

INDIANA DEPARTMENT OF TRANSPORTATION



INTER-DEPARTMENT COMMUNICATION
Standards Section C Room N642



Writer's Direct Line
232-5347

September 22, 1999

DESIGN MEMORANDUM No. 99-15 POLICY CHANGE

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

FROM: /s/ Richard L. VanCleave
Richard L. VanCleave
Design Policy Engineer
Technical Services Division

SUBJECT: Backfilling Behind Bridge End Bents

**SUPERSEDES: Design Memorandum No. 98-07 dated September 25, 1998, and
INDOT Design Manual Section 17-2.08 (Item 2)**

EFFECTIVE: Immediately

The policy regarding end bent backfill is hereby revised. Effective immediately, the following backfill methods shall be utilized.

1. All beam/girder type superstructures: Backfill behind the end bents shall consist of coarse aggregate wrapped in a geotextile. An end bent drain pipe shall also be included. Structures over water shall have the outlet located on the downstream side wherever possible.
2. All reinforced concrete slab bridges: Flowable mortar shall be used to backfill behind the end bents. End bent drain pipes will not be required.

Attached are standard drawings and specifications which detail the two backfill methods described above. This material was approved by the Standards Committee at its September meeting and will be issued as standard drawings and supplemental specifications with the May 1, 2000 editions. The english versions of the drawings will be issued as recurring plan details. The designer must call for the appropriate drawings on the Recurring Plan Details Menu.

Until the May 1, 2000 editions of the standard drawings and specifications are issued, do not call for standard drawing 211-BFIL-03 as a contract requirement. The appropriate recurring plan details and the recurring special provision, all transmitted herewith, need to be included in the contract documents.

One new pay item is being added to the list of pay quantities. The pay item code number and name is as follows.

211-06467 Aggregate For End Bent Backfill.....m3 (CYS)

Other related pay items are as follows:

213-52830 Flowable Mortar.....m3 (CYS)

616-02320 Geotextiles m2 (SYS)

715-05407 Pipe, End Bent Drain, 150 mm (6 in.).....m (LFT)

RVC:alu
Attachments

[F:\Des\9915-pc.doc]

END BENT BACKFILL

The Standard Specifications are revised as follows:

SECTION 211, AFTER LINE 23, INSERT AS FOLLOWS:

(c) Coarse Aggregate For End Bent Backfill. *Coarse aggregate used for backfilling end bents on beam structures shall be No. 8 or No. 9 crushed stone or BF slag, class D or higher, in accordance with 904.02.*

(e) (d) Flowable Mortar Substitution. When B borrow or B borrow for structure

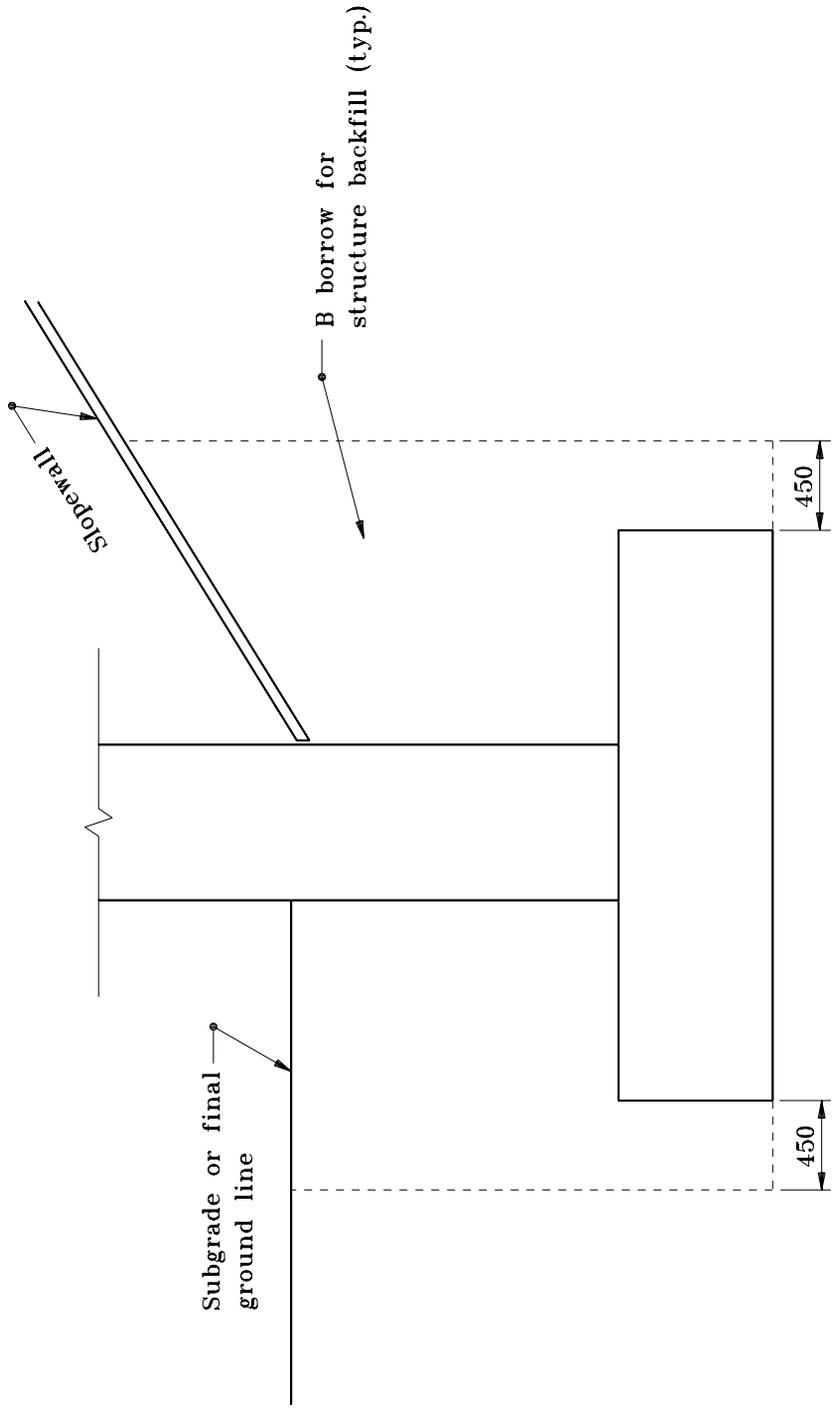
SECTION 211, BEGIN LINE 56 DELETE AND INSERT AS FOLLOWS:

Unless otherwise specified, all spaces excavated for and not occupied by bridge abutments, ~~and piers, and wingwalls,~~ if within embankment limits, shall be backfilled to the original ground line with B borrow, and placed in accordance with 211.04.

SECTION 211, AFTER LINE 96, INSERT AS FOLLOWS:

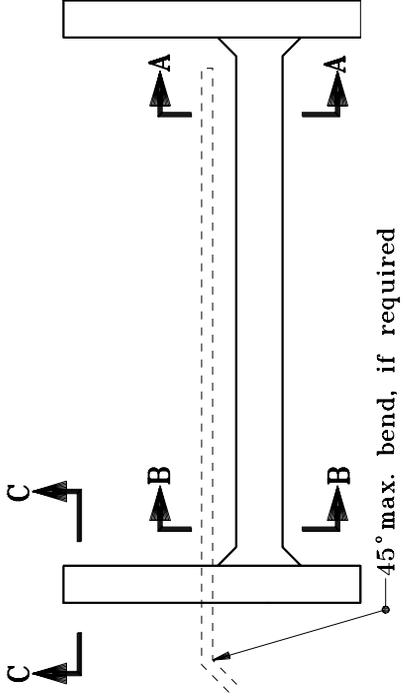
211.07.1 Aggregate For End Bent Backfill. *When specified, coarse aggregate in accordance with 211.02(c) shall be placed behind end bents as shown on the plans. The material shall be deposited in not to exceed 300 mm (12 in.) lifts, loose measurement, and each layer shall be mechanically compacted using a hand held vibratory plate compactor having a plate width of 425 mm (17 in.) or larger that delivers 13.3 to 40 kN (3000 to 9000 lb) per blow. Each layer shall be compacted with two passes of the compactor.*

Prior to placing the aggregate, a geotextile in accordance with 913.18 shall be installed in accordance with 616.10.

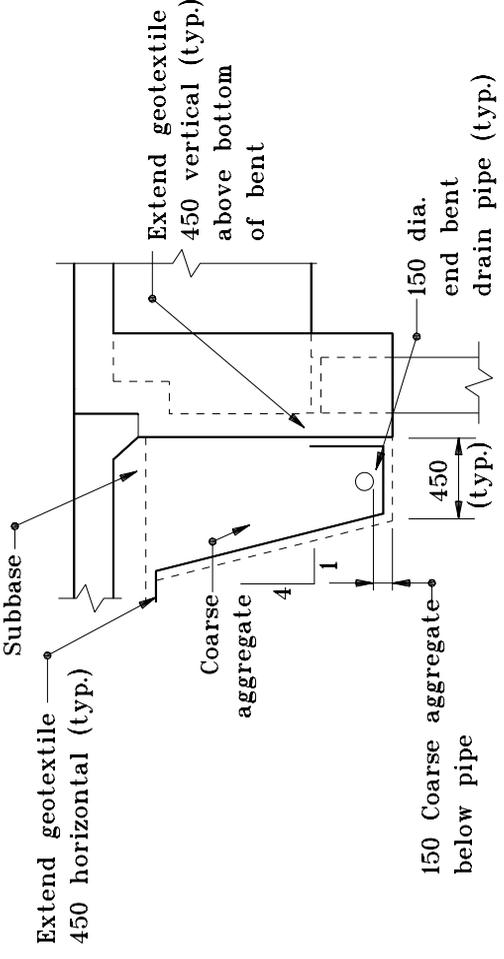


SECTION - INTERIOR BENT OR PIER

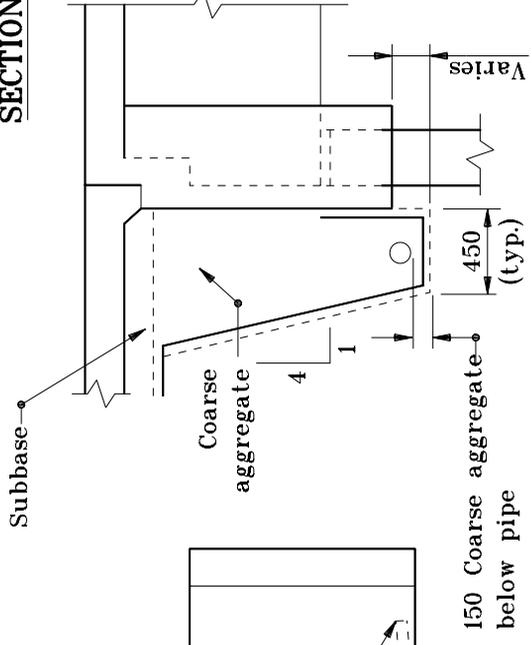
**BACKFILL PLACEMENT
FOR SUBSTRUCTURES**



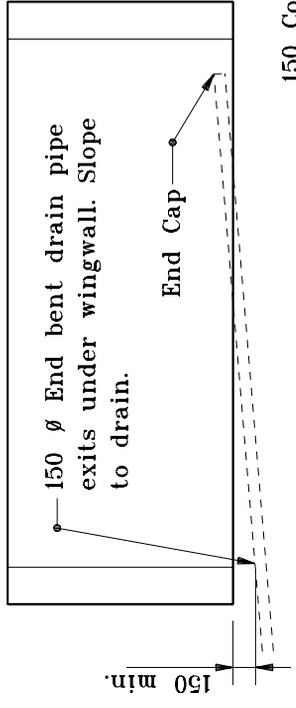
PLAN - END BENT



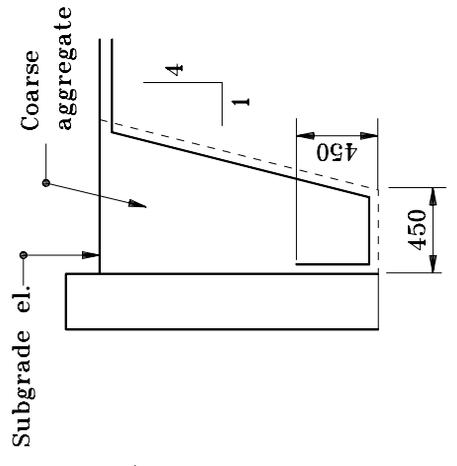
SECTION A-A



SECTION B-B



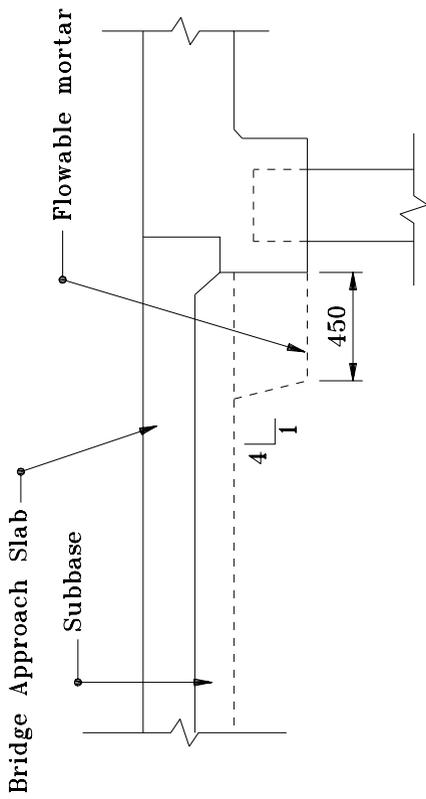
ELEVATION - END BENT



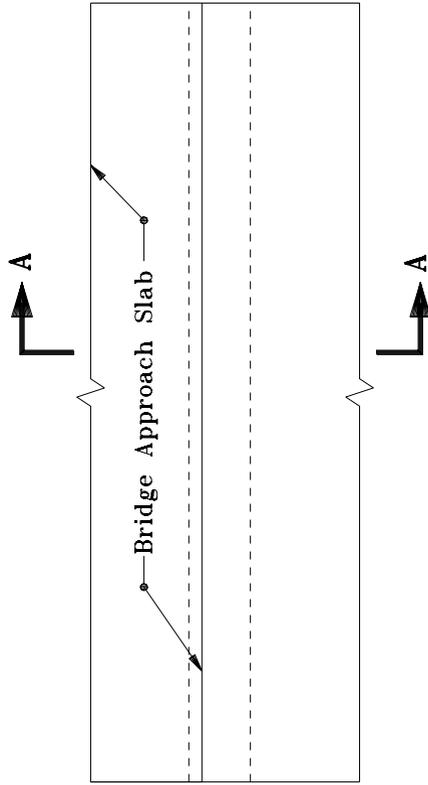
SECTION C-C

BEAM / GIRDER STRUCTURES

**BACKFILL PLACEMENT
BEHIND END BENTS**



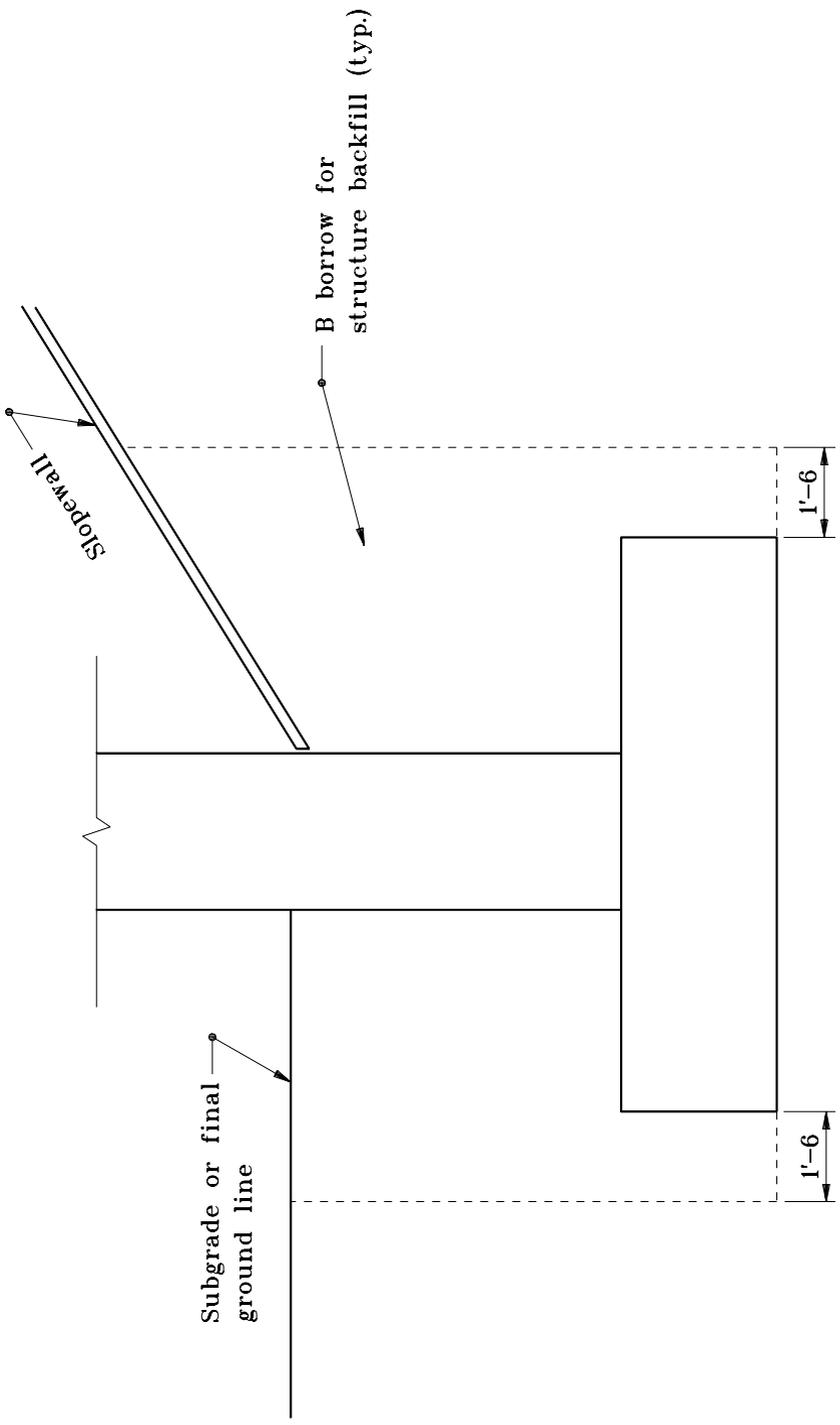
SECTION A-A



PLAN - END BENT

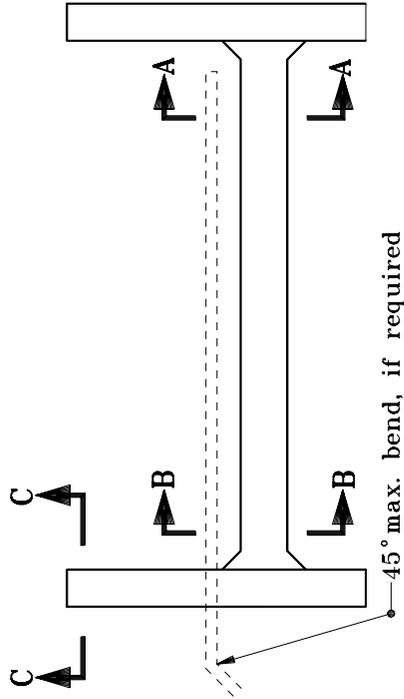
CONCRETE SLAB STRUCTURES

**BACKFILL PLACEMENT
BEHIND END BENTS**

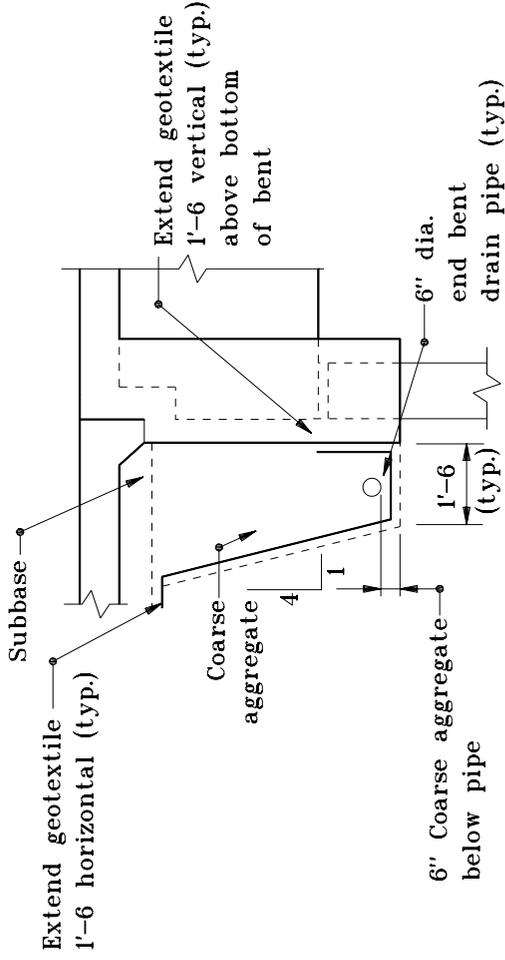


SECTION - INTERIOR BENT OR PIER

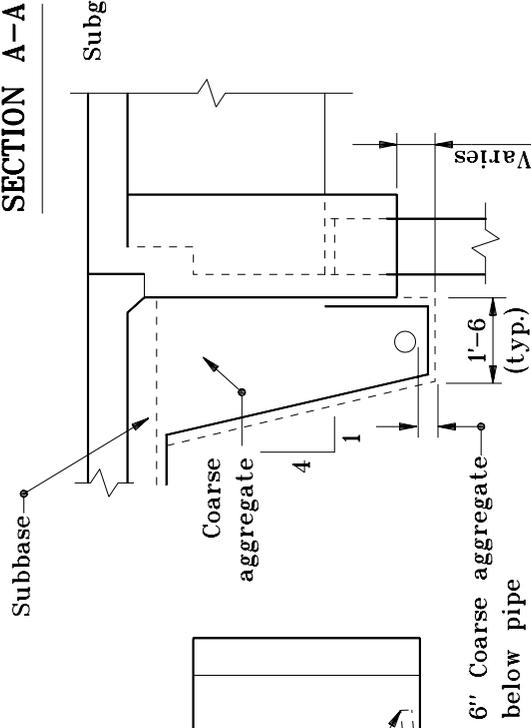
**BACKFILL PLACEMENT
FOR SUBSTRUCTURES**



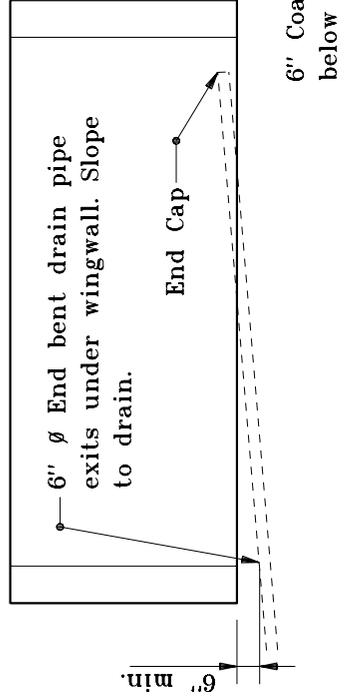
PLAN - END BENT



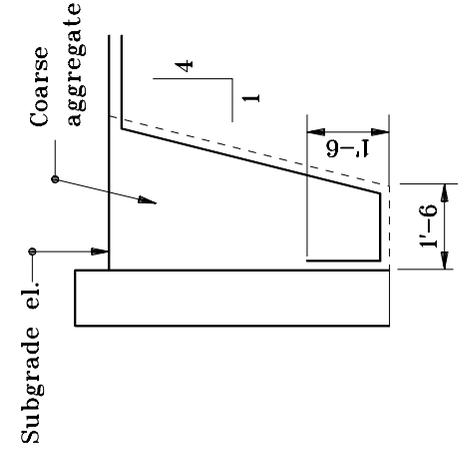
SECTION A-A



SECTION B-B



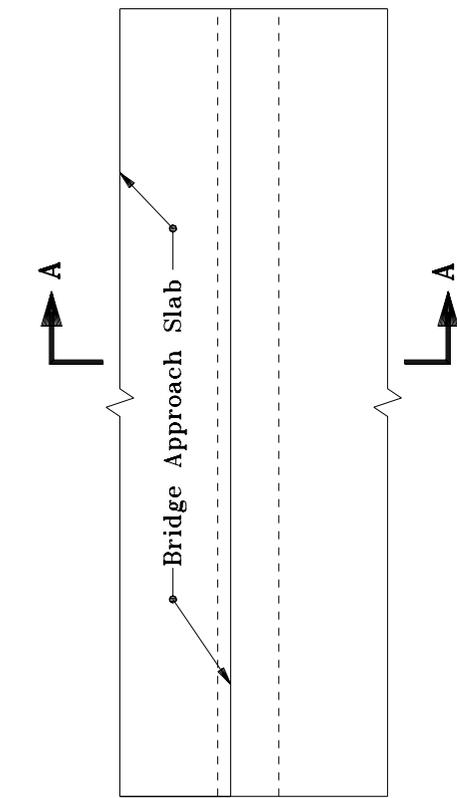
ELEVATION - END BENT



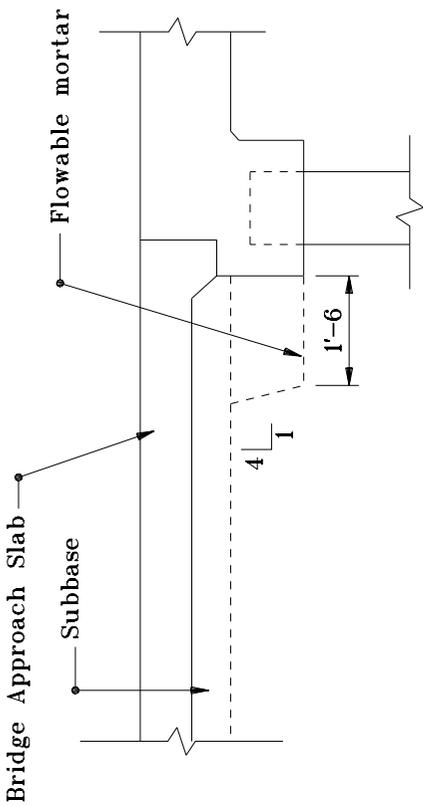
SECTION C-C

BACKFILL PLACEMENT
BEHIND END BENTS

BEAM / GIRDER STRUCTURES



PLAN - END BENT



SECTION A-A

CONCRETE SLAB STRUCTURES

**BACKFILL PLACEMENT
BEHIND END BENTS**