

From Mark Geib, Engineer of Operations Field Services Division

MDOT
Operations Field
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Questions regarding
this advisory should be
directed to:

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VERTICAL UNDER-CLEARANCE

This Bridge Field Services advisory serves to clarify the requirements for measuring and signing the vertical under-clearance of bridges.

Federal regulations require correct, current up-to-date minimum vertical under-clearance records be kept for all bridges on the National Highway System. MDOT maintains this information in a database maintained by the Bureau of Development, and reports this information to the Federal Highway Administration on an annual basis.

Whenever a bridge has significant improvements made in the form of a superstructure replacement or bridge replacement, or if there are grade or vertical alignment changes to the roadway below due to overlay or reconstruction, the vertical under-clearance may change. Beam repairs due to impact damage, or deterioration may also result in changes to the vertical under-clearance. It is important to measure, and document the new under-clearance and ensure the sign is updated accordingly. Take measurements two feet off edge of pavement, unless under-clearance is less over pavement.

Clearance signs are to be present for vehicular structures with an under-clearance of 16'-0" or less. The sign will indicate a dimension 2" less than actual to allow for live load deflections. Designers do their best to design to a desired under-clearance of 16'-3"; however this is not always possible. The following table from section 7.01.08 of the Bridge Design Manual details the minimum under-clearance dimensions which do not require a design exception:

VERTICAL CLEARANCE REQUIREMENT TABLE (11-28-2011)

Route Classification Under the Structure	All Construction	New Construction	Road 4R Construction	Bridge 4R Construction	3R Construction
	Desired	Min	Min	Min	Min
Freeways	16'-3"	16'-0" *	16'-0" *	16'-0" *	16'-0" *
NHS Arterials (Local & Trunkline)	16'-3"	16'-0" *	Maintain Existing 14'-6" Min*	16'-0" *	14'-0" *
Non NHS Arterials (Local & Trunkline)	16'-3"	14'-6" *	Maintain Existing 14'-6" Min*	Maintain Existing 14'-6" Min*	14'-0" *
Collectors, Local Roads & Special Routes ⁽¹⁾	14'-9"	14'-6" *	Maintain Existing 14'-6" Min*	Maintain Existing 14'-6" Min*	14'-0" *

3R = Rehabilitation, Restoration, Resurfacing 4R = Reconstruction

* Minimum Vertical Clearance must be maintained over complete usable shoulder width.

Subsection 824.03.L of the 2012 Standard Specifications for Construction states that as part of contractor staking the contractor must "provide structure clearance measurements to the Engineer for new construction or improvements of existing roadways or structures." The Engineer is required to complete form 1190, *Structure Clearance Measurements* and ensure distribution per the instructions on the form.

This information is also part of the final acceptance process of a project with a "structure clearance measurements" check box on form 1120 *Final Inspection/Acceptance and Certification Report*.



Whenever form 1190 indicates a vertical under-clearance measurement of 16'-0" or less, and updated vertical clearance signs are not part of the contract requirements, it is important to notify Statewide Signs within the Bridge Field Services Section of Operation Field Services. Statewide Signs will make every attempt possible to update and install the new under-clearance sign in a timely manner. Please contact Statewide Signs @ Phone: 517-322-3355 E-Mail: mdot-signs@michigan.gov with under-clearance sign inquiries.

FINAL INSPECTION/ACCEPTANCE and CERTIFICATION REPORT

DISTRIBUTION INSTRUCTIONS:

**FINAL INSPECTION/
ACCEPTANCE:**

ORIGINAL – Contract Services. **COPIES** – Associate Region Engineer-Construction; Construction Project Engineer; Financial Operations – Project Accounting, **When applicable:** Lansing Real Estate – Local Agency Programs Unit, Traffic & Safety, Multi-Modal – Freight Services; Lansing CFSD – Bridge Operations Engineer.

**PROJECT
CERTIFICATION:**

After Region Engineer/Representative signs Certification form, send a copy of Certification to: FHWA, Financial Operations – Project Accounting, Associate Region Engineer-Construction, Construction Project Engineer.

FINAL INSPECTION/ACCEPTANCE REPORT

CONTROL SECTION/JOB NUMBERS	FEDERAL PROJECT NO.	FEDERAL ITEM NO.	DATE
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CONTRACTOR NAME	START DATE	ACTUAL COMPLETION DATE
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TYPE OF ACTION	FHWA OVERSIGHT PROJECT ON NHS	MDOT OVERSIGHT PROJECT ON NHS
<input type="checkbox"/> Final Inspection/Acceptance <input type="checkbox"/> Project Certification	<input type="checkbox"/>	<input type="checkbox"/>

INSPECTED BY

NAME:	DATE
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SIGNATURE

TYPE OF WORK (As per proposal)

RECOMMENDATIONS/CONCLUSIONS/REMARKS

IS PROJECT WARRANTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	WARRANTY DOCUMENTS ON FILE	WARRANTY TYPE	DURATION	EXPIRATION DATE
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DATE NPDES NOTICE OF TERMINATION SUBMITTED	DATE SITE ID NUMBER IS DEACTIVATED	STRUCTURE CLEARANCE MEASUREMENTS FORM 1190? YES <input type="checkbox"/> NO <input type="checkbox"/>
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ITEM NOTED ABOVE HAVE BEEN RESOLVED. COMMENTS:	CONSTRUCTION/PROJECT ENGINEER	DATE
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BRIDGE WORK: <input type="checkbox"/> YES <input type="checkbox"/> NO	BRIDGE INSPECTION:	DATE REQUESTED	DATE COMPLETED
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ACCEPTANCE RECOMMENDED BY

CONSTRUCTION/PROJECT ENGINEER

CITY/COUNTY AUTHORIZED SIGNATURE	TITLE	DATE
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I hereby certify that the construction on this project substantially conforms to the plans and specifications	TSC MANAGER (Signature)	DATE
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The project will be submitted for final certification if it has FHWA oversight on the NHS and the items checked below have been completed.

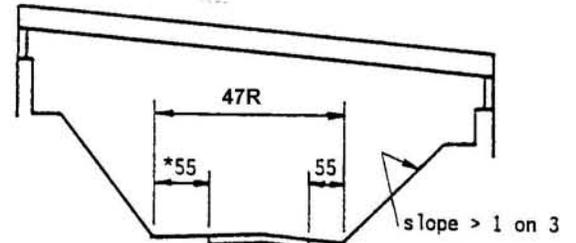
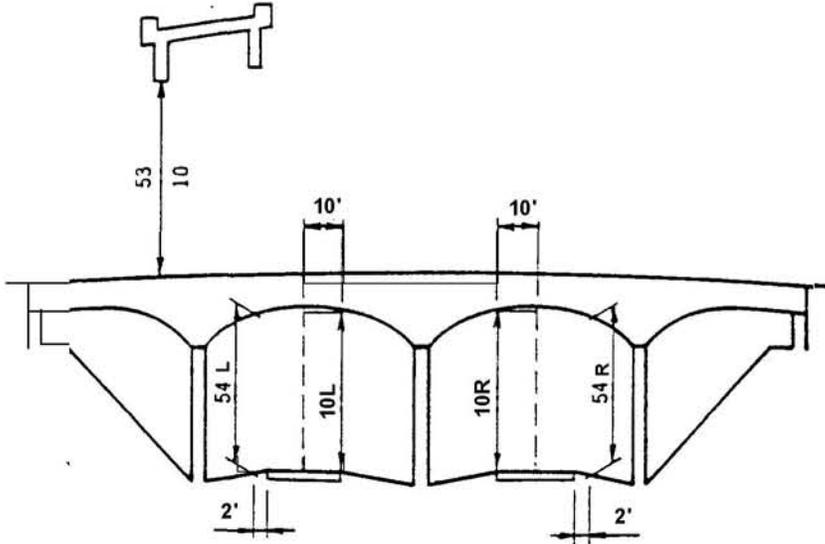
- Traffic Control Devices
 Railroad Affidavit
 Material Exceptions (See Attached)
- Other (Specify)

PROJECT CERTIFICATION (FHWA Oversight Projects on NHS Only)

I hereby certify that the construction work on this project and materials incorporated in this project are in conformity with approved plans and specifications, and that the independent assurance tests have been performed. The items checked on the Final Inspection/Acceptance Report have been completed.

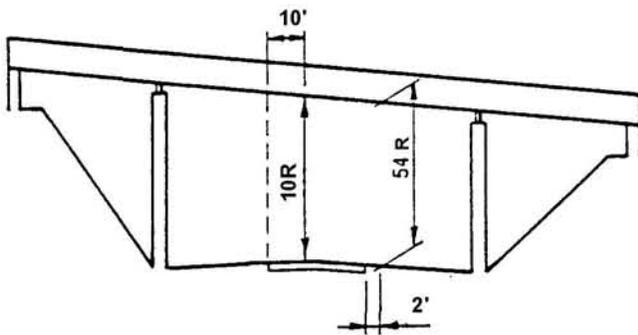
REGION ENGINEER/REPRESENTATIVE (Signature)	DATE
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NOTED BY F.H.W.A.	DATE
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Item 55 - Minimum lateral clearance on right.

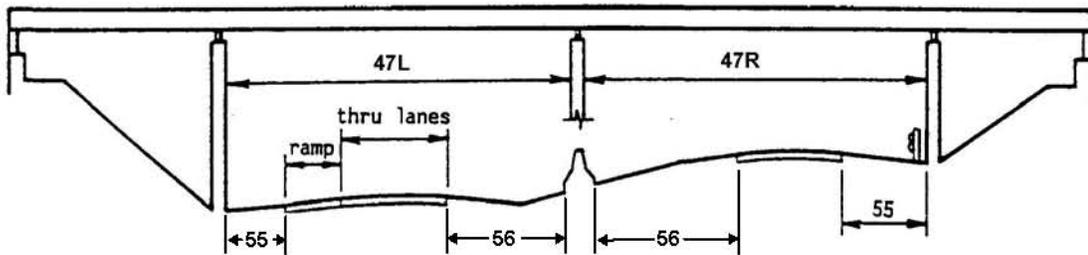
* Item 56 - Minimum lateral clearance on left. Code left side for structure over one-way traffic.



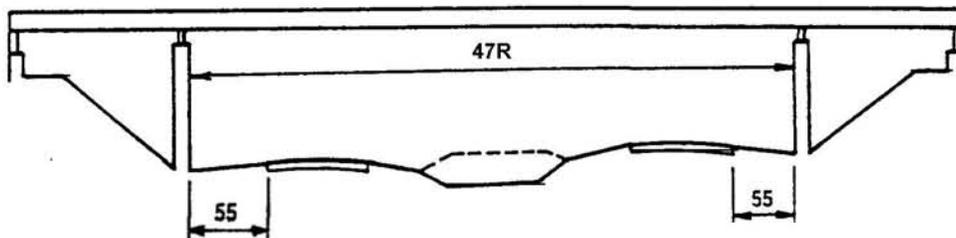
* Take measurement 2ft off edge of pavement unless underclearance is less over pavement.

Item 10L and 10R - Minimum vertical clearance best 10'.

Item 54L and 54R - Minimum vertical underclearance. For divided highways, record both.*



Items 55, 56 and 47 for divided highways. Measure both sides and record the minimum for items 55 and 56.



Item 56 - Minimum lateral clearance on left. Code as shown for divided highway with open median.