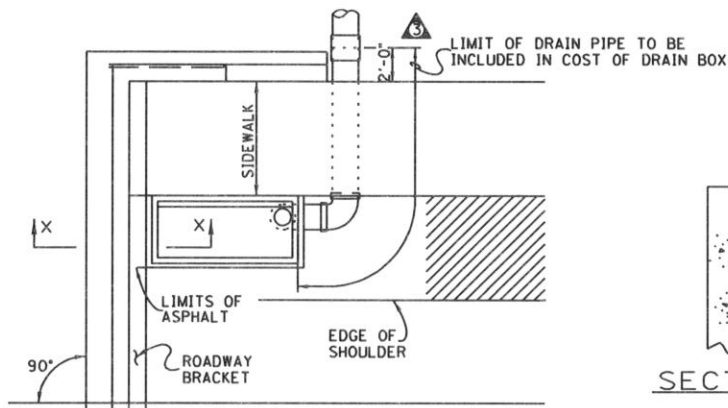
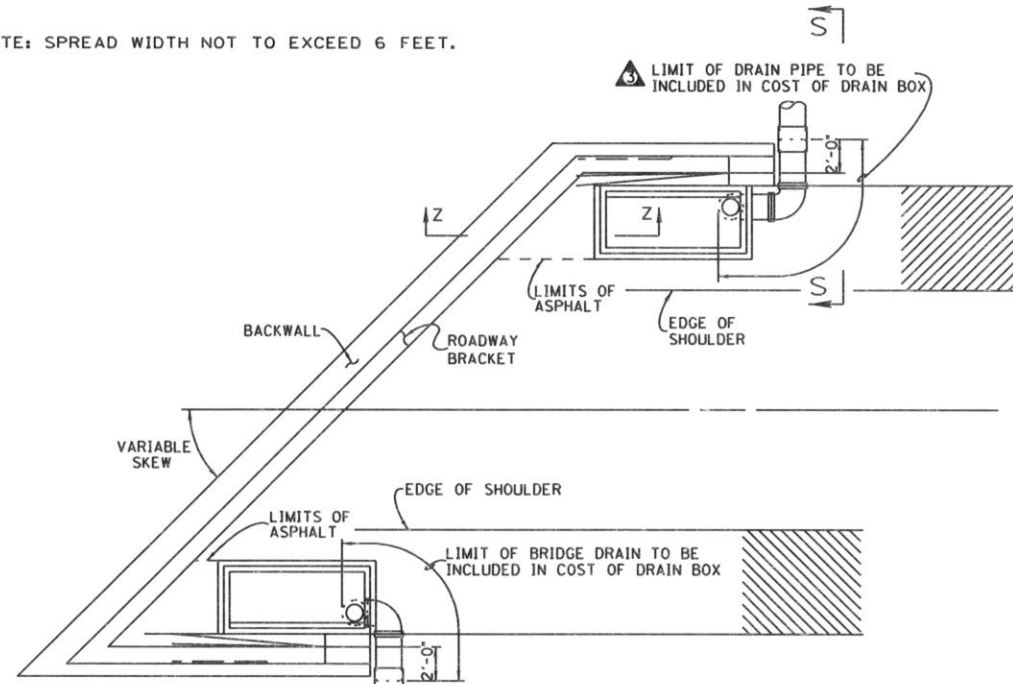


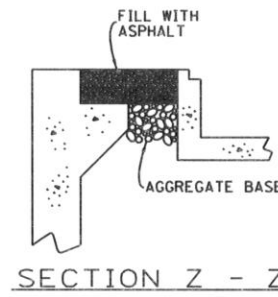
NOTE: SPREAD WIDTH NOT TO EXCEED 6 FEET.



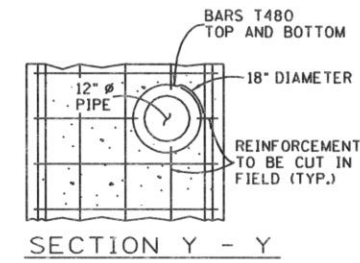
SECTION X - X



PLAN



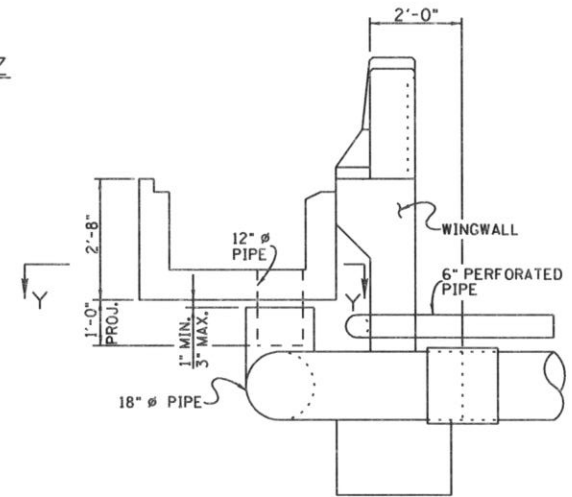
SECTION Z - Z



SECTION Y - Y

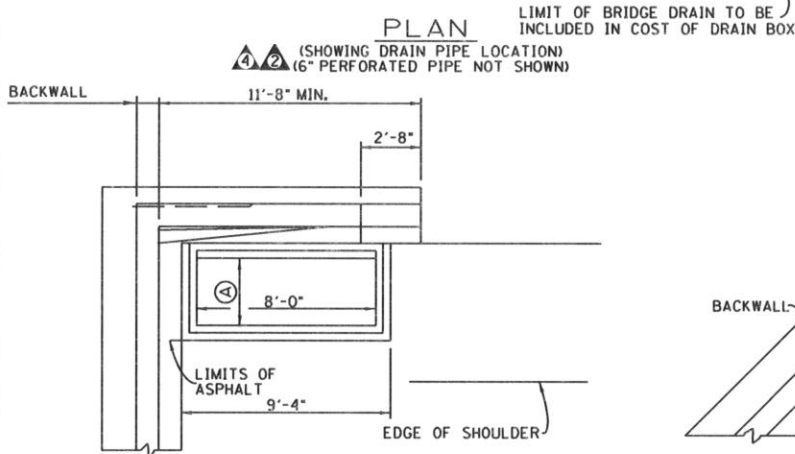
PROJECT NO.	YEAR	SHEET NO.	
	1993		
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	12-20-93	CMH	ADDED DETAILS SHOWING 18" DRAIN PIPE
2	3-28-94	CMH	REV. TITLE & DIMENSIONS, 2' x 8'-7" DRAIN
3	5-19-94	CMH	REMOVED 'LESS THAN 66 DEGREES' AND REVISED PLAN VIEW
4	5-21-99	CMH	CORRECTED SECTION ARROWS AND DELETED WINGWALL DIMENSIONS
5	8-24-11	JHW	REVISED DIMENSION & ADDED NOTE

NOTE: FOR ADDITIONAL DETAILS SEE STD-1-1 THRU 4, 10 AND 12 OR 13.



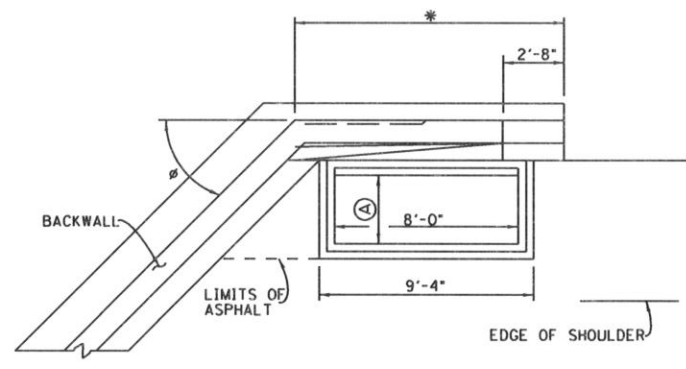
SECTION S - S (SHOWING STUB ABUTMENT)

NOTE: LOCATE 12" Ø PIPE AT LOW END OF DRAIN BOX.



PART PLAN

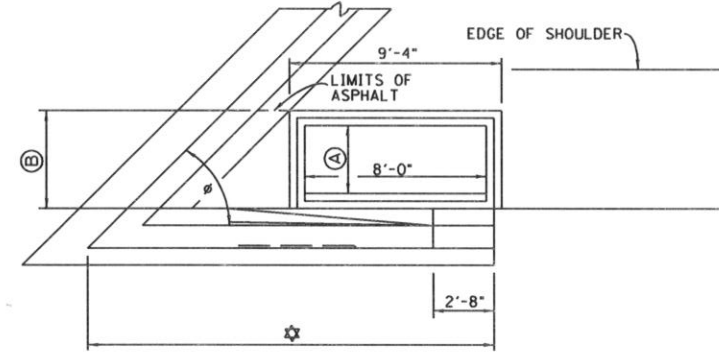
(A) 1'-0" FOR 2' x 8'-7" DRAIN BOX  
3'-0" FOR 4' x 8'-7" DRAIN BOX



PART PLAN

(A) 1'-0" FOR 2' x 8'-7" DRAIN BOX  
3'-0" FOR 4' x 8'-7" DRAIN BOX

(A) MINIMUM WING LENGTHS FOR DRAIN PLACEMENT



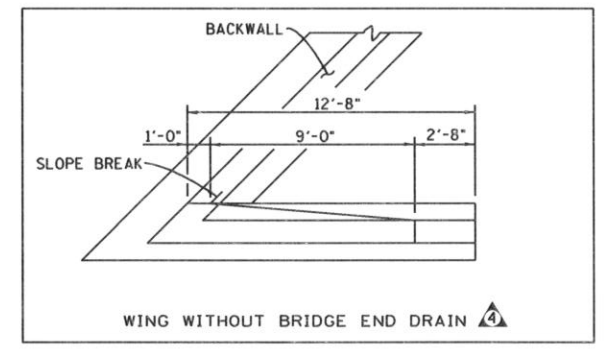
PART PLAN

(A) 1'-0" FOR 2' x 8'-7" DRAIN BOX  
3'-0" FOR 4' x 8'-7" DRAIN BOX  
(B) 2'-4" FOR 2' x 8'-7" DRAIN BOX  
4'-4" FOR 4' x 8'-7" DRAIN BOX

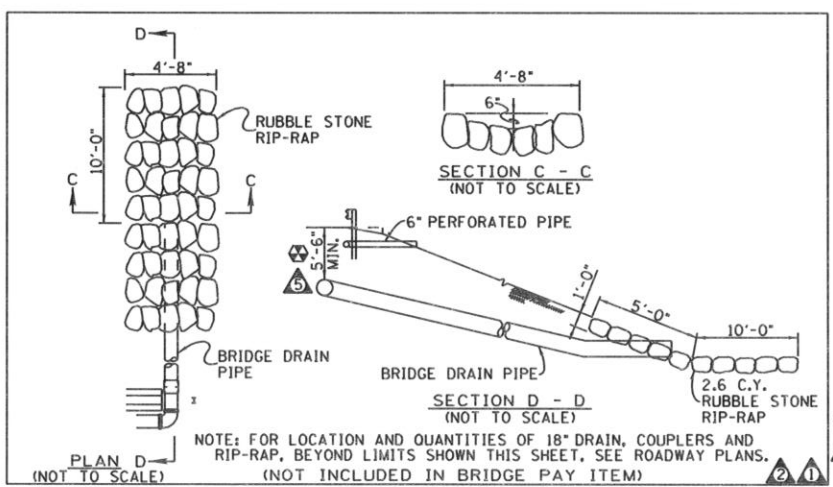
(B) (2' x 8'-7")  
[4'-1" / TAN φ] + 9'-0" + [(ROADWAY BRACKET + BACKWALL) / SIN φ] = \*  
(4' x 8'-7")  
[6'-1" / TAN φ] + 9'-0" + [(ROADWAY BRACKET + BACKWALL) / SIN φ] = \*

NOTE TO DETAILER:  
FOR FIGURING WING LENGTHS USE THE GREATER VALUE PRODUCED BY THE METHOD FOUND IN STRUCTURES MEMORANDUM MISCELLANEOUS ABUTMENT DETAILS OR THE MINIMUM WING LENGTH FOR DRAIN PLACEMENT FORMULAS FOUND ON THIS SHEET.

NOTE: WINGWALLS PER ABUTMENT SHOULD BE THE SAME LENGTH.



WING WITHOUT BRIDGE END DRAIN (A)



NOTE: FOR LOCATION AND QUANTITIES OF 18" DRAIN, COUPLERS AND RIP-RAP, BEYOND LIMITS SHOWN THIS SHEET, SEE ROADWAY PLANS. (NOT INCLUDED IN BRIDGE PAY ITEM)

NOTE: IF CONDITIONS PREVENT THE 18" Ø BRIDGE DRAIN PIPE FROM BEING LOCATED AT THE DEPTH SHOWN, THE PIPE MAY BE RUN HORIZONTALLY PARALLEL TO THE WING FOR 7'-3 1/2" PAST THE END OF WING AND THEN TURNED TO PASS BETWEEN GUARDRAIL POSTS (4) AND (5) (SEE S-GR-23).

MINOR REVISION - FHWA APPROVAL NOT REQUIRED

DEPARTMENT OF TRANSPORTATION

BRIDGE END DRAIN DETAILS  
2' x 8'-7" & 4' x 8'-7" WITHOUT PAVEMENT AT BRIDGE ENDS  
1993

CORRECT Edward P. Wasserman  
ENGINEER OF STRUCTURES