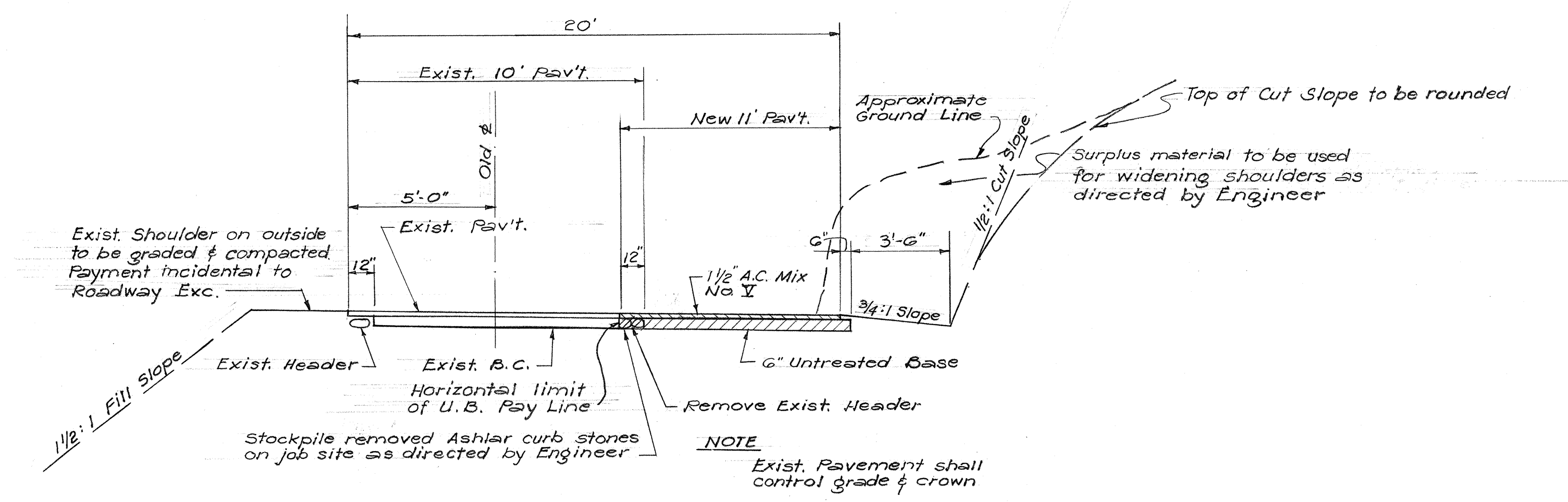
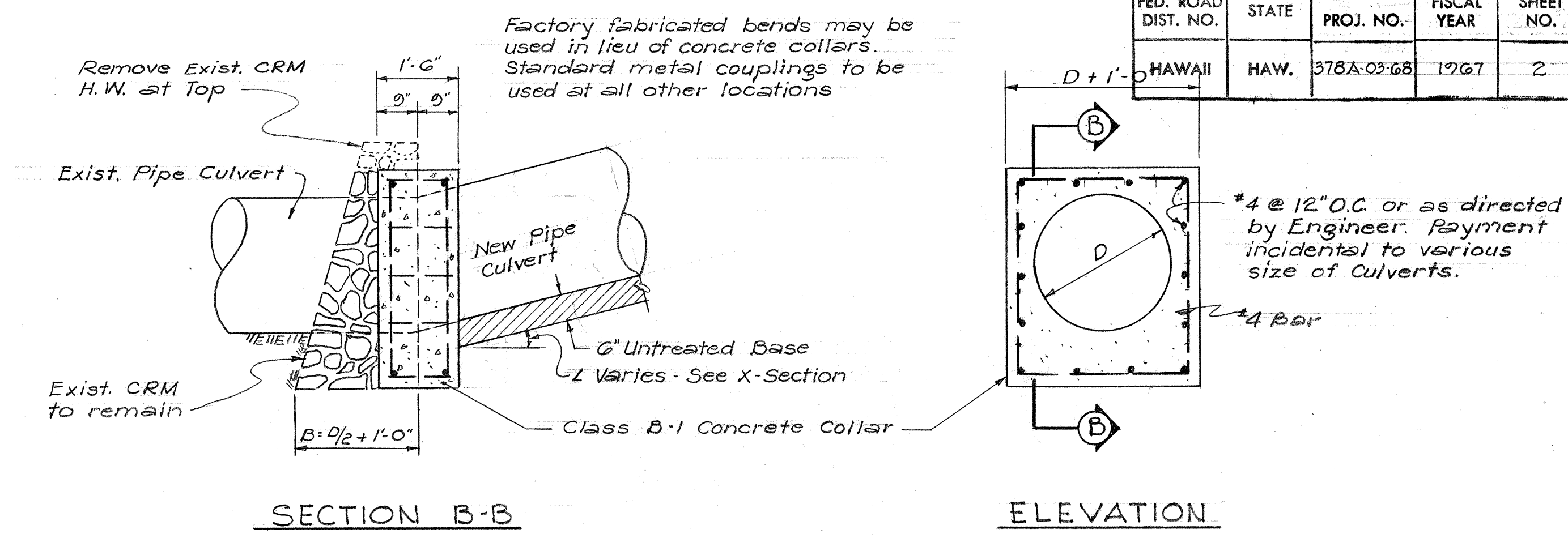


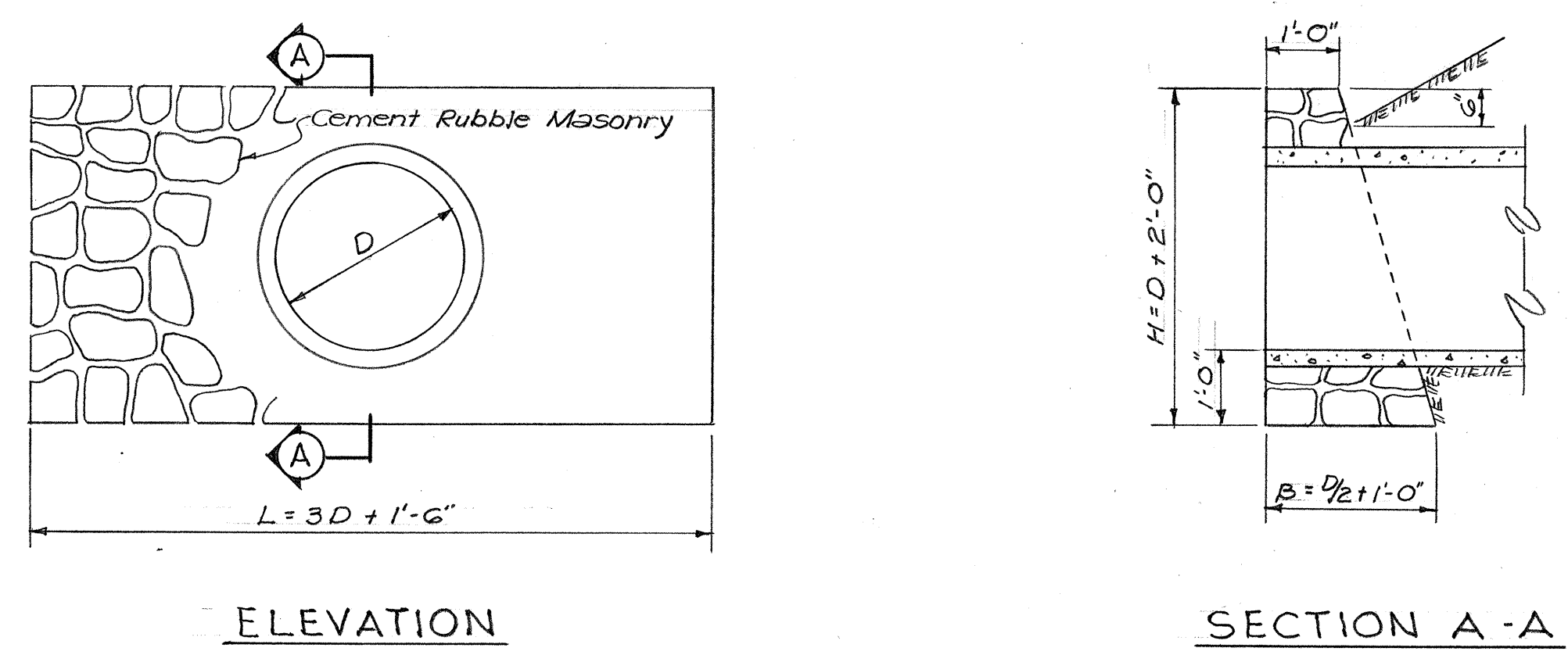
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	378A-03-68	1967	2	25



TYPICAL SECTION ON TANGENT  
Not to scale

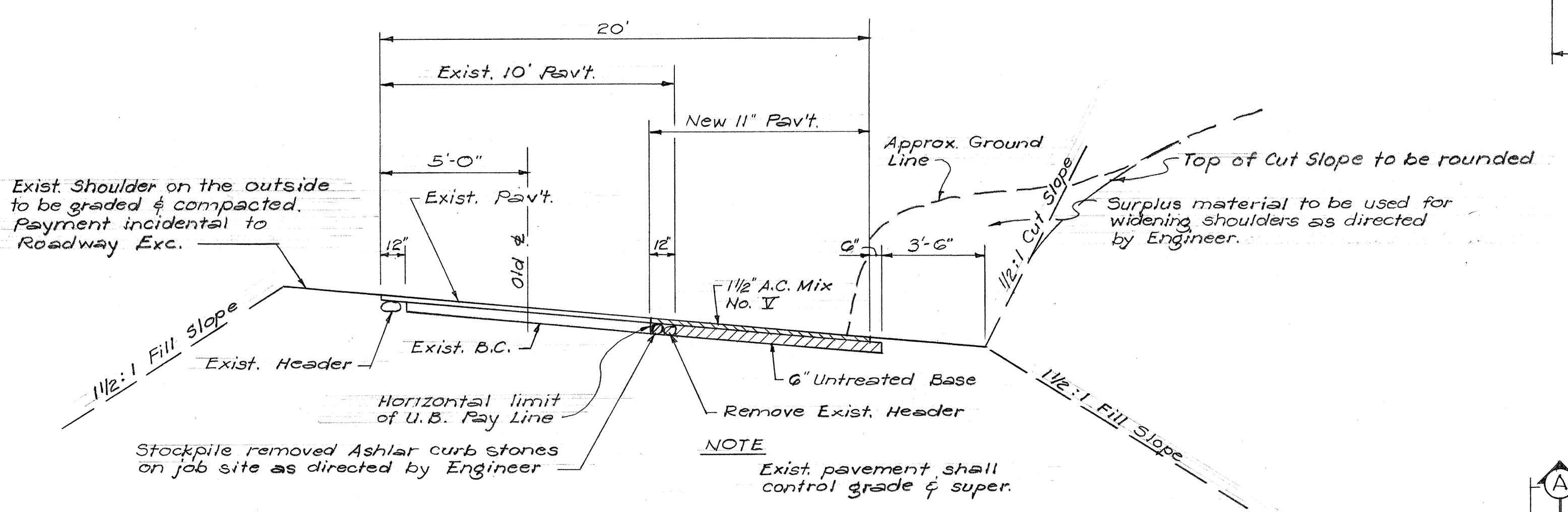


DETAIL OF CONNECTION FOR EXTENSION  
OF EXISTING CULVERTS  
Scale 1/2"=1'-0"

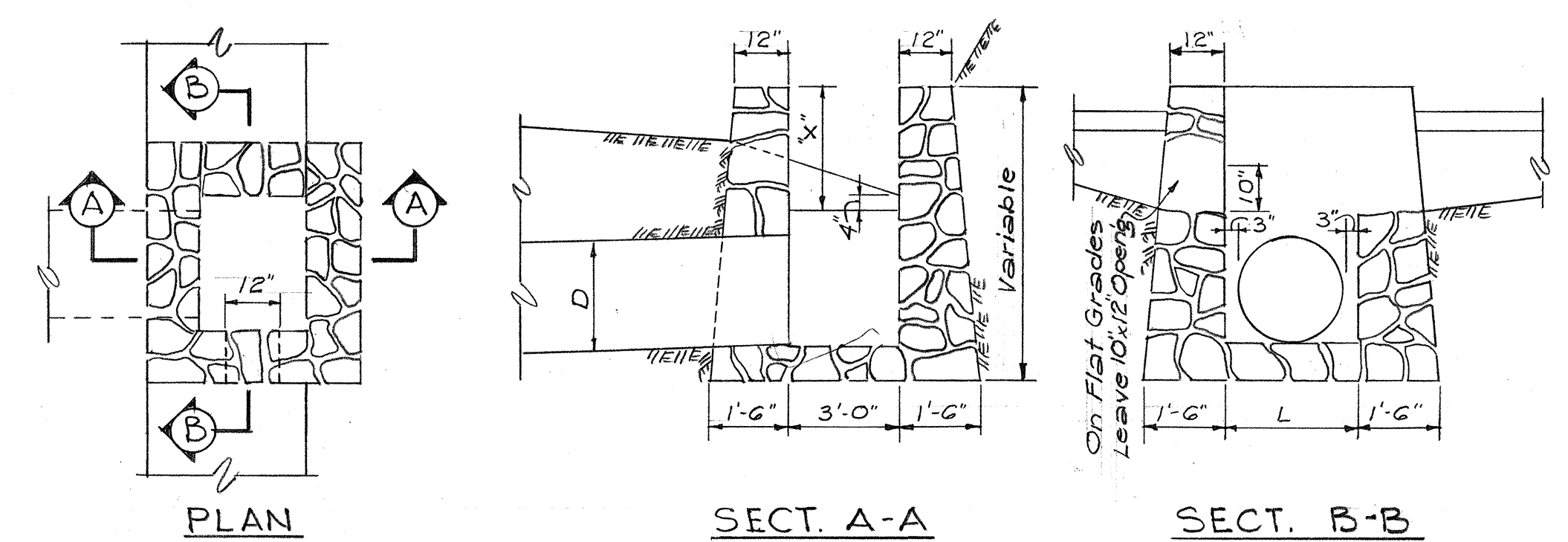


DETAIL OF MASONRY HEADWALL  
Scale 1/2"=1'-0"

DATA MASONRY HEADWALL				CAST-IN-PLACE CONC. CULVERT	CONC. PIPE CULVERT	CORRUGATED PIPE CULVERT
D	H	B	L	CU. YDS.	CU. YDS.	CU. YDS.
18"	3'-6"	1'-9"	6'-0"	0.85	0.95	0.93
24"	4'-0"	2'-0"	7'-6"	1.28	1.45	1.41
30"	4'-6"	2'-3"	9'-0"	1.83	2.06	2.00
36"	5'-0"	2'-6"	10'-6"	2.49	2.84	2.72



TYPICAL SECTION ON CURVE  
Not to scale



DETAIL OF MASONRY DROP INTAKE  
Scale 3/8"=1'-0"

NOTE: Dimension "X" is assumed as 2'-4" in figuring the above quantities

DATA FOR MASONRY DROP INTAKE			WHERE VARIABLES EQUAL
D	L = D + 6'	CU. YDS.	
18"	2'-0"	2.91	4'-6"
24"	2'-6"	3.46	5'-0"
30"	3'-0"	4.02	5'-6"
36"	3'-6"	4.61	6'-0"

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

TYPICAL SECTIONS & DETAILS

HALEAKALA HIGHWAY

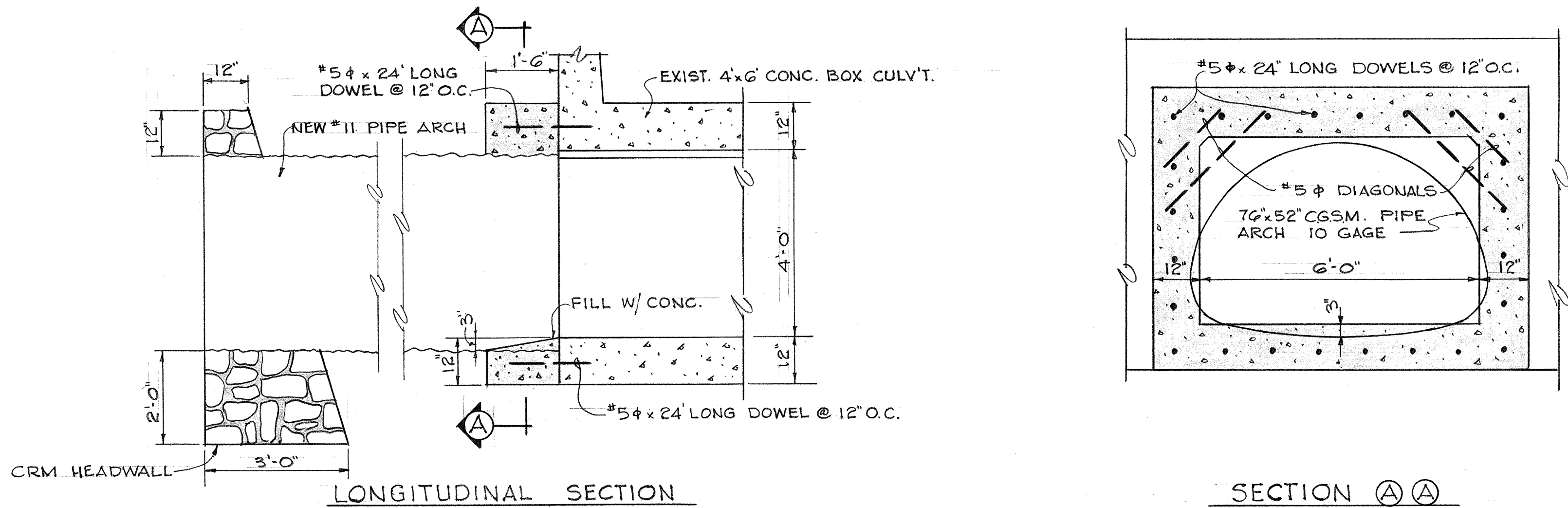
PROJ. NO. 378A-03-68

SCALE AS SHOWN

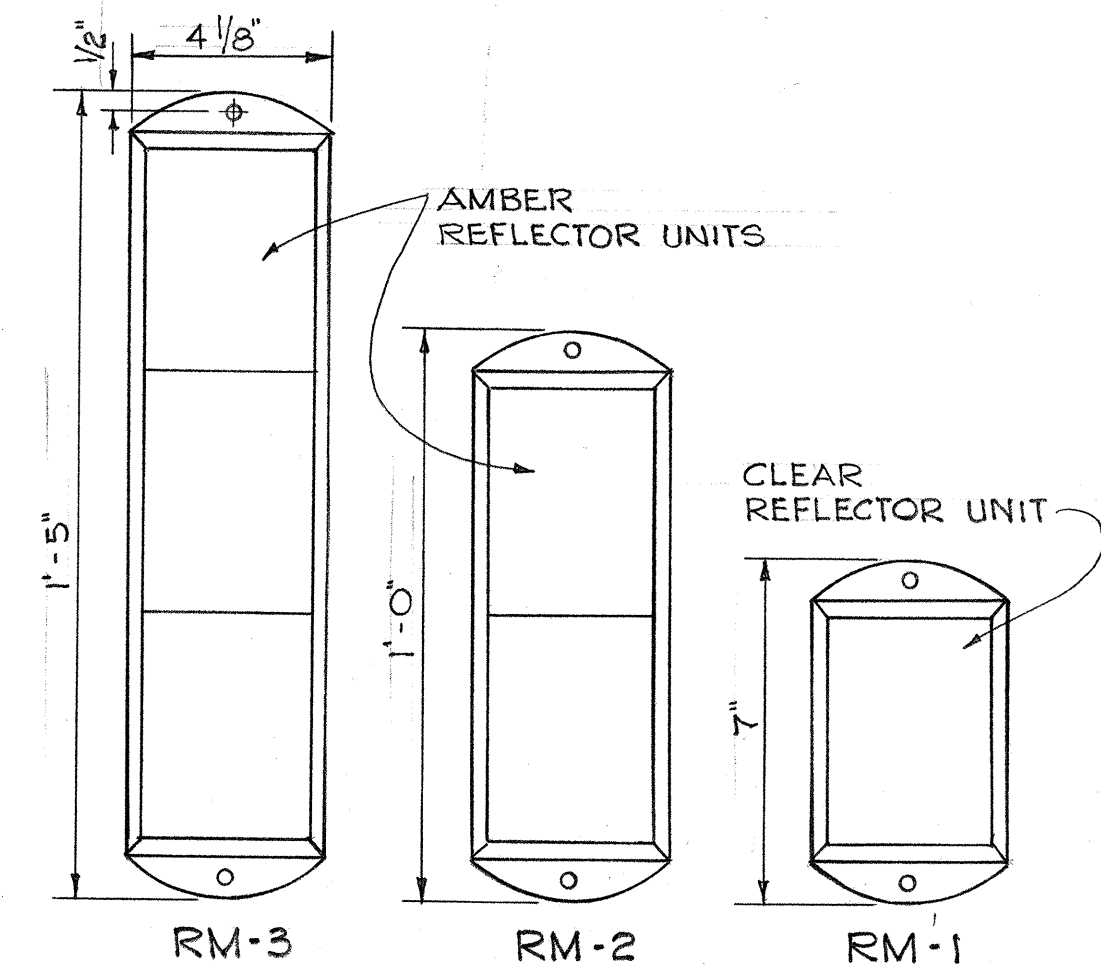
SHEET No. 1 OF 2 SHEETS

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

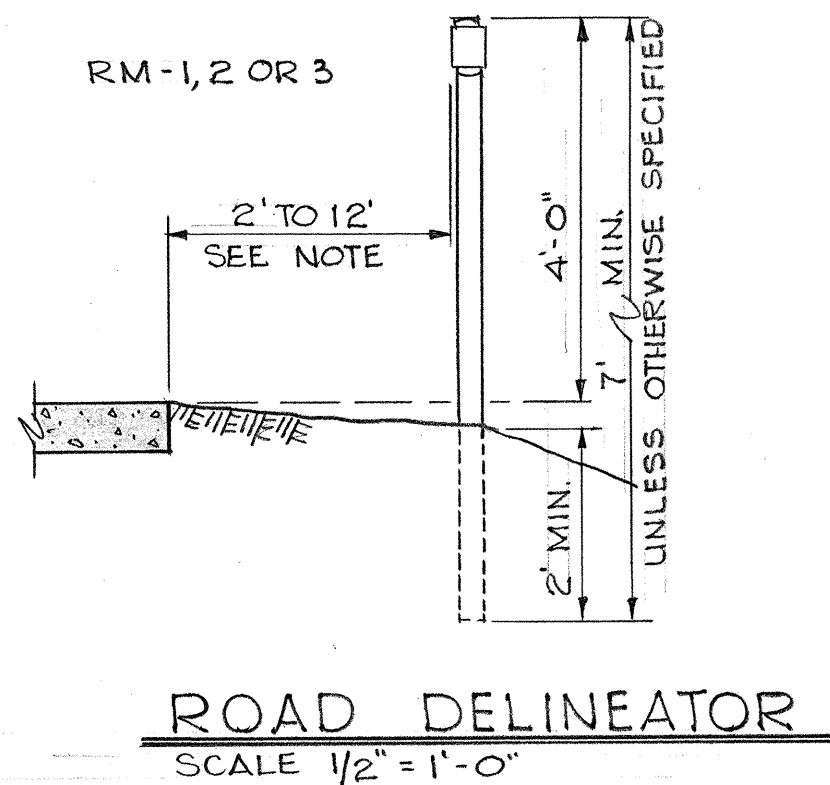
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	378A-03-68	1967	3	25



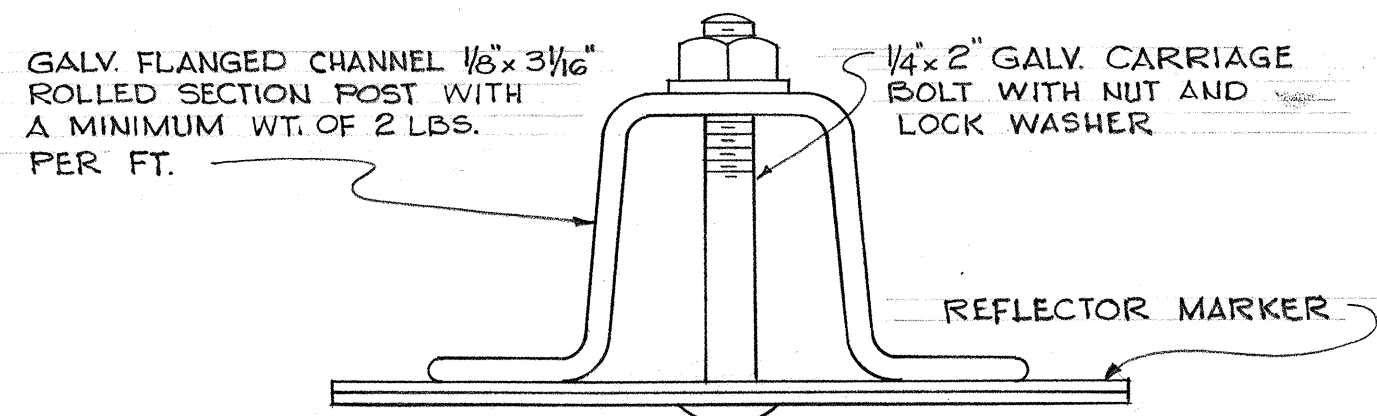
DETAIL OF CONNECTION OF #11 PIPE ARCH TO EXISTING 4'x6' BOX CULVERT FOR IMPROVEMENT #18  
SCALE 1/2"=1'-0"



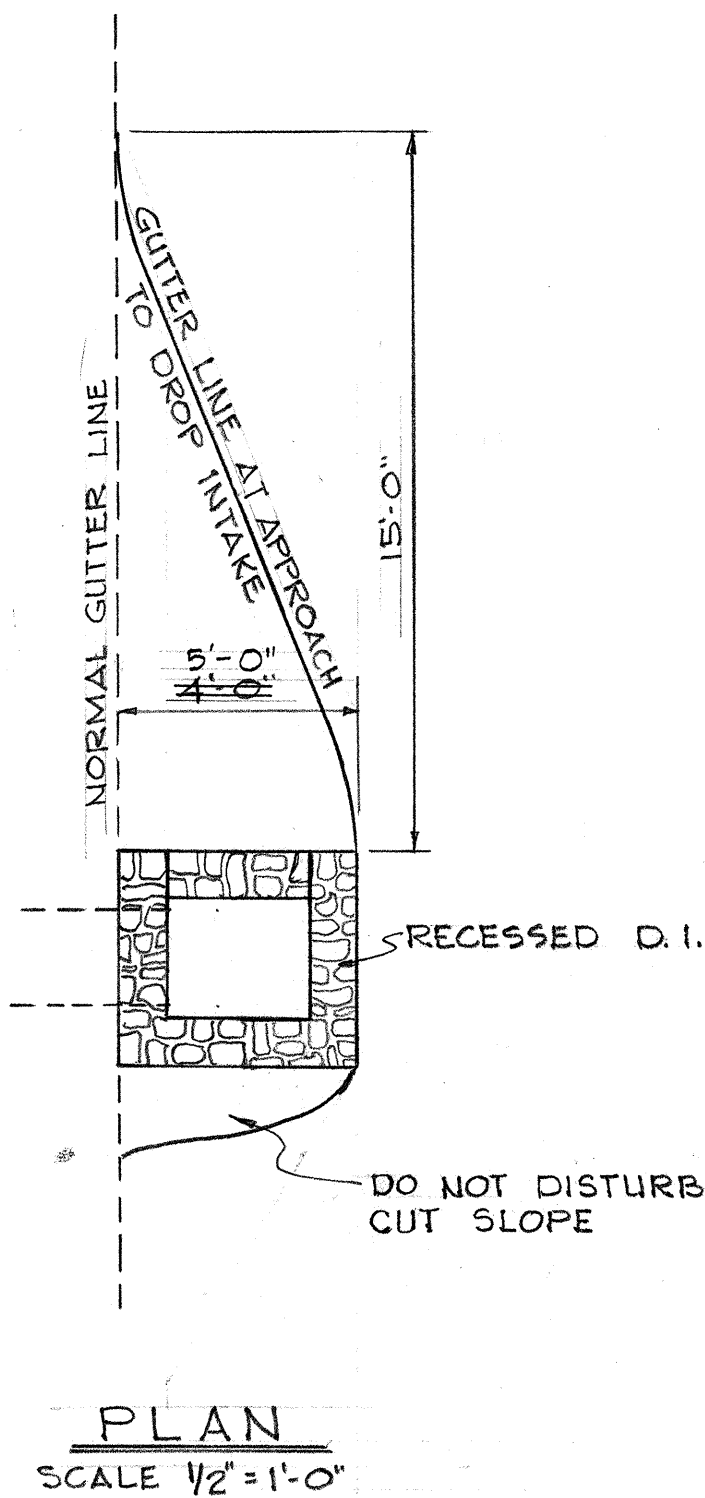
REFLECTOR MARKERS  
SCALE 3"=1'-0"



NOTE  
REFLECTOR MARKERS RM-1,2,3 SHALL BE GLASS SPHERE REFLECTOR MARKERS WITH 4"x5" REFLECTOR UNITS (AS SHOWN) OR PLASTIC PRISMATIC REFLECTOR MARKERS WITH 3" DIAMETER REFLECTOR UNITS.



TYPICAL SECTION OF ROAD DELINEATOR  
FULL SIZE



#### GENERAL NOTES :

- ALL EXISTING CULVERTS SHALL BE EXTENDED UNLESS NOTED OTHERWISE. SEE CULVERT SUMMARIES FOR EXACT LOCATIONS AND ESTIMATED QUANTITIES. SEE CROSS SECTION SHEETS FOR VERTICAL DEFLECTIONS FOR CULVERTS.
- REMOVAL OF EXISTING HEADWALLS AND DROP INTAKES, STRUCTURAL EXCAVATION AND BACKFILL, CONCRETE COLLARS AND REINFORCING STEEL FOR EXTENSION OF THE EXISTING CULVERTS WILL NOT BE MEASURED AND PAID FOR DIRECTLY, BUT WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE CONTRACT ITEM FOR CGM PIPE CULVERTS.
- STRUCTURE EXCAVATION AND BACKFILL FOR NEW CRM HEADWALLS AND DROP INTAKES WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT ITEM FOR CRM.
- ROCK HEADERS TO BE REMOVED MAY BE USED FOR CRM HEADWALL. REMAINING ROCK HEADERS REMOVED SHALL BE SALVAGED AND STOCKPILED AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE MADE INCIDENTAL TO ROADWAY EXCAVATION.
- ALL NEW AND EXISTING DRAINAGE STRUCTURES AND CHANNELS WITHIN THE LIMITS OF THE RIGHT OF WAY OF THIS PROJECT SHALL BE CLEANED-OUT AS DIRECTED BY THE ENGINEER. PAYMENT INCIDENTAL TO ITEM 59.
- ALL SHOULDERS THROUGHOUT THE LENGTH OF THIS PROJECT ARE TO BE GRADED AND COMPACTED TO PROVIDE THE PROPER CROSS SECTION. PAYMENT INCIDENTAL TO "ROADWAY EXCAVATION".
- IN LIEU OF OVERHAUL, THE CONTRACTOR MAY OBTAIN EMBANKMENT MATERIAL FROM THE VARIOUS CURVES WITH THE APPROVAL AND UNDER THE DIRECTION OF THE PROJECT ENGINEER. HOWEVER NO PAYMENT WILL BE MADE FOR ANY WORK DONE UNDER THIS ITEM.
- CONTRACTOR CAUTIONED NOT TO DISTURB THE U.H. GRAVITATIONAL STUDY CONCRETE MARKERS LOCATED WITHIN THE R/W. LOCATIONS OF THESE MARKERS WILL BE POINTED OUT TO THE CONTRACTOR IN THE FIELD.
- "ROAD NARROWS" SIGN LOCATED AT THE END OF IMPROVEMENT NO. 8 SHALL BE RELOCATED TO THE END OF IMPROVEMENT NO. 18. PAYMENT INCIDENTAL TO THE VARIOUS CONTRACT PAY ITEMS.

STATE OF HAWAII  
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#### TYPICAL SECTIONS & DETAILS

HALEAKALA HIGHWAY

PROJ. NO. 378A-03-68

SCALE AS SHOWN

SHEET No. 2 OF 2 SHEETS