Guidance Document for Collision Protection for Dispensing Aboveground Storage Tanks (AST) Using Flammable or Combustible Liquids

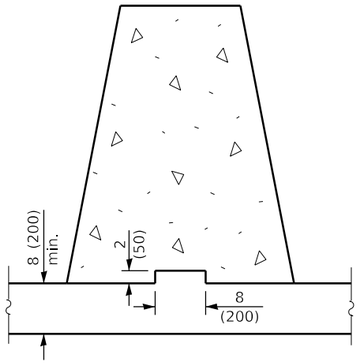
Title 41 Ill. Adm. Code 180.20(b)(3) requires that dispensing ASTs are safeguarded against collision, spillage, or overfill to the satisfaction of the authorities having jurisdiction. When exposed to vehicular damage due to proximity to alleys, driveways, parking areas, or farming fields or areas where agricultural vehicular machinery (such as tractors, combines, plows, manure spreaders) are used, the following provides acceptable collision protection:

1. Portable concrete barriers as described in the attached drawing from the Illinois Department of Transportation Highway Standards (September 8, 2023), making sure adjacent barrier segments are connected and to prevent lateral displacement, portable concrete barriers shall be anchored in accordance the same attached IDOT drawing or in accordance with the requirements of AASHTO *Roadside Design Guide,4th edtion-4th printing (2021),* Section 9.2.1.2.16.

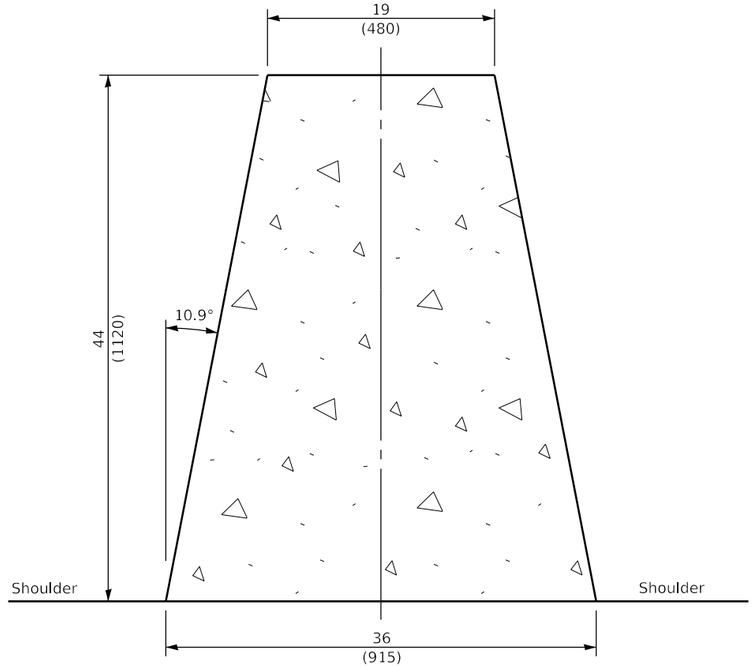
2. Guardrails complying with Illinois Department of Transportation found in Section 38-5.01(a) from the IDOT Bureau of Design and Environment Manual (Revised August 2023). Illinois BDE Manual (powerdms.com)

3. Guard posts or bollards constructed as follows as prescribed in the International Fire Code (2021), Section 312:
    a. Constructed of steel not less than four inches in diameter and concrete filled
    b. Spaces not more than four feet between posts on center.
    c. Set not less than three feet deep in a concrete footing of not less than a 15-inch diameter.
    d. Set with the top of the posts not less than 3 feet above ground.
    e. Located not less than 3 feet from the protected object.

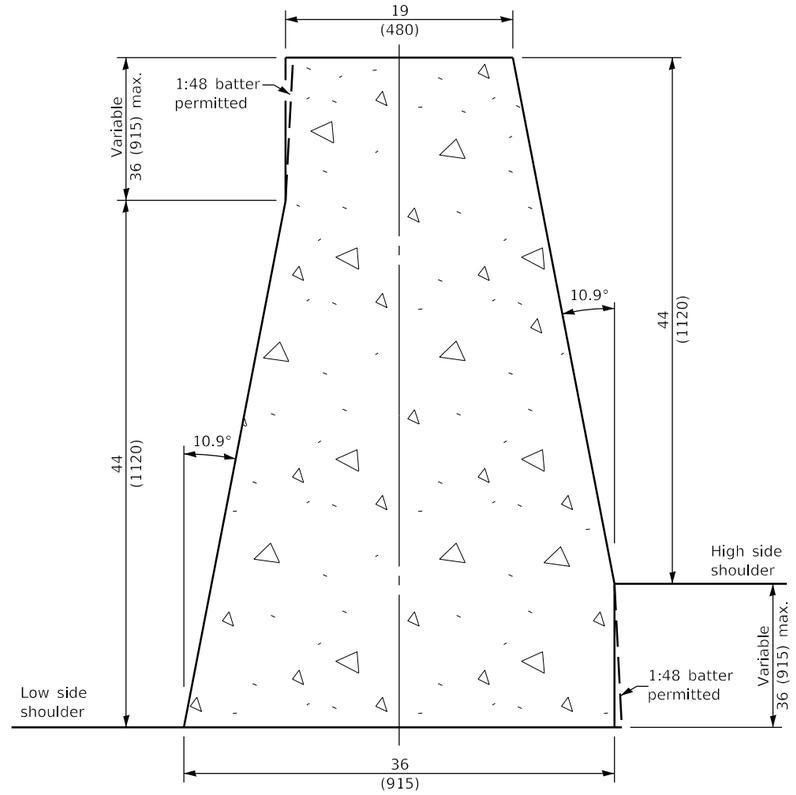
4. All of the above-mentioned collision protection systems shall be provided on all sides of the object that is subject to vehicular damage.



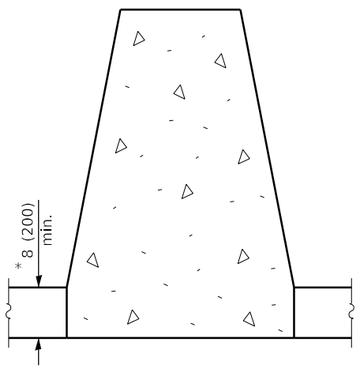
NEW PCC BASE w/ KEYWAY



TYPICAL CROSS–SECTION

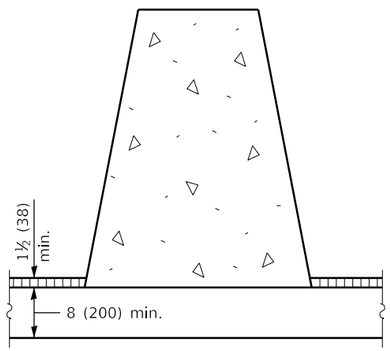


VARIABLE CROSS–SECTION

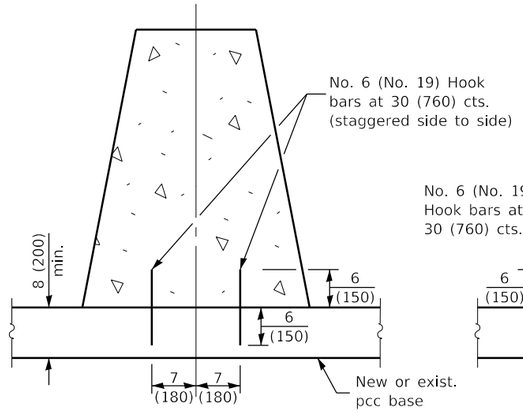


NEW MONOLITHIC PCC BASE

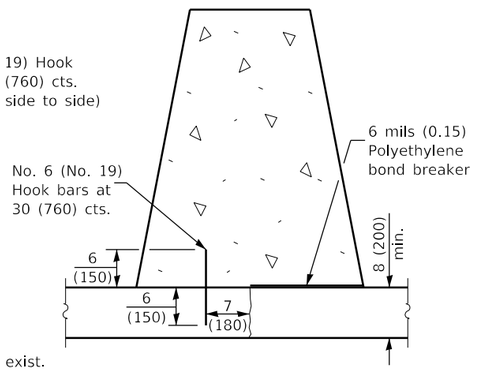
* This dimension shall be 10 (250) min. when the barrier is confined by earth.



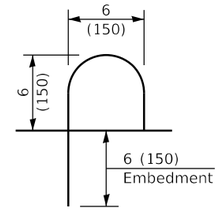
NEW OR EXISTING HMA / PCC BASE w/ HMA OVERLAY CONFINEMENT



NEW OR EXISTING PCC BASE w/ HOOK BARS



EXISTING PCC BASE WITH LONGITUDINAL JOINT



HOOK BAR DETAIL (Side View)

GENERAL NOTES

The Variable Cross-Section shall be used when there is a difference in base elevation between the two sides of the barrier.

See standard 836011 for additional light pole foundation details where required in concrete barrier.

All dimensions are in inches (millimeters) unless otherwise shown.

FIVE ANCHORING METHODS

Illinois Department of Transportation

PASSED January 1, 2021
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2021
ENGINEER OF DESIGN AND ENVIRONMENT

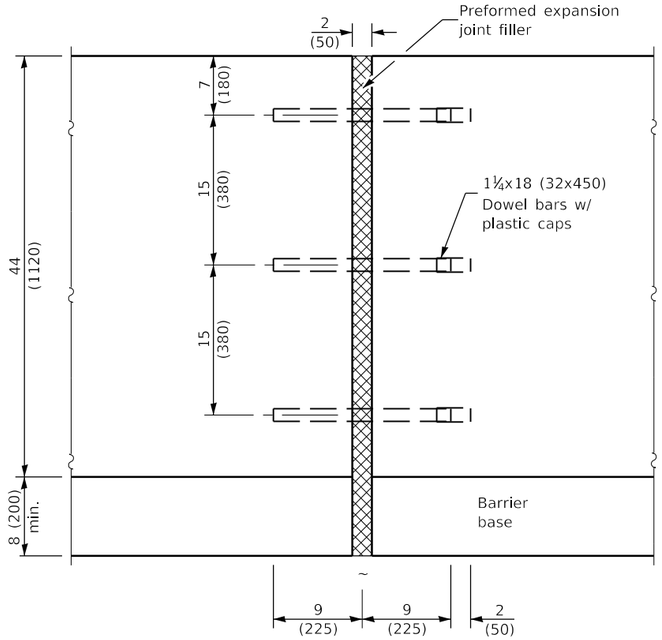
ISSUED 1-1-97

DATE	REVISIONS
1-1-21	Revised Typical and Variable
	Cross-Sections. Added keyway
	anchor method and hook bars.
1-1-19	Revised from F-shape to constant
	slope, increased height, and
	renamed standard.

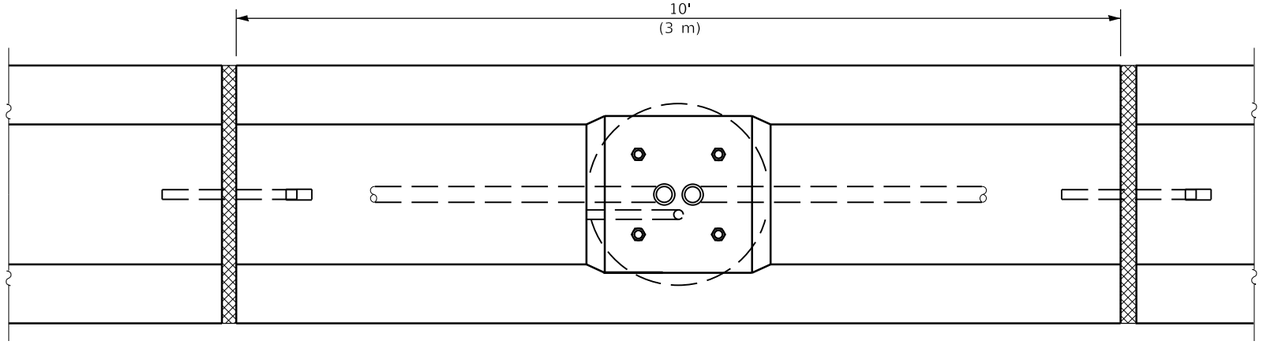
CONCRETE BARRIER, DOUBLE FACE, 44 in. (1120 mm) HEIGHT

(Sheet 1 of 2)

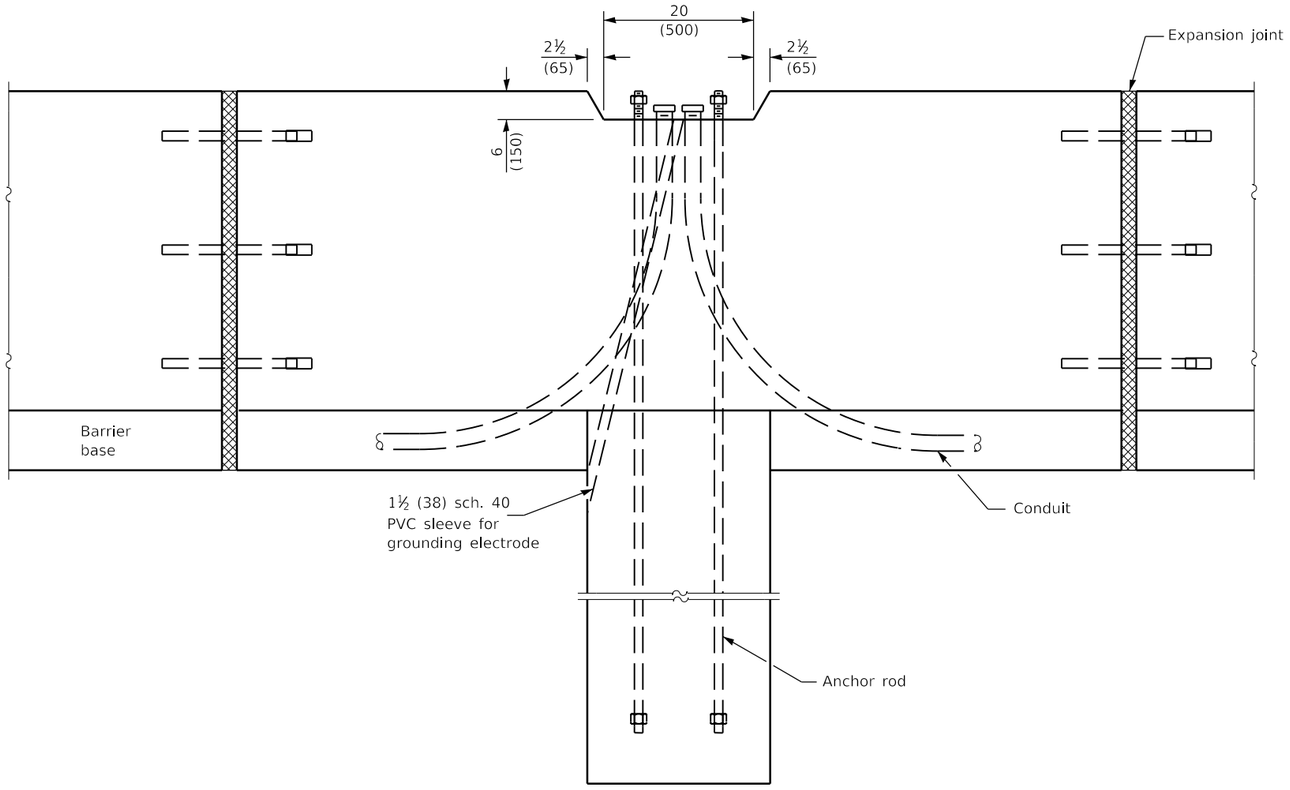
STANDARD 637006-05



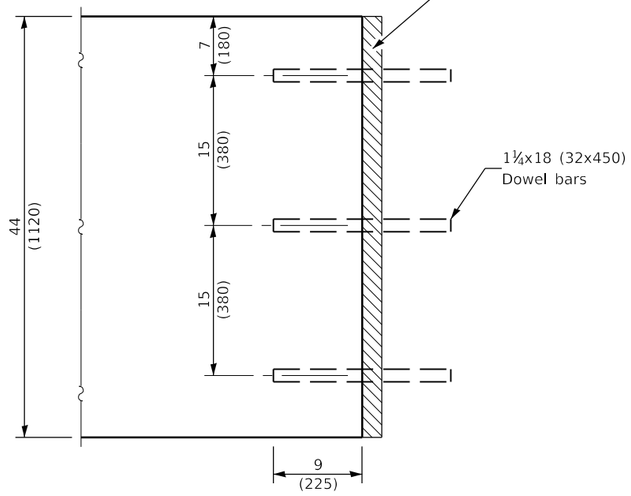
EXPANSION JOINT



PLAN AT LIGHTING FOUNDATION



ELEVATION AT LIGHTING FOUNDATION



CONSTRUCTION JOINT

Illinois Department of Transportation

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ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-21

CONCRETE BARRIER, DOUBLE FACE, 44 in. (1120 mm) HEIGHT

(Sheet 2 of 2)

STANDARD 637006-05