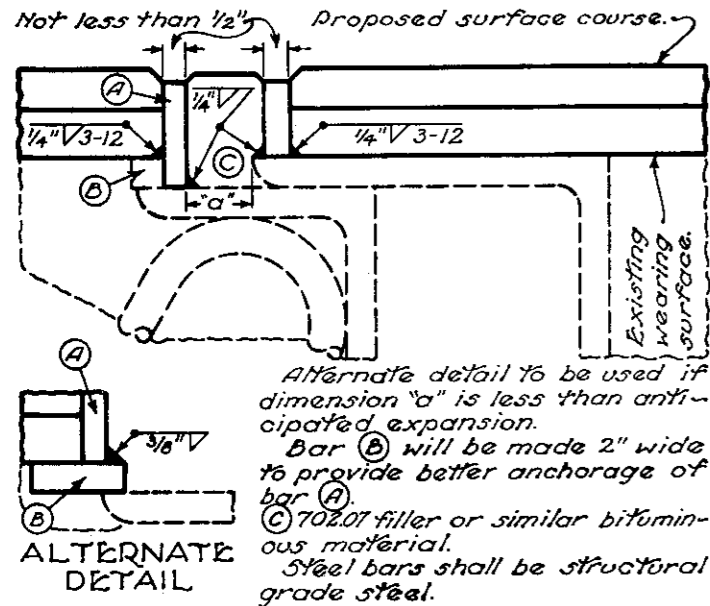
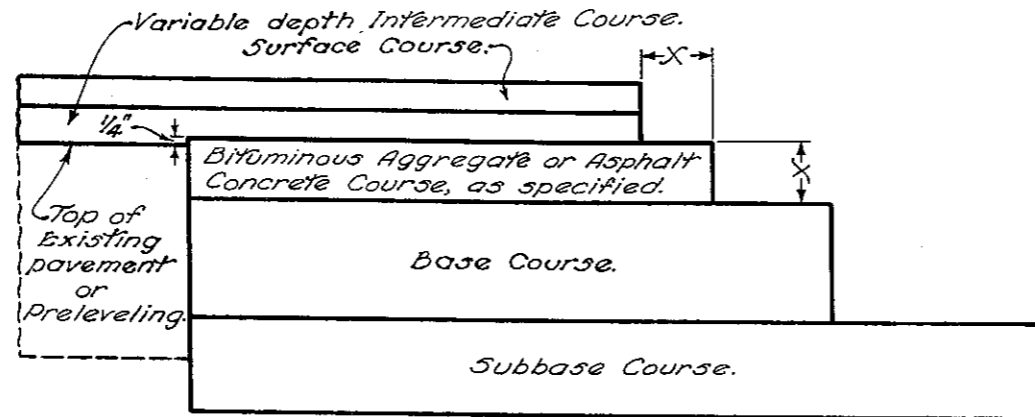


# RESURFACING

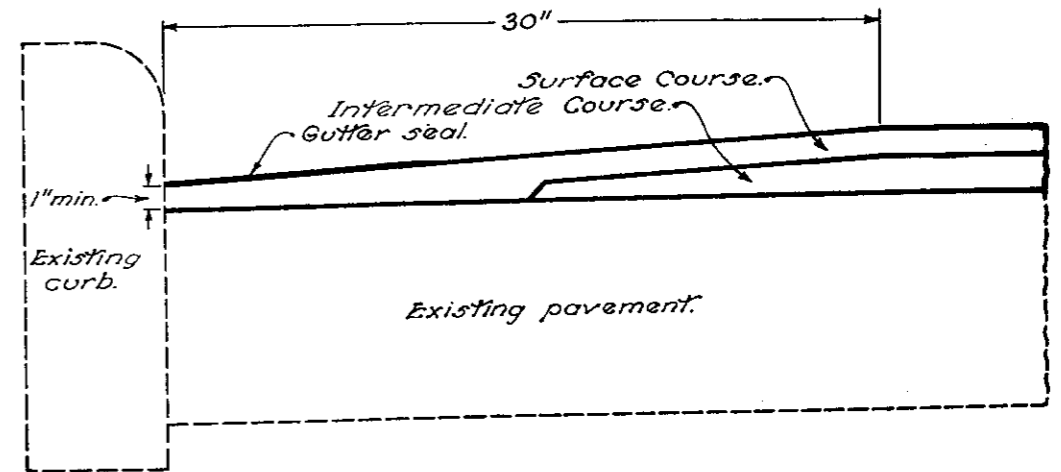


**RAISING EXPANSION JOINTS AT BRIDGE**



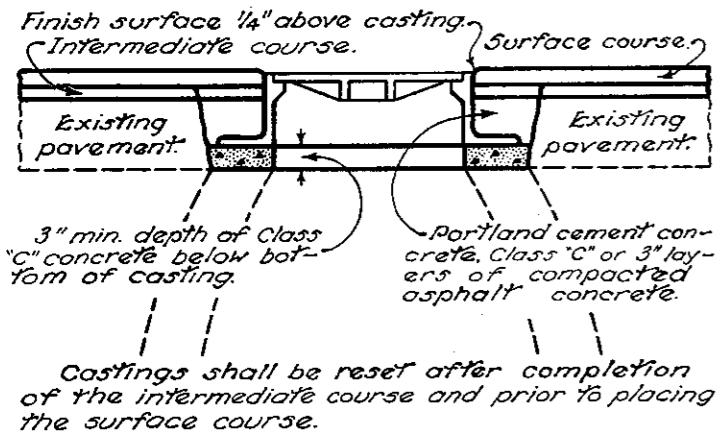
**COURSE DETAIL FOR WIDENING**

The Bituminous Aggregate or Asphalt Concrete Base Course in the upper part of the base widening shall finish approximately  $\frac{1}{4}$ " above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately  $\frac{1}{4}$ " above the preleveling.

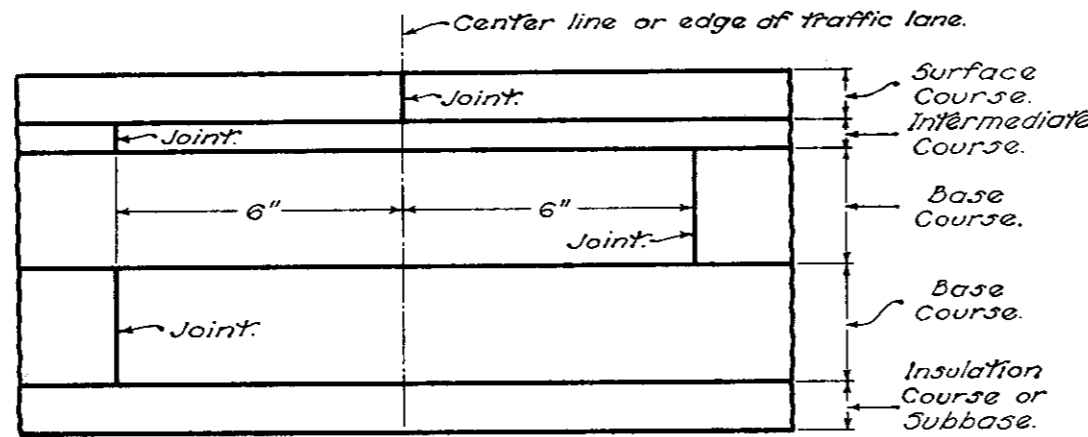


**GUTTER FINISH**

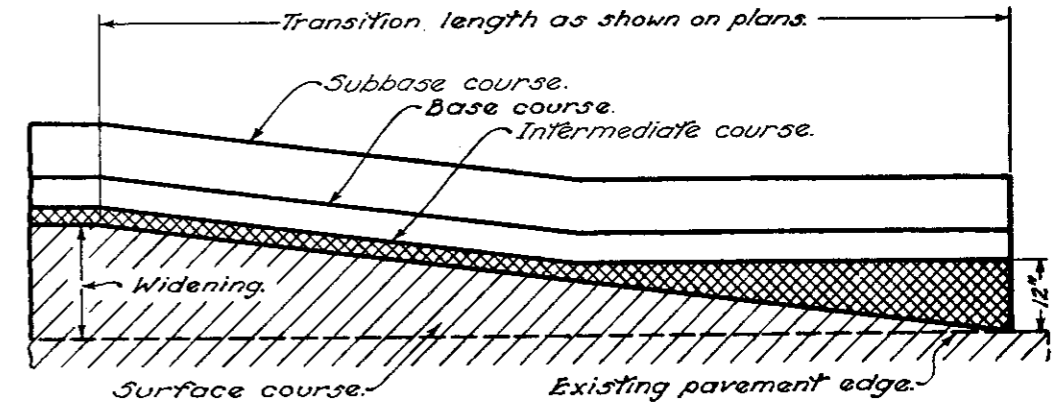
Special care shall be exercised during construction to obtain maximum compaction of bituminous concrete in all gutters.



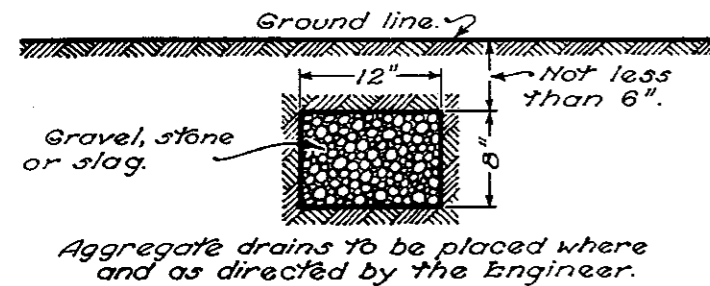
**CASTINGS ADJUSTED TO GRADE**



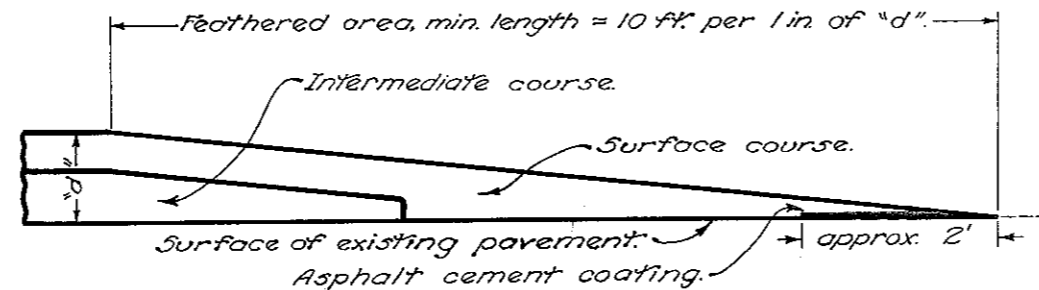
**LAPPING LONGITUDINAL JOINTS**



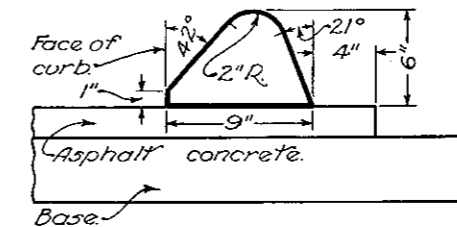
**MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT**



**AGGREGATE DRAINS**



**PLACING FEATHERED AREAS**



**TYPE I ASPHALT CONCRETE CURB**

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF HIGHWAYS

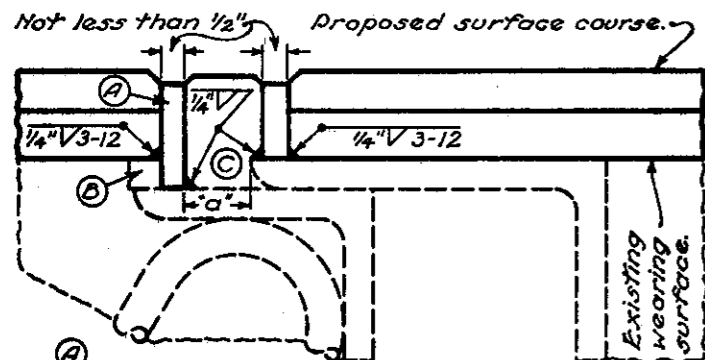
**RESURFACING**

STANDARD CONSTRUCTION DRAWING **BP-5**

APPROVED *[Signature]* ENGR. L. & D.

DATE 6-1-'65

# RESURFACING

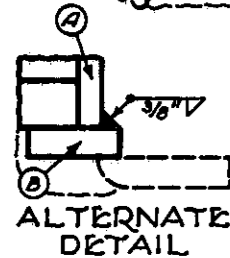


Alternate detail to be used if dimension "a" is less than anticipated expansion.

Bar (B) will be made 2" wide to provide better anchorage of bar (A).

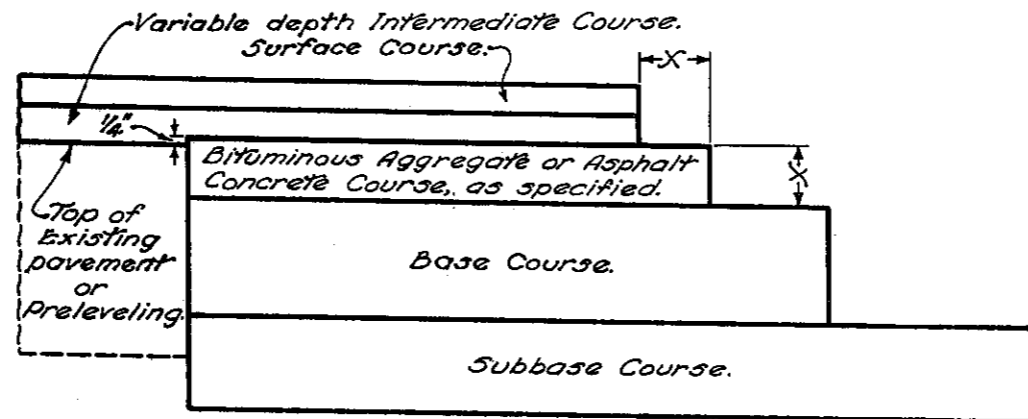
(C) 70/20 filler or similar bituminous material.

Steel bars shall be structural grade steel.



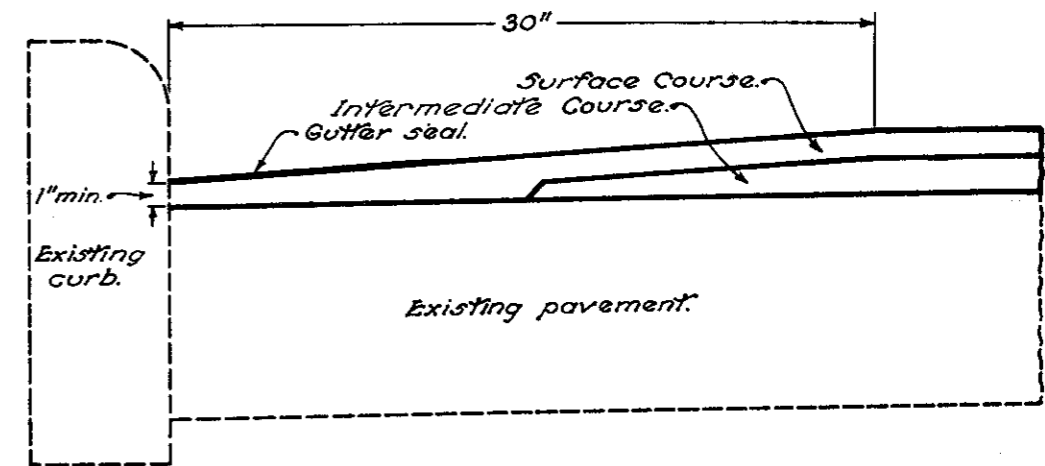
ALTERNATE DETAIL

## RAISING EXPANSION JOINTS AT BRIDGE



The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

## COURSE DETAIL FOR WIDENING



Special care shall be exercised during construction to obtain maximum compaction of bituminous concrete in all gutters.

## GUTTER FINISH

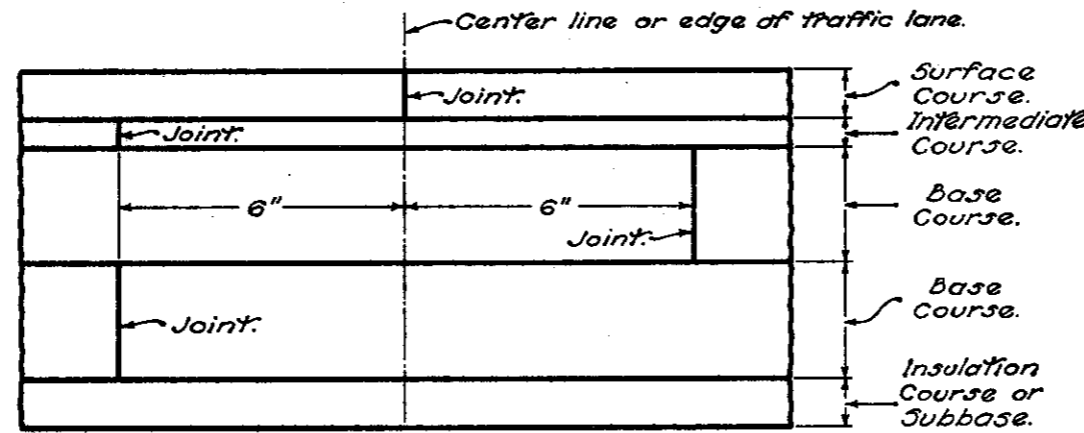


3" min. depth of Class "C" concrete below bottom of casting.

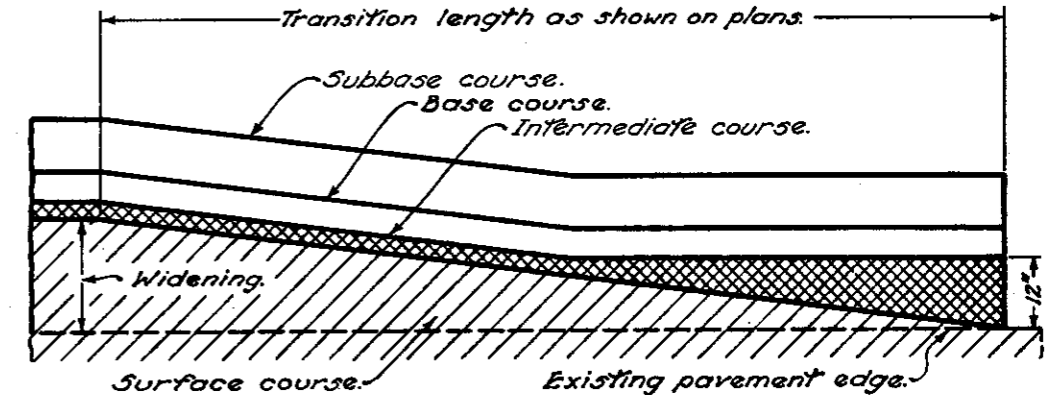
Portland cement concrete, Class "C" or 3" layers of compacted asphalt concrete.

Castings shall be reset after completion of the intermediate course and prior to placing the surface course.

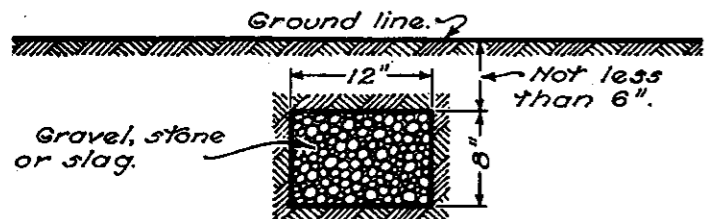
## CASTINGS ADJUSTED TO GRADE



## LAPPING LONGITUDINAL JOINTS

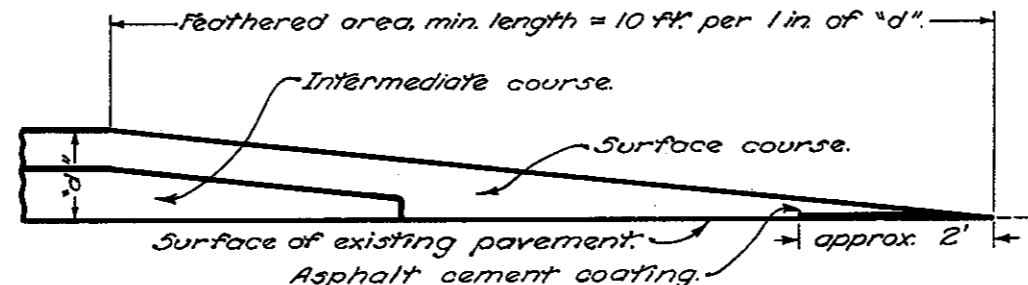


## MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT

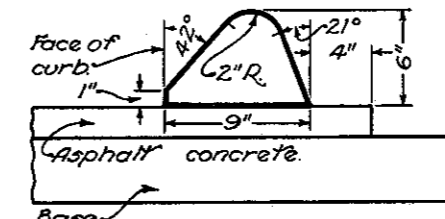


Aggregate drains to be placed where and as directed by the Engineer.

## AGGREGATE DRAINS



## PLACING FEATHERED AREAS



## TYPE I ASPHALT CONCRETE CURB

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF HIGHWAYS

## RESURFACING

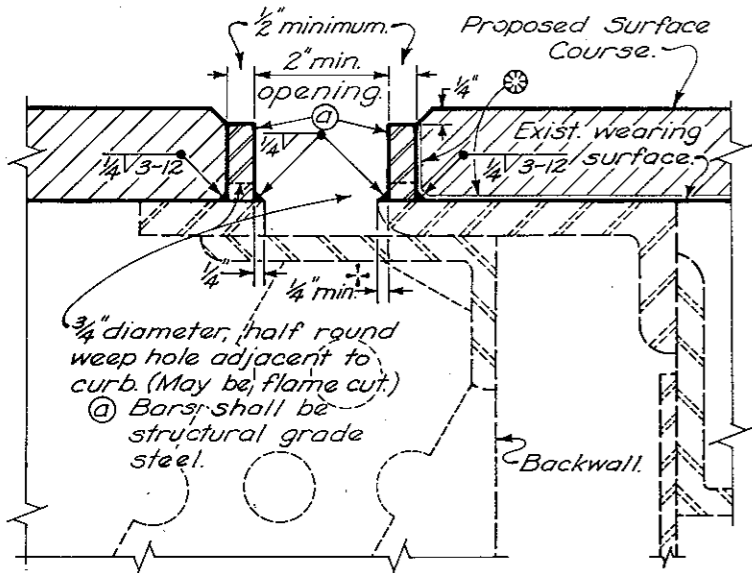
STANDARD CONSTRUCTION DRAWING  
BP-5

APPROVED *R. E. Galt* ENGR. L. & D.

DATE  
9-1-65  
1-1-71

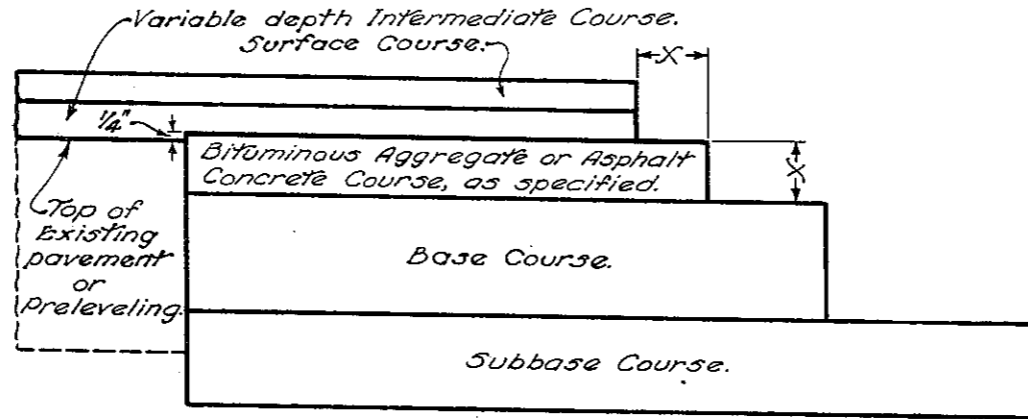
✦ Increase as necessary to maintain 2" min. opening.

# RESURFACING



⊗ An approved membrane waterproofing shall be applied to the concrete deck and extended up to the top of the bar as shown.

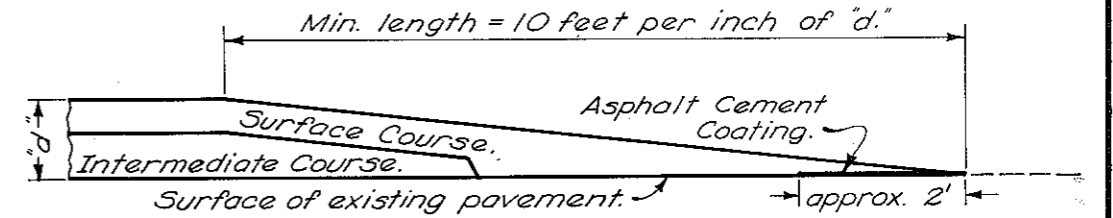
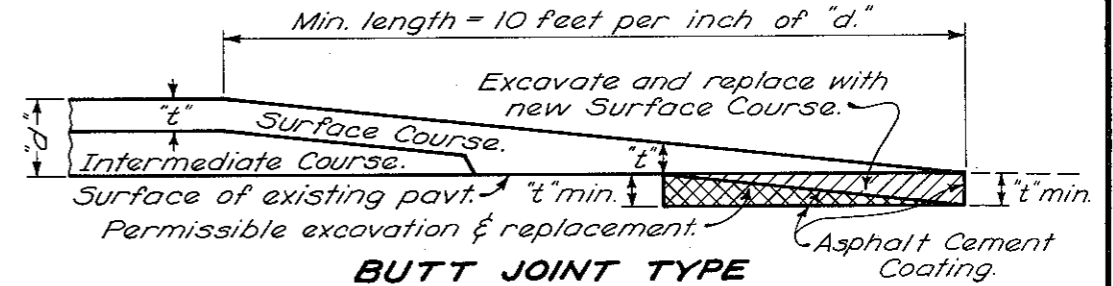
## RAISING EXPANSION JOINTS AT BRIDGE



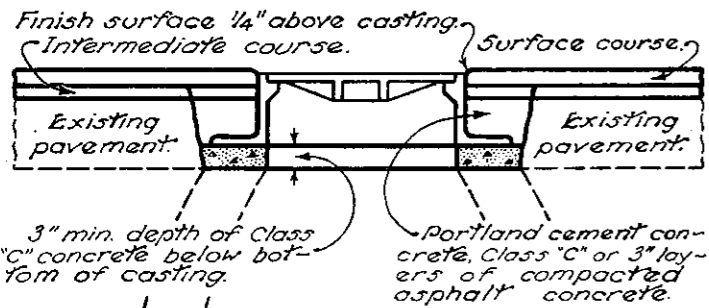
The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

## COURSE DETAIL FOR WIDENING

NOTE: Either type feathered area may be used unless type is specified by the plan.

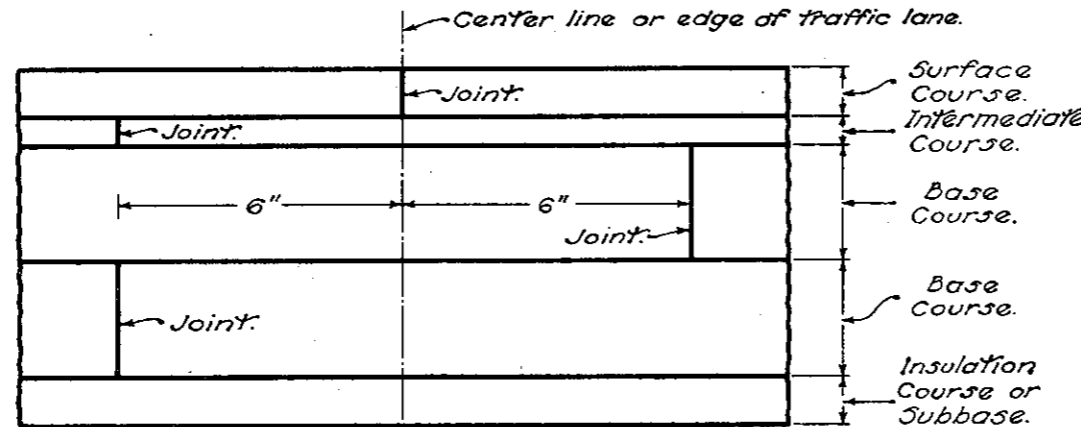


## PLACING FEATHERED AREAS

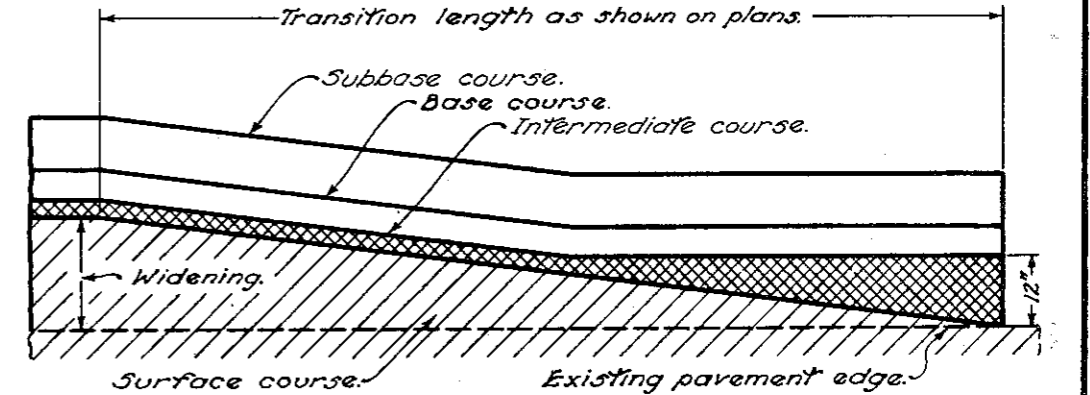


Castings shall be reset after completion of the intermediate course and prior to placing the surface course.

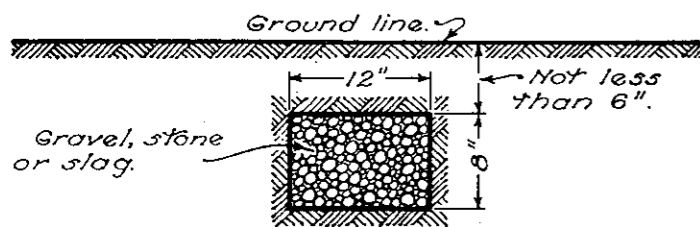
## CASTINGS ADJUSTED TO GRADE



## LAPPING LONGITUDINAL JOINTS

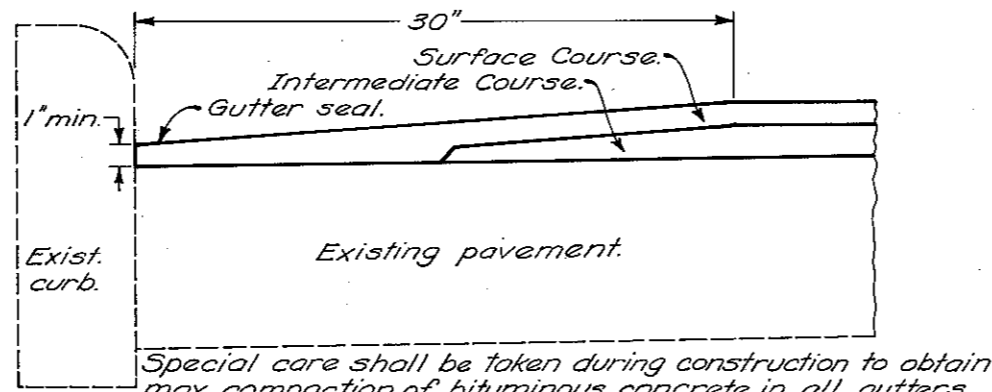


## MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT



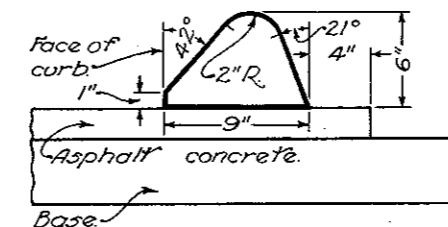
Aggregate drains to be placed where and as directed by the Engineer.

## AGGREGATE DRAINS



Special care shall be taken during construction to obtain max. compaction of bituminous concrete in all gutters.

## GUTTER FINISH



## TYPE I ASPHALT CONCRETE CURB

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF HIGHWAYS

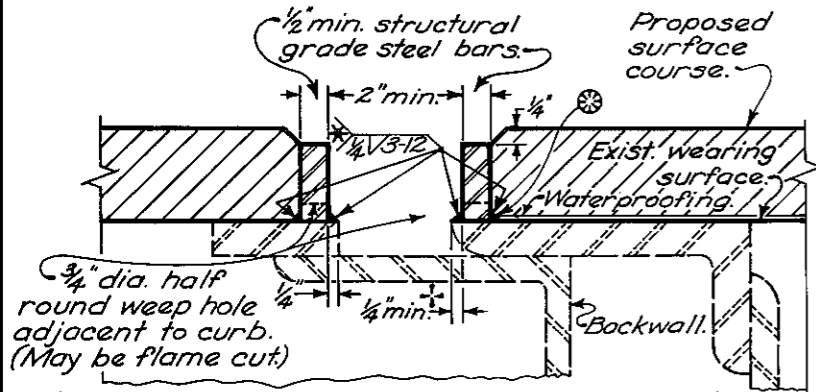
## RESURFACING

STANDARD CONSTRUCTION DRAWING  
BP-5

APPROVED: *E. J. [Signature]* ENGR. L. & D.

DATE  
6-1-65  
1-1-71  
6-1-72

† Increase as necessary to maintain 2" min. opening.

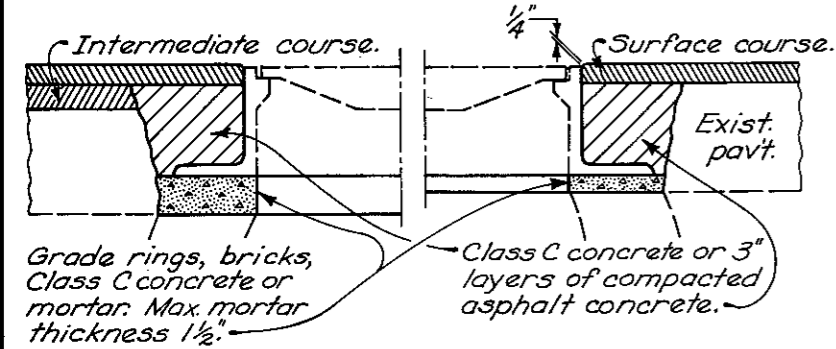


\* At the option of the Contractor, this non-stress carrying weld may be continuous.

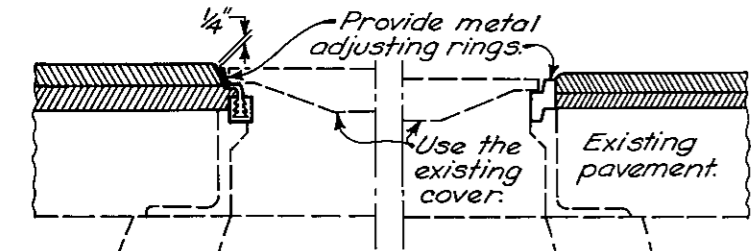
⊗ If the waterproofing membrane is a prefabricated sheet, seal at this point with mastic or heat.

**MAINTENANCE OF TRAFFIC:** Generally the bars shall be welded while the lane is closed for water-proofing or resurfacing. However, if traffic is routed over the bars before resurfacing, temporary ramps shall be constructed to the tops of the bars using 402 or 404 feathering at a max. slope of 1 ft/in. The ramps shall be removed prior to resurfacing. Cost of placing and removing the ramps shall be included with Item 614 for payment.

### VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS



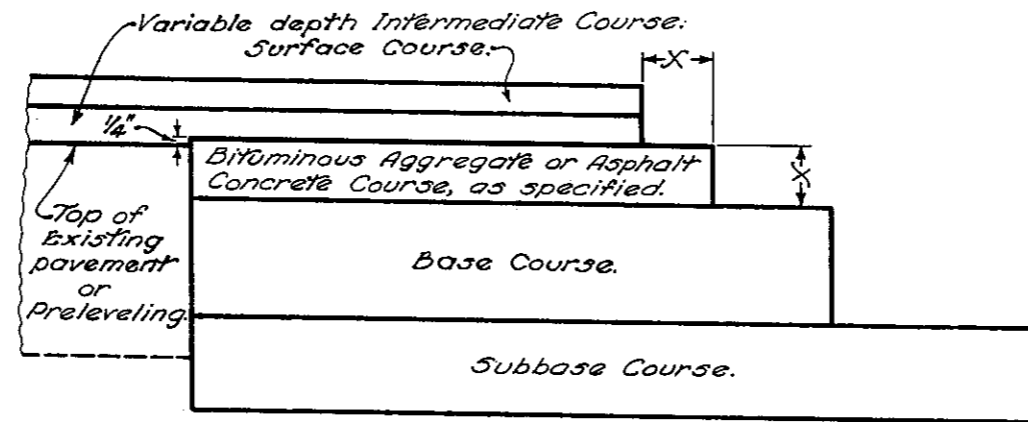
#### USING CONCRETE OR MORTAR



The metal adjusting rings shall be equal to the Series R-1979 by the Neenah Foundry Co. or the models LS, LB, SB, NB or MB by the National Utility Products Co. or an approved equal. Adjustment range 1" to 4 1/8".

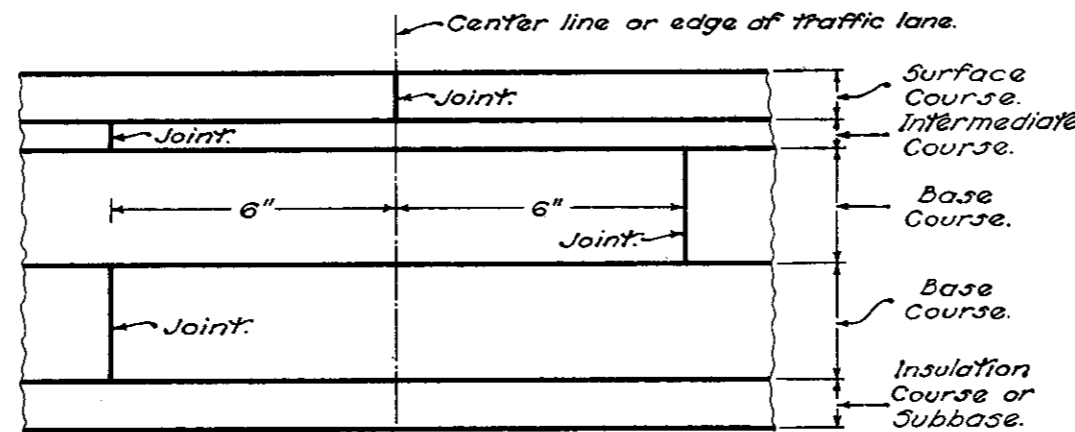
#### USING METAL ADJUSTING RINGS MANHOLES ADJUSTED TO GRADE

# RESURFACING

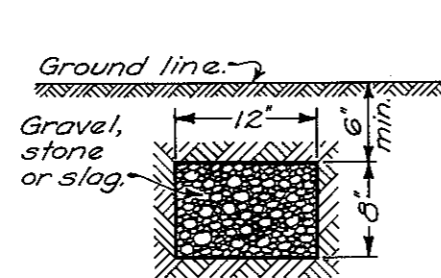


The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

### COURSE DETAIL FOR WIDENING

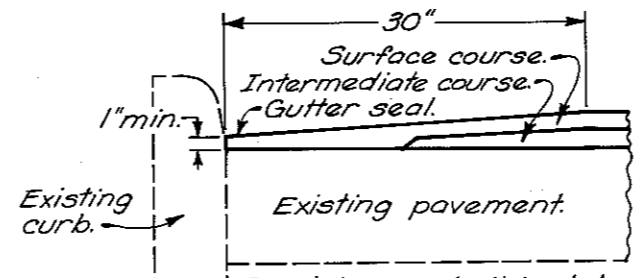


### LAPPING LONGITUDINAL JOINTS



Aggregate drains to be placed where and as directed by Engineer.

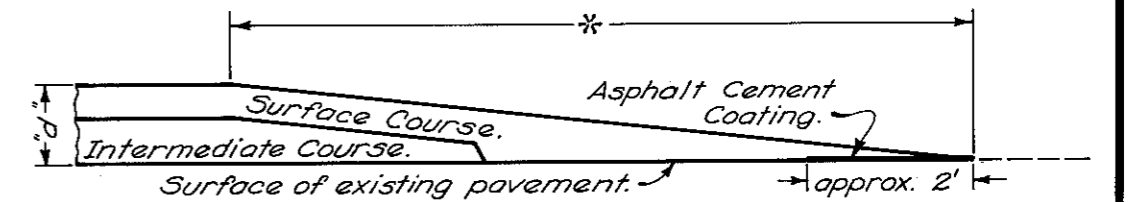
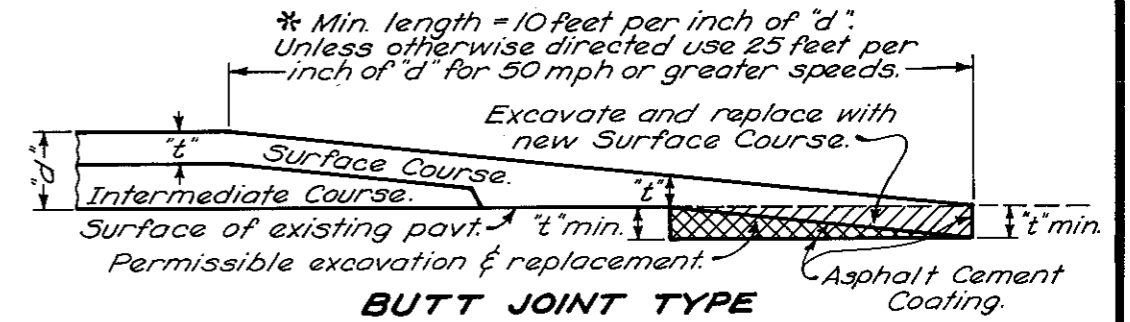
#### AGGREGATE DRAIN



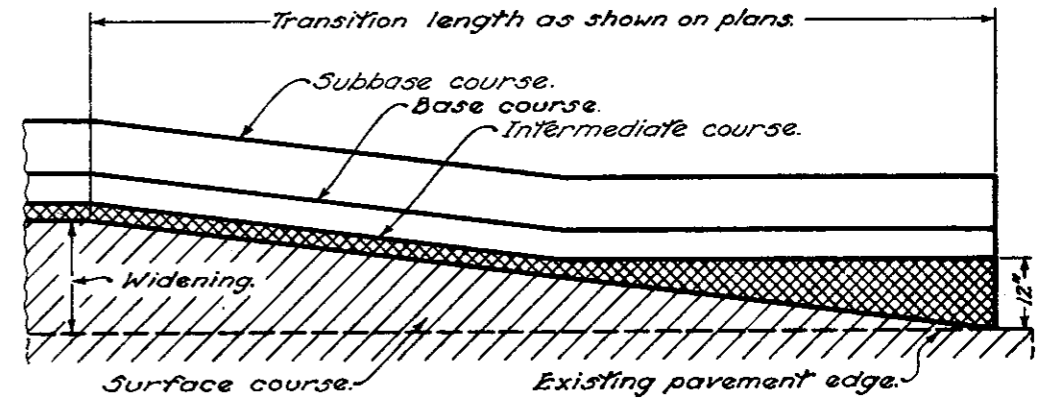
Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.

#### GUTTER FINISH

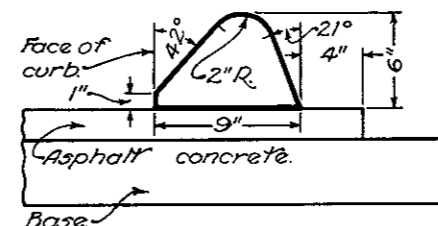
NOTE: Either type feathered area may be used unless type is specified by the plan.



### PLACING FEATHERED AREAS



### MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT



#### TYPE I ASPHALT CONCRETE CURB

BUREAU OF ROADWAY DESIGN  
OHIO DEPARTMENT OF TRANSPORTATION

## RESURFACING

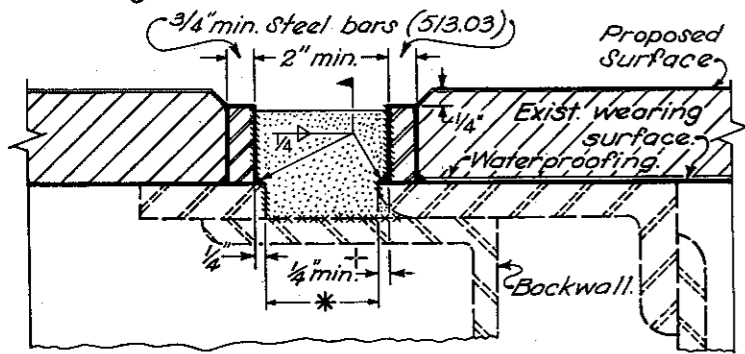
STANDARD CONSTRUCTION DRAWING  
APPROVED *E. J. DeBorja* ENGR., R.D.

DATE  
6-1-65  
1-1-71  
6-1-72  
8-11-75

BP-5

† Increase as necessary to maintain 2" min. opening.  
 \* Vertical extension of joints found to be closed to 1/2" or less may be non-performed as directed by the Engineer.

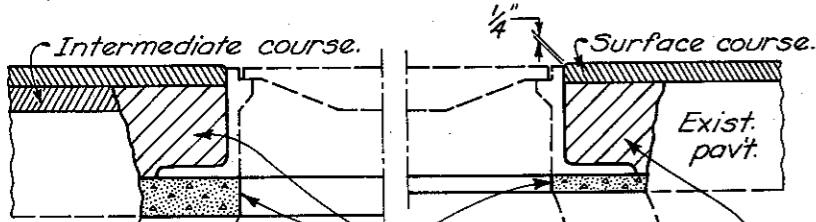
# RESURFACING



As a part of item 516, seal joint with a hot-applied bridge deck waterproofing material which also meets the requirements of 70501. Sandblast vertical surfaces (hatched) and wipe clean. Seal joint before rust forms. If rust forms, re-sandblast. Use bond breaker on the horizontal surface (dotted).

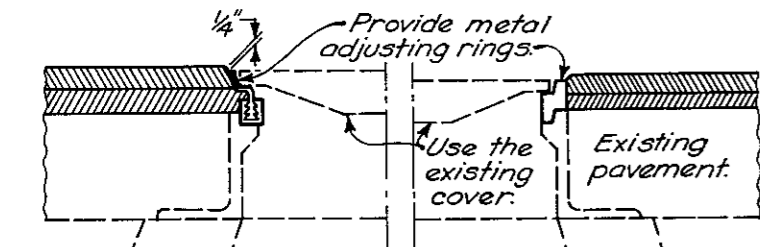
**MAINTENANCE OF TRAFFIC:** Generally the bars shall be welded while the lane is closed for waterproofing or resurfacing. However, if traffic is routed over the bars before resurfacing, temporary ramps shall be constructed to the tops of the bars using 402 or 404 feathering at a max. slope of 6 ft/in. The ramps shall be removed prior to resurfacing. Payment for placing and removing the ramps shall be included in the lump sum bid for item 614.

## VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS



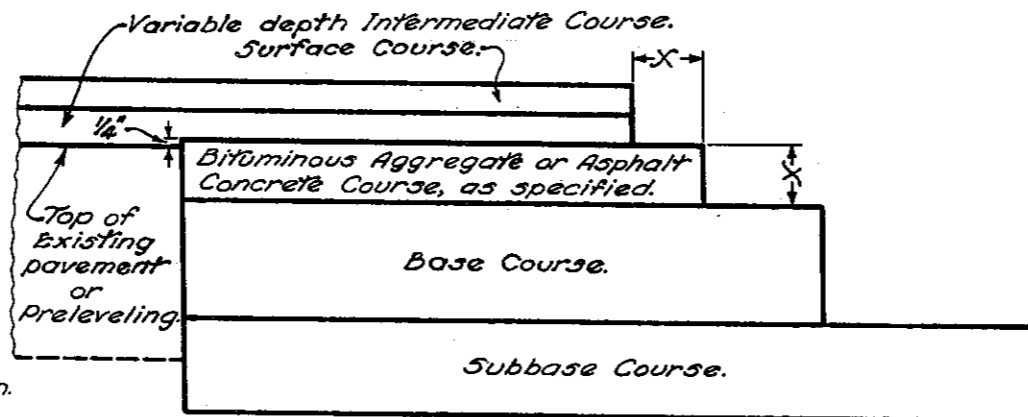
Grade rings, bricks, Class C concrete or mortar. Max. mortar thickness 1 1/2".  
 Class C concrete or 3" layers of compacted asphalt concrete.

### USING CONCRETE OR MORTAR



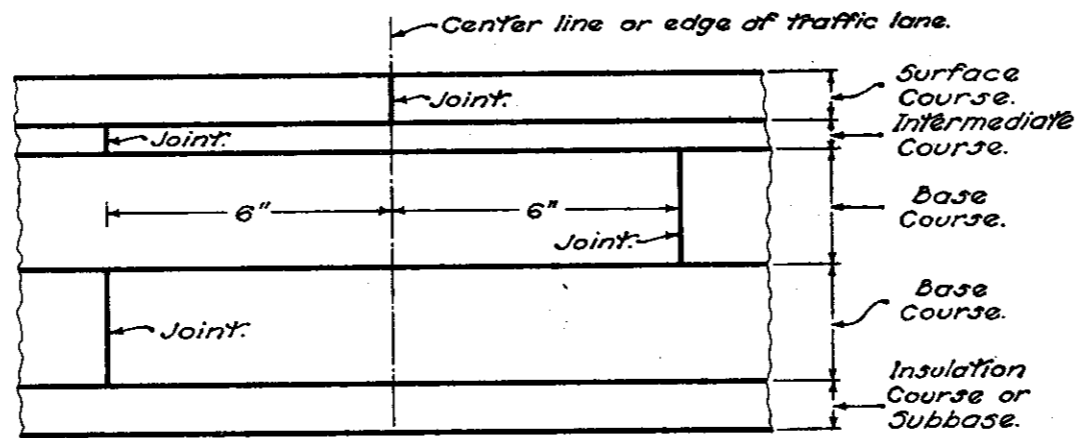
The metal adjusting rings shall be equal to the Series R-1979 by the Neenah Foundry Co. or the models LS, LB, SB, NB or MB by the National Utility Products Co. or an approved equal. Adjustment range 1" to 4 1/2".

### USING METAL ADJUSTING RINGS MANHOLES ADJUSTED TO GRADE

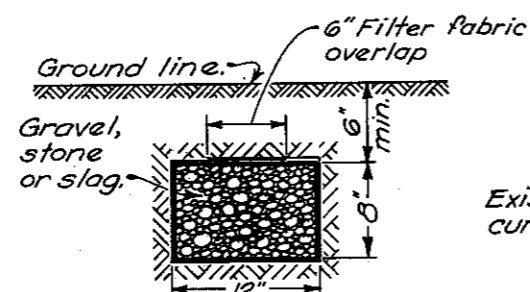


The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

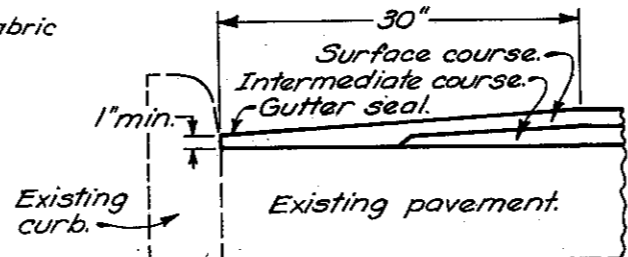
## COURSE DETAIL FOR WIDENING



## LAPPING LONGITUDINAL JOINTS

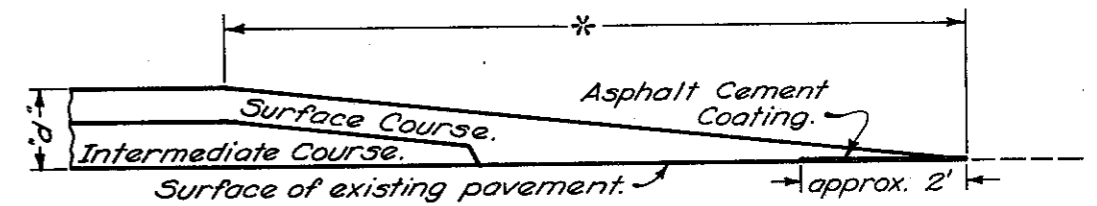
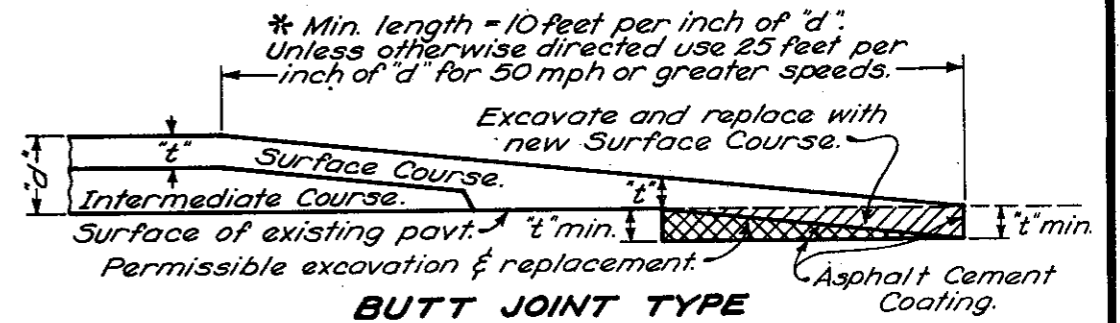


Aggregate drains to be placed where and as directed by Engineer. Provide filter fabric when specified as a separate pay item.  
**AGGREGATE DRAIN**

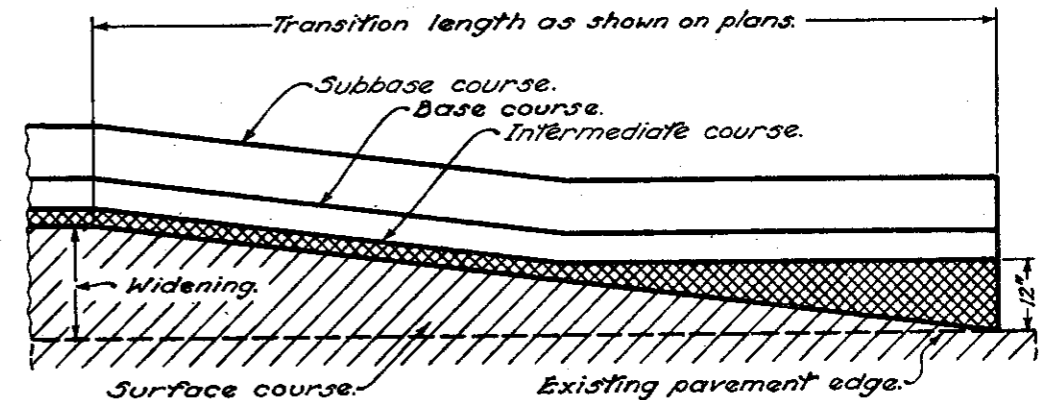


Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.  
**GUTTER FINISH**

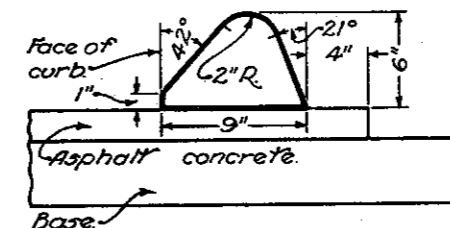
NOTE: Either type feathered area may be used unless type is specified by the plan.



## PLACING FEATHERED AREAS



## MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT

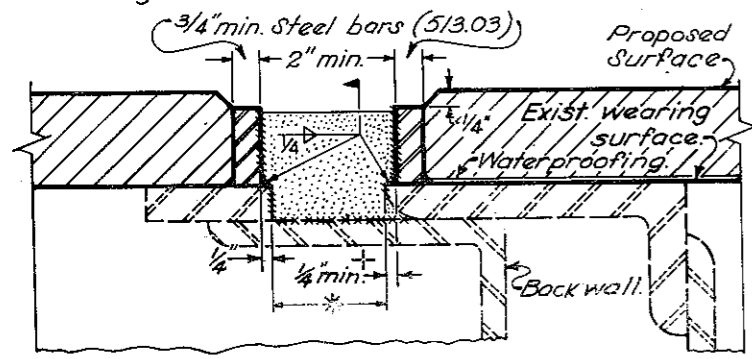


### TYPE I ASPHALT CONCRETE CURB

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
<b>RESURFACING</b>	
STANDARD CONSTRUCTION DRAWING <b>BP-5</b>	
APPROVED <i>M. J. Cunningham</i>	ENGR., L.D.
DATE 6-1-65 1-1-71 6-1-72 8-11-75 4-16-79	

# RESURFACING

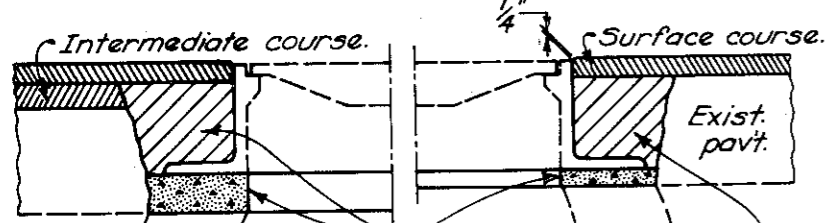
† Increase as necessary to maintain 2" min. opening.  
 \* Vertical extension of joints found to be closed to 1/2" or less may be non-performed as directed by the Engineer.



As a part of item 516, seal joint with a hot-applied bridge deck waterproofing material which also meets the requirements of 70501. Sandblast vertical surfaces (1/4") and wipe clean. Seal joint before rust forms. If rust forms, re-sandblast. Use bond breaker on the horizontal surface (XXXXXX).

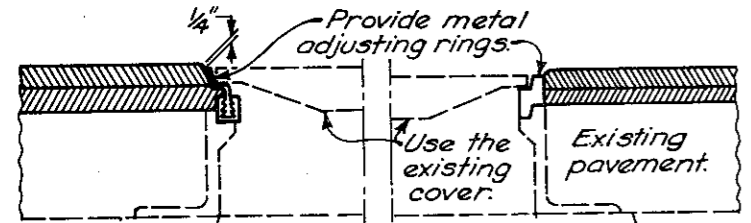
**MAINTENANCE OF TRAFFIC:** Generally the bars shall be welded while the lane is closed for waterproofing or resurfacing. However, if traffic is routed over the bars before resurfacing, temporary ramps shall be constructed to the tops of the bars using 402 or 404 feathering at a max. slope of 6 3/4"/in. The ramps shall be removed prior to resurfacing. Payment for placing and removing the ramps shall be included in the lump sum bid for Item 614.

## VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS



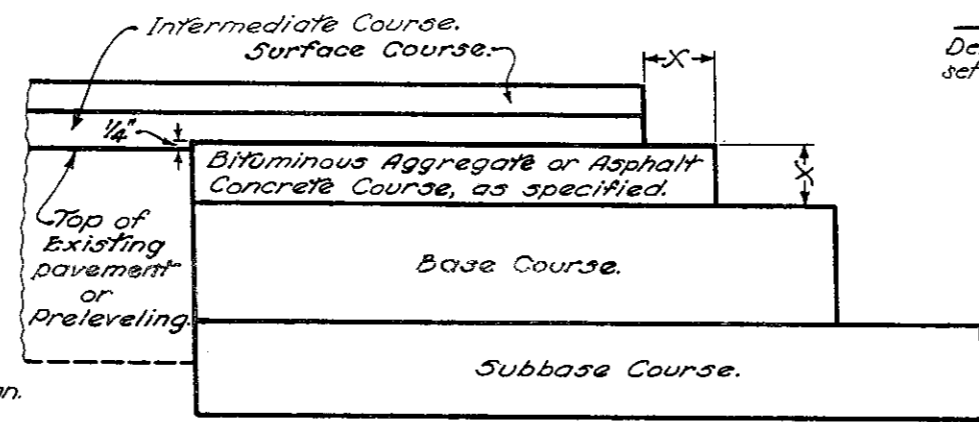
Grade rings, bricks, Class C concrete or mortar. Max. mortar thickness 1 1/2".

### USING CONCRETE OR MORTAR



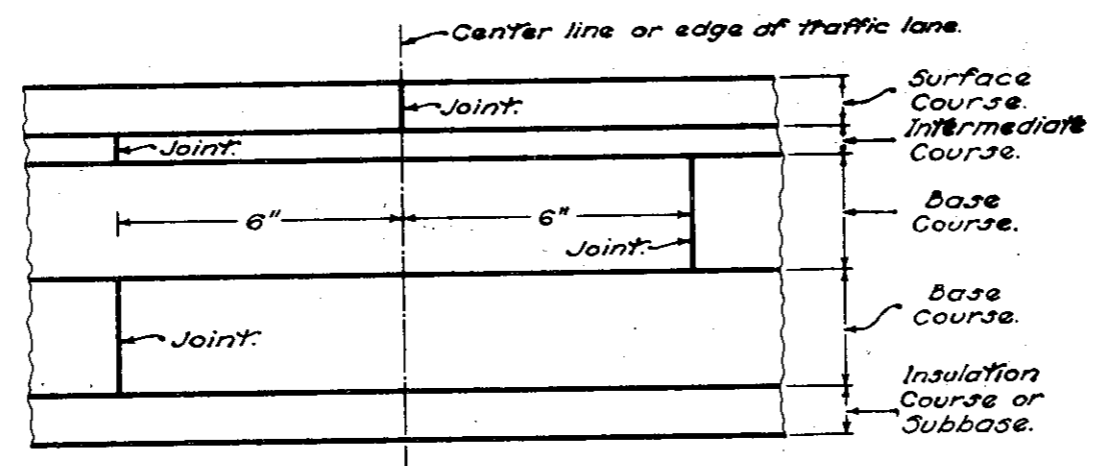
Metal adjusting rings shall fasten or tighten securely in the existing frame, or be welded permanently to the frame and be one piece or fabricated into one piece. Any installation unacceptable to the Engineer, including a poorly seated cover, shall be replaced by the Contractor at his expense.

### USING METAL ADJUSTING RINGS MANHOLES ADJUSTED TO GRADE

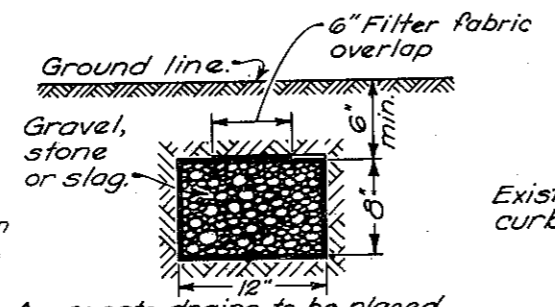


The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

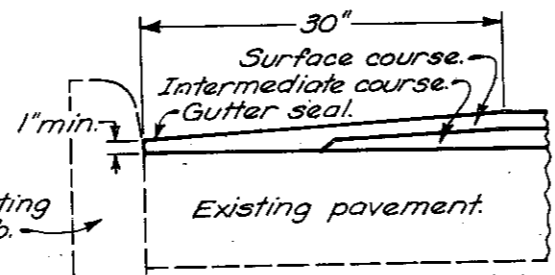
## COURSE DETAIL FOR WIDENING



## LAPPING LONGITUDINAL JOINTS

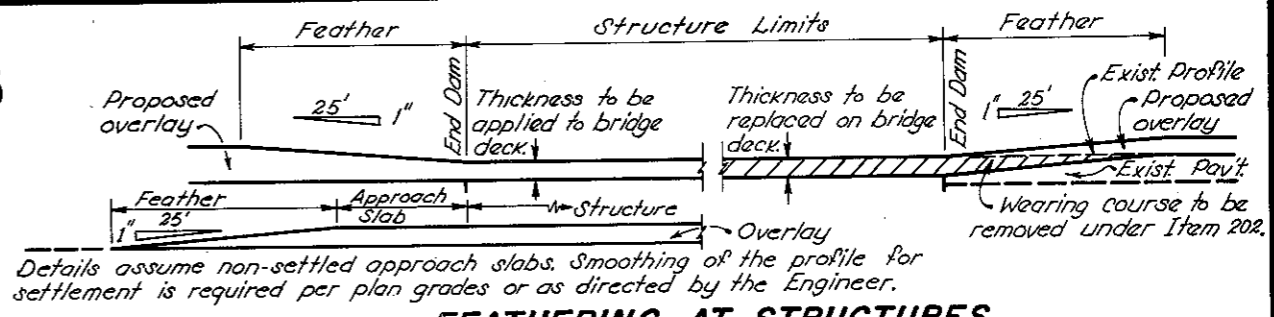


Aggregate drains to be placed where and as directed by Engineer. Provide filter fabric when specified as a separate pay item.



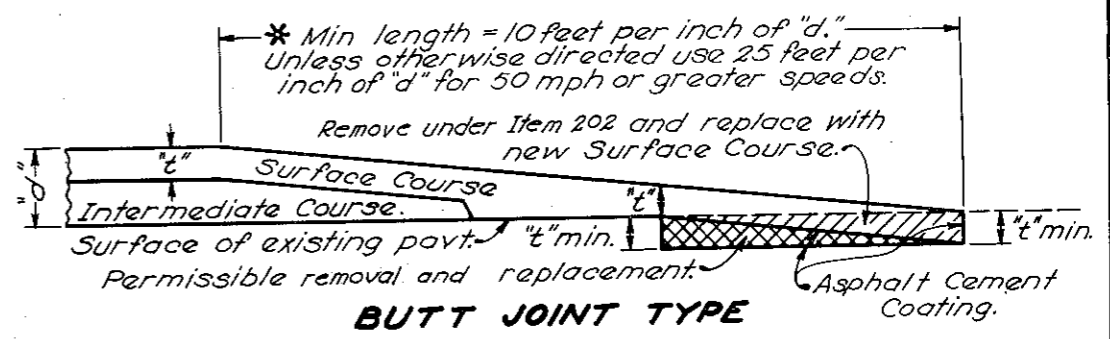
Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.

## GUTTER FINISH

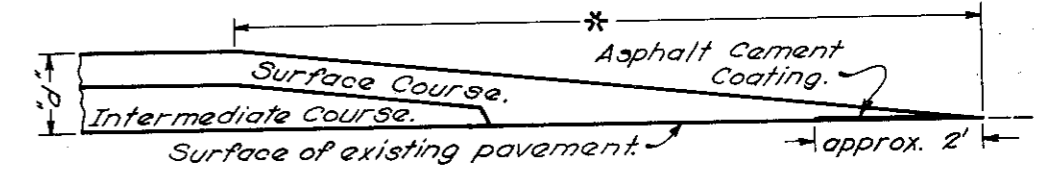


Details assume non-settled approach slabs. Smoothing of the profile for settlement is required per plan grades or as directed by the Engineer.

## FEATHERING AT STRUCTURES



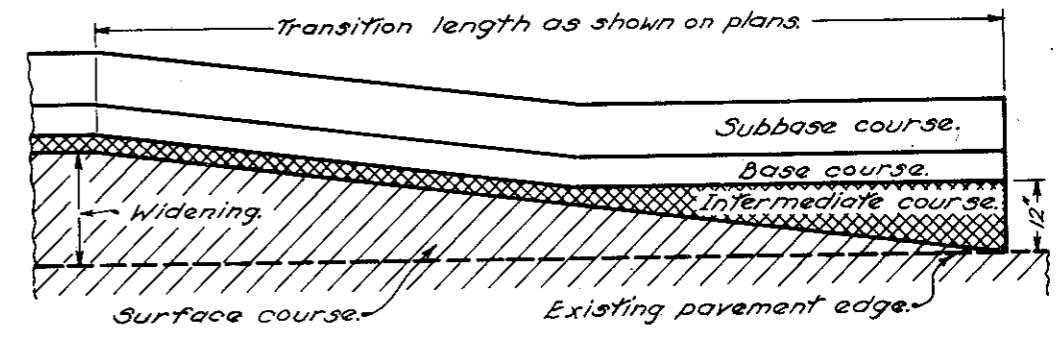
## BUTT JOINT TYPE



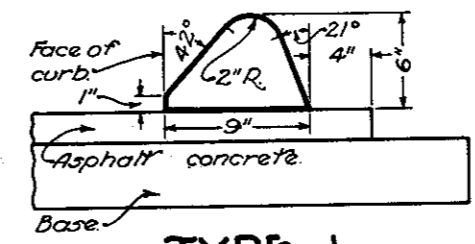
## FEATHER EDGE TYPE

NOTE: Either butt or feather type may be used unless type is specified by the plan.

## PLACING FEATHERED AREAS



## MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT

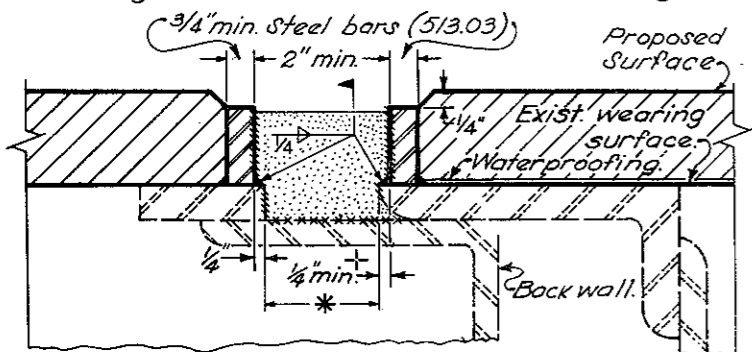


## TYPE I ASPHALT CONCRETE CURB

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
<b>RESURFACING</b>	
STANDARD CONSTRUCTION DRAWING	
BP-5	DATE 9-1-65 1-1-71 6-1-72 8-11-75 4-16-79 7-16-81
APPROVED _____	ENGR., L.D.

# RESURFACING

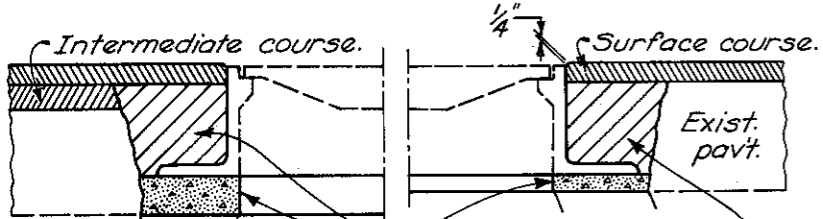
- † Increase as necessary to maintain 2" min. opening.
- \* Vertical extension of joints found to be closed to 1/2" or less may be non-performed as directed by the Engineer.



As a part of item 516, seal joint with a hot-applied bridge deck waterproofing material which also meets the requirements of 70501. Sandblast vertical surfaces (1) and wipe clean. Seal joint before rust forms. If rust forms, re-sandblast. Use bond breaker on the horizontal surface (2).

**MAINTENANCE OF TRAFFIC:** Generally the bars shall be welded while the lane is closed for waterproofing or resurfacing. However, if traffic is routed over the bars before resurfacing, temporary ramps shall be constructed to the tops of the bars using 402 or 404 feathering at a max. slope of 6 ft/in. The ramps shall be removed prior to resurfacing. Payment for placing and removing the ramps shall be included in the lump sum bid for Item 614.

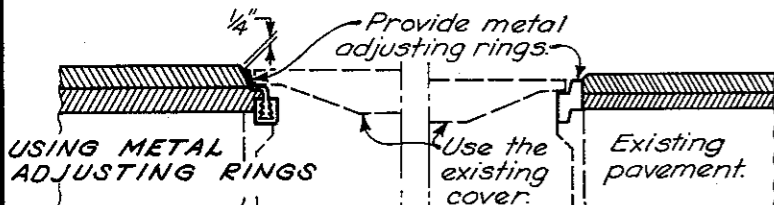
## VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS



Grade rings, bricks, Class C concrete or mortar. Max. mortar thickness 1 1/2".

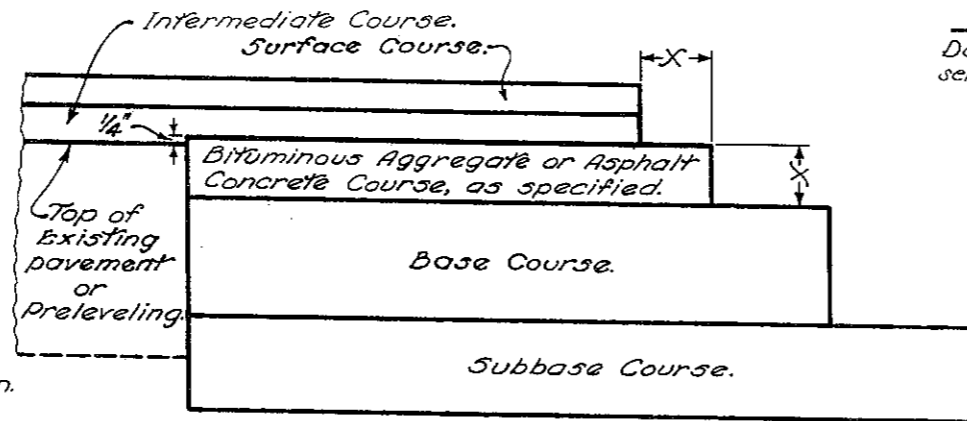
Class C concrete or 3" layers of compacted asphalt concrete.

USING CONCRETE OR MORTAR



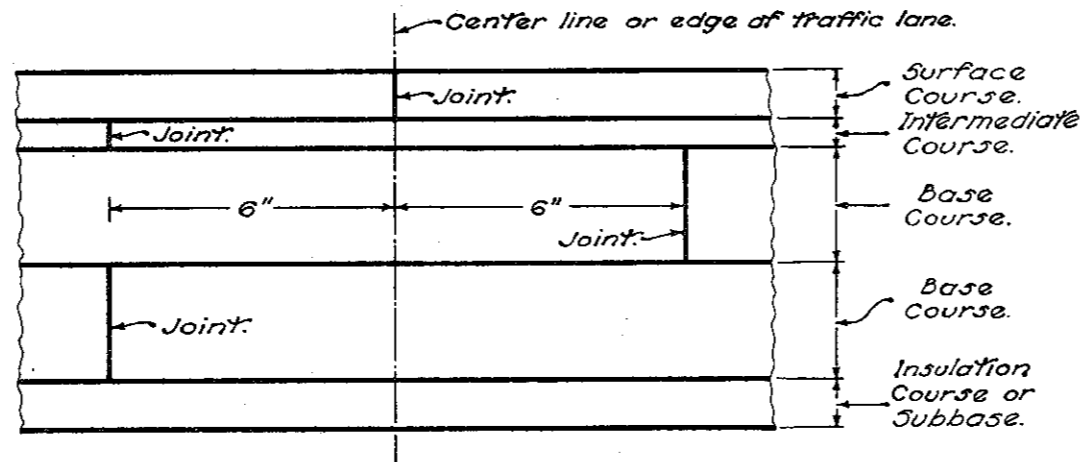
Metal adjusting rings shall: (a) attach securely to the existing frame by welding or mechanical devices; (b) consist either of cast metal having an integral rim and seat, or be fabricated metal with a sturdy connection between the seat and rim; and (c) provide an even seat for the manhole cover. In addition, the adjusting ring type shall be a design acceptable to the local governmental agency responsible for street and sewer maintenance. Any installation unacceptable to the Engineer shall be replaced by the Contractor at his expense.

MANHOLES ADJUSTED TO GRADE

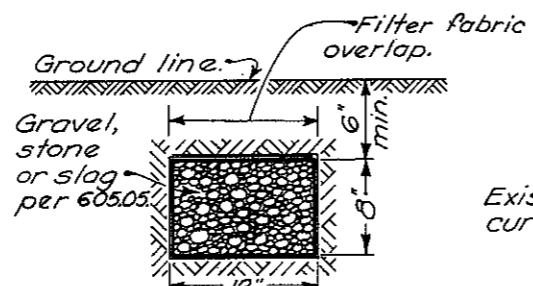


The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

## COURSE DETAIL FOR WIDENING

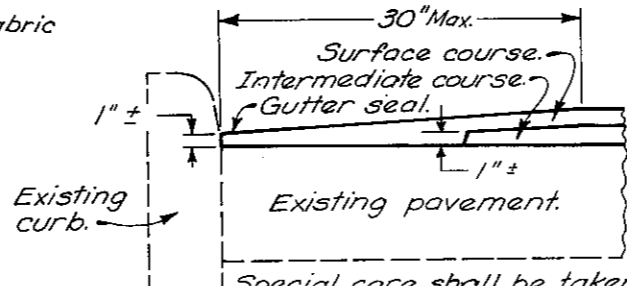


## LAPPING LONGITUDINAL JOINTS



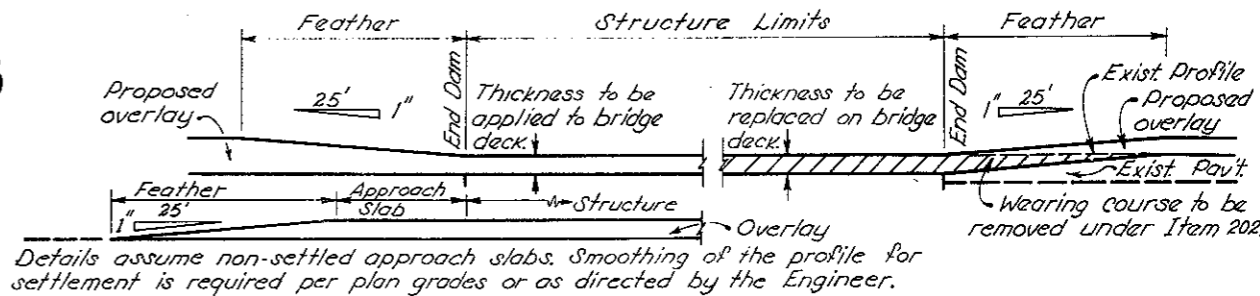
Aggregate drains to be placed where and as directed by Engineer. Provide filter fabric when specified as a separate pay item.

AGGREGATE DRAIN

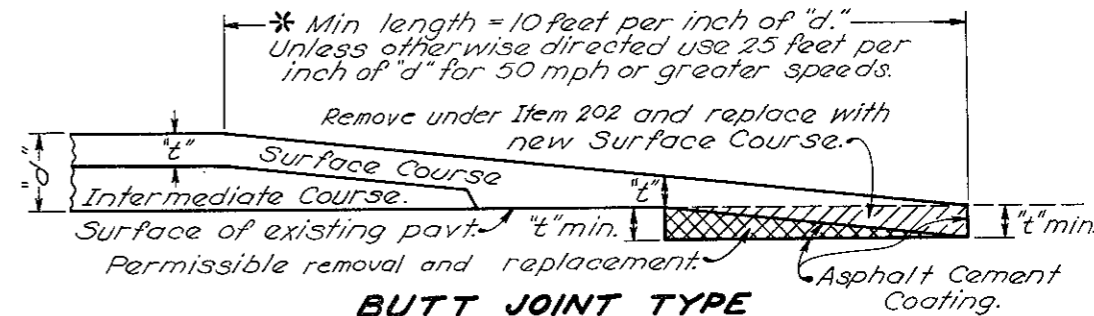


Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.

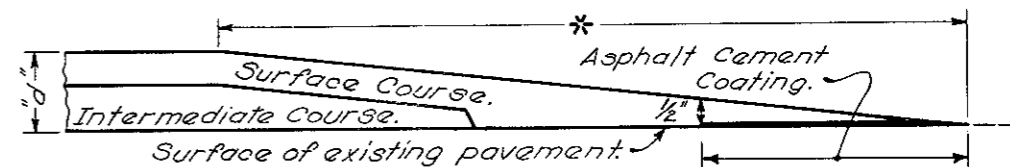
GUTTER FINISH



## FEATHERING AT STRUCTURES



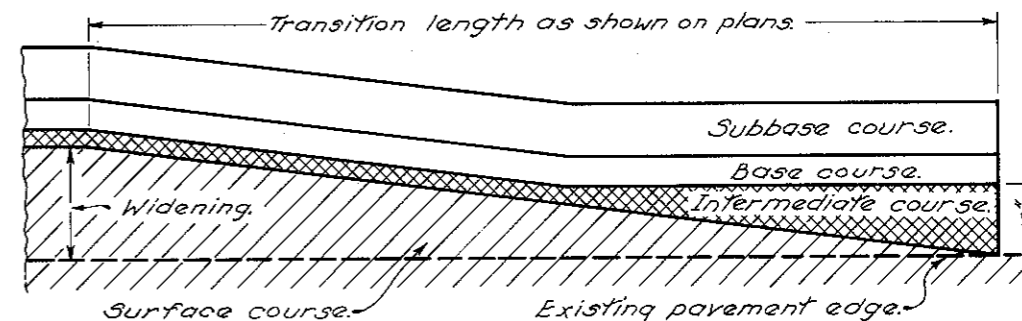
## BUTT JOINT TYPE



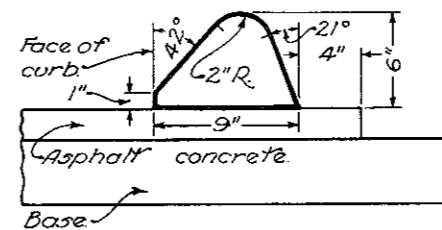
## TAPER EDGE TYPE

NOTE: Either butt or taper type may be used unless type is specified by the plan.

## PLACING FEATHERED AREAS



## MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT



TYPE I ASPHALT CONCRETE CURB (AASHTO 6" TYPE G)

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF TRANSPORTATION

## RESURFACING

STANDARD CONSTRUCTION DRAWING

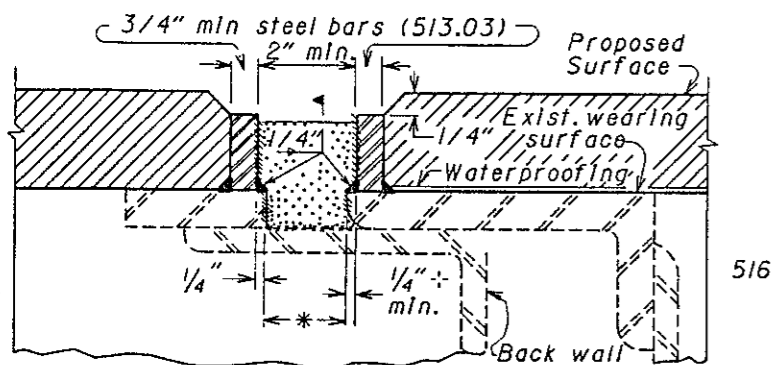
BP-5

APPROVED [Signature] ENGR., L. & D.

DATE  
6-1-'65  
1-1-'71  
6-1-'72  
8-11-'75  
4-16-'79  
7-16-'81  
1-11-'85

# RESURFACING

- ± Increase as necessary to maintain 2" min. opening
- \* Vertical extension of joints found to be closed to 1/2" or less may be non-performed as directed by the Engineer.

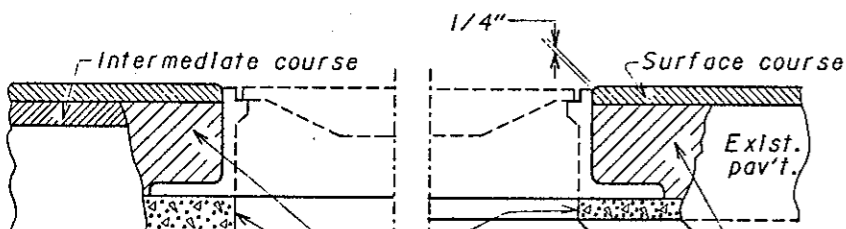


516

As a part of Item 516, seal joint with a hot-applied bridge deck waterproofing material which also meets the requirements of 705.04. Sandblast vertical surfaces (±) and wipe clean. Seal joint before rust forms. If rust forms, re-sandblast. Use bond breaker on the horizontal surface (\*\*\*\*\*).

**MAINTENANCE OF TRAFFIC:** Generally the bars shall be welded while the lane is closed for waterproofing or resurfacing. However, if traffic is routed over the bars before resurfacing, temporary ramps shall be constructed to the tops of the bars using 402 or 404 feathering at a max. slope of 6 ft/in. The ramps shall be removed prior to resurfacing. Payment for placing and removing the ramps shall be included in the lump sum bid for Item 614.

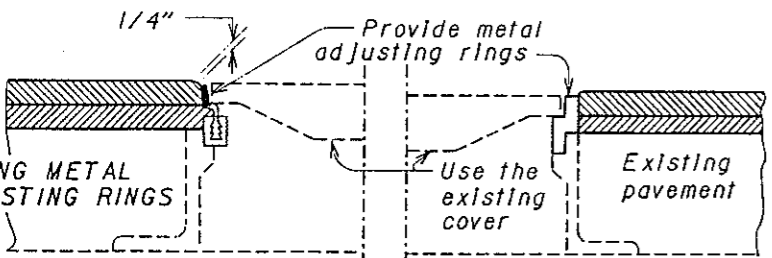
## VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS



Grade rings, bricks, Class C concrete or mortar. Max. mortar thickness 1/2".

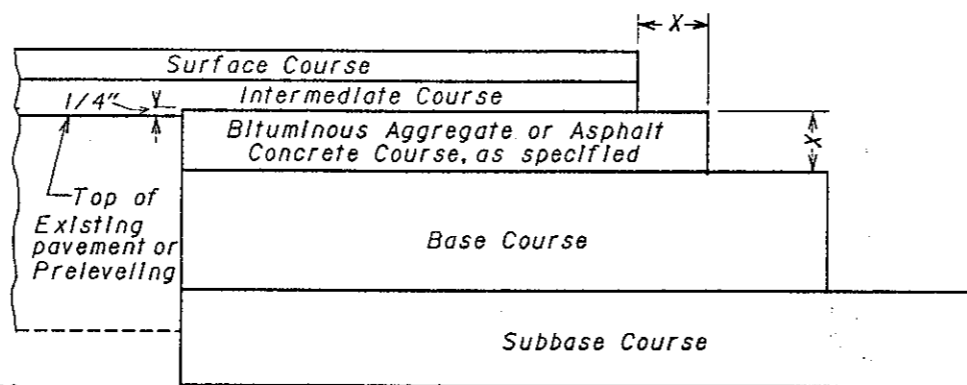
Class C concrete or 3" layers of compacted asphalt concrete.

USING CONCRETE OR MORTAR



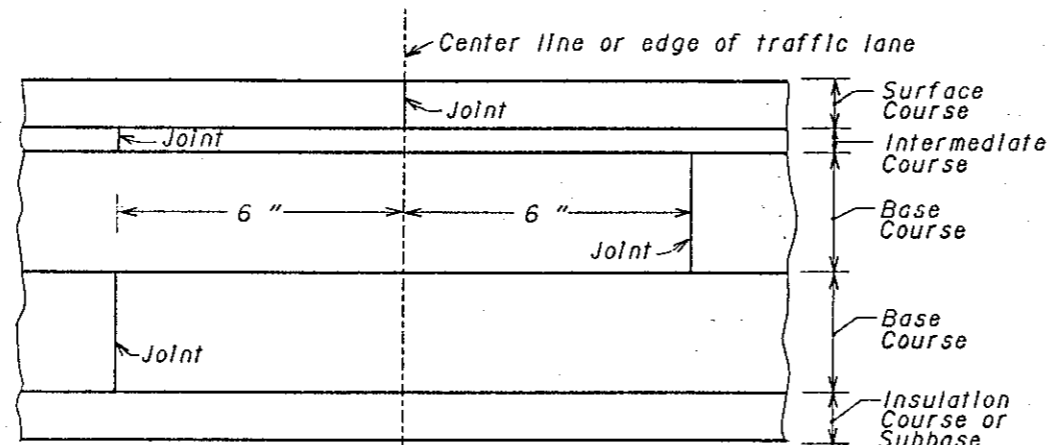
Metal adjusting rings shall: (a) attach securely to the existing frame by welding or mechanical devices; (b) consist either of cast metal having an integral rim and seat, or be fabricated of metal with a sturdy connection between the seat and rim; and (c) provide an even seat for the manhole cover. In addition, the adjusting ring type shall be a design acceptable to the local governmental agency responsible for street and sewer maintenance. Any installation unacceptable to the Engineer shall be replaced by the Contractor at his expense.

MANHOLES ADJUSTED TO GRADE

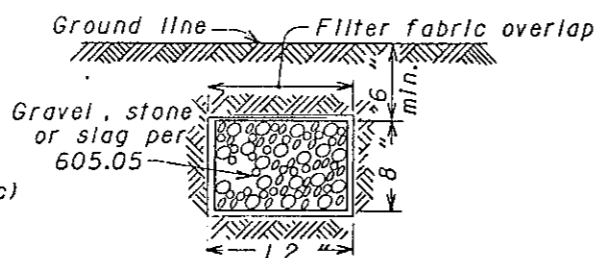


The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no prelevelling is used. Where a prelevelling (using intermediate course material) is specified it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the prelevelling.

COURSE DETAIL FOR WIDENING

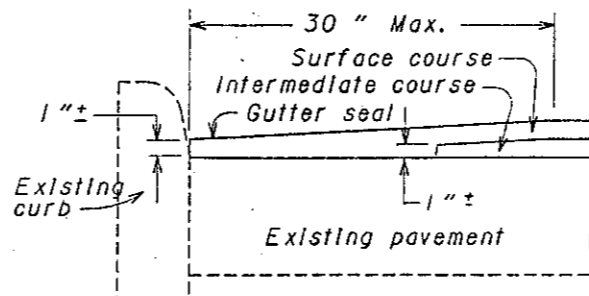


LAPPING LONGITUDINAL JOINTS



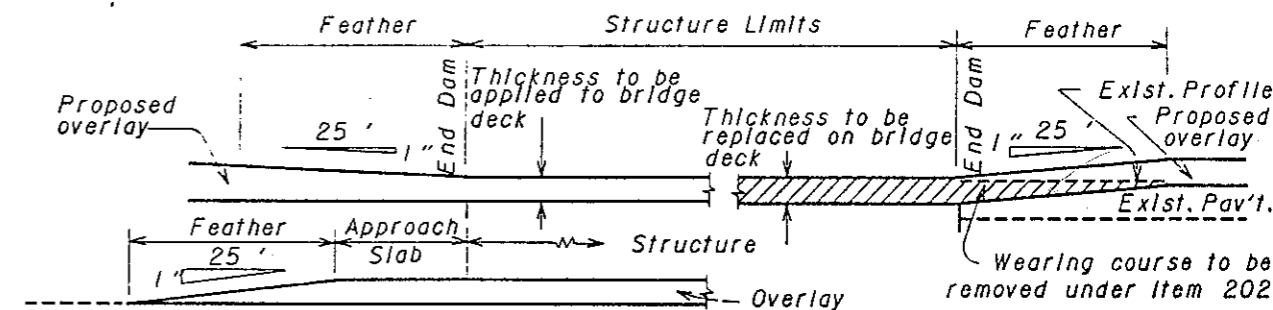
Aggregate drains to be placed where and as directed by Engineer. Provide filter fabric when specified as a separate pay item

AGGREGATE DRAIN



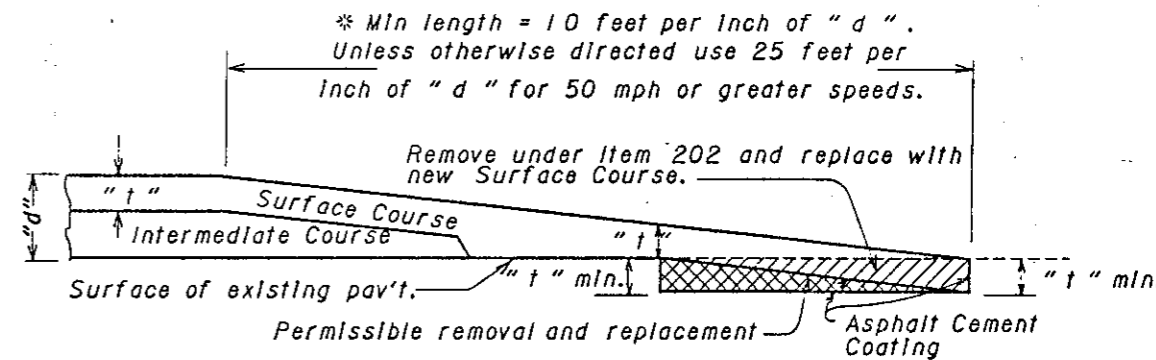
Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.

GUTTER FINISH



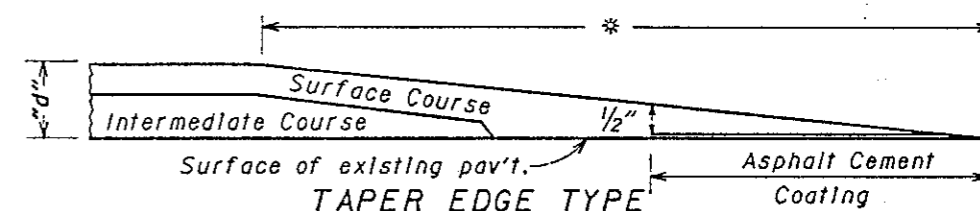
Details assume non-settled approach slabs. Smoothing of the profile for settlement is required per plan grades or as directed by the Engineer.

FEATHERING AT STRUCTURES



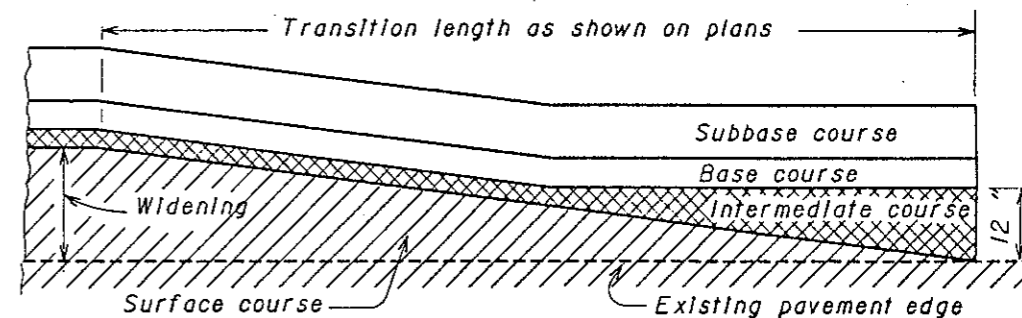
\* Min length = 10 feet per inch of "d". Unless otherwise directed use 25 feet per inch of "d" for 50 mph or greater speeds.

BUTT JOINT TYPE

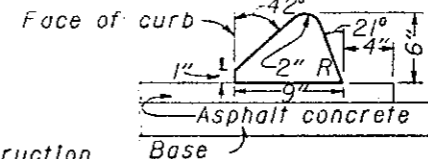


NOTE: Either butt or taper type may be used unless type is specified by the plan.

PLACING FEATHERED AREAS



MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT



TYPE I ASPHALT CONCRETE CURB

BUREAU OF LOCATION AND DESIGN  
OHIO DEPARTMENT OF TRANSPORTATION

## RESURFACING

STANDARD CONSTRUCTION DRAWING  
APPROVED *[Signature]* ENGR., L&D

DATE  
6-1-65  
1-1-71  
6-1-72  
8-11-75  
4-16-79  
7-16-81  
1-11-85  
10-1-87

BP-5