



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Design Memorandum No. 21-11

April 13, 2021

TO: All Design, Operations, and District Personnel, and Consultants

FROM: /s/ Stephanie J. Wagner
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Bridge Engineering Division

SUBJECT: Reinforced Concrete Pile Encasement

REVISES: *Indiana Design Manual (IDM) Chapter 17, Section 17-5.03(02)*

EFFECTIVE: Lettings on or after September 1, 2021

Reinforced concrete encasement for exposed H pile bents will be quantified and paid for as Reinforced Concrete Encasement for H Piles on all projects using the 2022 INDOT *Standard Specifications*. The pay items for the piling will no longer include the reinforced concrete encasement.

The cost of reinforced concrete encasement for exposed H pile bents has historically been included in the cost of reinforced concrete encased H pile, which is paid for by linear foot installed. The length of installed piling can vary significantly from the estimated lengths shown on the schedule of pay items. The limits of the concrete encasement is shown on the plans and doesn't vary based on the amount of piling driven. The variability in length of installed piling resulted in an unintentional variability in the cost of the reinforced concrete encasement, which could not be anticipated prior to the letting. Paying for the reinforced concrete encasement separately from the piling will create a more equitable basis for payment.

IDM [Chapter 17](#), Quantity Estimating, has been updated to reflect updates concerning reinforced concrete pile encasement. An excerpt of the changes is shown at the end of this memo.

For questions related to this design memo, please contact the Bridge Engineering Division at Bridgedesignoffice@indot.in.gov.

Chapter 17 Revisions

17-5.03(02) Permanent Piles [New Jan. 2011, Rev. Apr. 2021]

1. Exposed or Buried Pipe Piles. Piles which consist of an exposed portion and a buried portion should be measured as two pay items. The buried portion of a steel-pipe pile is Pile, Steel Pipe, (pipe-wall thickness) in, (diameter) in. The exposed portion is Pile, Steel Pipe, Epoxy Coated, (pipe-wall thickness) in, (diameter) in.
2. Pay Items. The pay items defined in the INDOT *Standard Specifications* should be used. The piling pay item names will include information on the pile diameter or size, coating requirements, and the wall thickness of the steel shell. Reinforced concrete encasement used for exposed steel H pile bents, pile tips, and pile shoes are not included in the cost of the piling and should be paid for separately.
3. Measurement. The minimum pile tip elevation shown on the General Plan sheet for a stream crossing is established to provide adequate penetration to protect against scour and does not necessarily indicate the penetration needed to obtain the required bearing. The estimated elevation needed to obtain the required bearing is shown only in the Geotechnical Report. The billed length of piling should be computed based on the lower of the minimum tip elevation shown on the General Plan sheet or the estimated bearing elevation shown in the Geotechnical Report.
4. Incidental Items. Do not include separate pay items for reinforcing steel or concrete filling. These are included in the pay items for the piles. Other items incidental to the cost of the piling are described in the INDOT *Standard Specifications*.
5. Oversized Predrilled Pile Holes. For an integral end bent structure, include a special provision to define the additional payment breakdown required for oversized predrilled holes and uncrushed gravel backfill. The piles themselves should be measured as described in the INDOT *Standard Specifications*. Include the special provision where the blow count (N) exceeds 35 blows per foot within the 10-ft interval below the bottom of the cap.