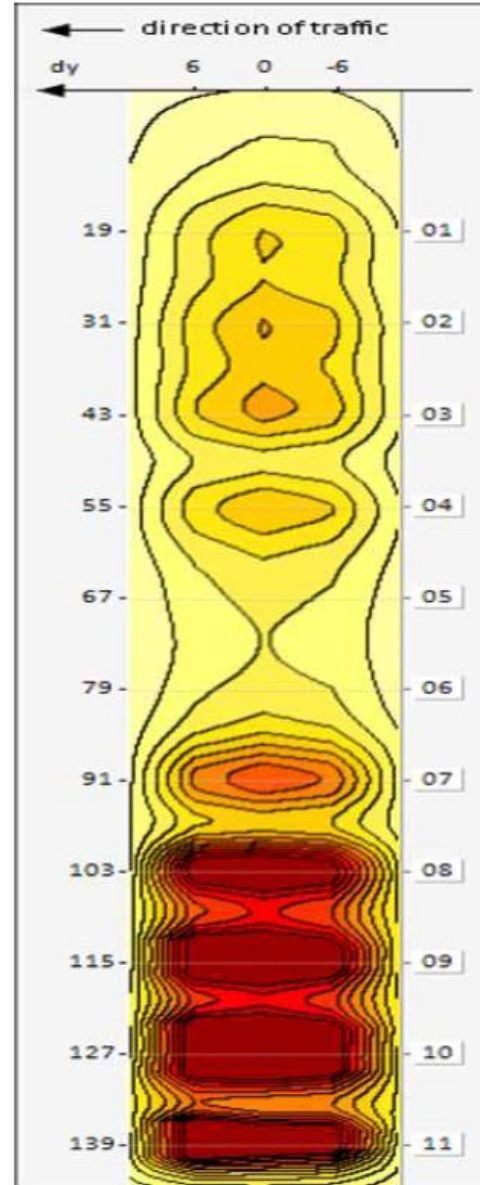


Figure 79-10

2.6 Figure 79-11 shows a basket that is only on one wheel path. Figure 79-12 shows the corresponding MIT Scan-2 image map. The top half of the MIT Scan-2 image map shows what a joint with no bars would look like. This joint requires corrective work to install the missing bars



Figure 79-11

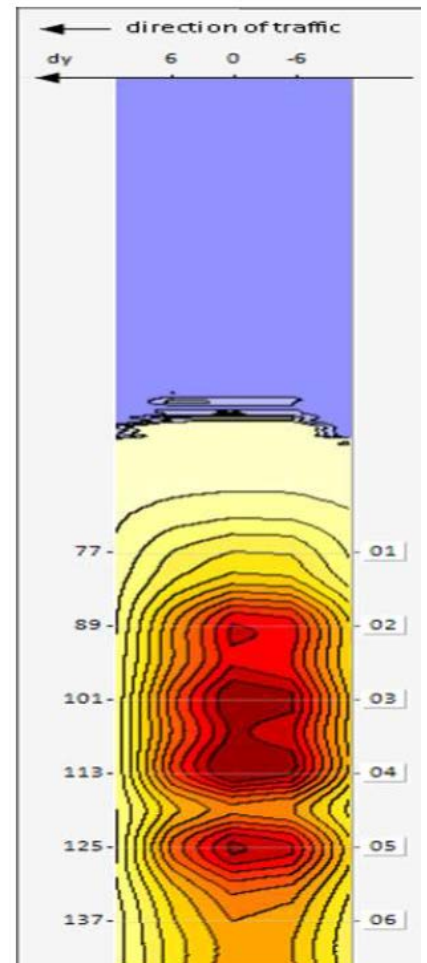


Figure 79-12

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