MATCH APRON WIDTH TO
EXIST CHANNEL TOE
APPROXIMATELY 1.8m

ROCK CROSS WEIR @ 0+02.0m
DOWNSTREAM OF INVERT SEE
DETAILS, SHEET C-7

1.5m DBH SPRUCE
TO REMAIN

EXTEND CLASS 5 RIP RAP
APRON 6.5 METERS
DOWNSTREAM AND BLEND
WITH EXIST. STREAM SECTION

N1026.42
E1321.43
IE = 94.43

REMOVE
EXIST 60" CMP

NEW 2.972m x 2.007m X 20.0m
GALVANIZED CMA, 12GA., 3X1
CORRUGATION.
COUNTERSUNK 0.62m ON 7.7
% SLOPE.

FLOW

EXIST 18" CMA

OTHER END
NOT FOUND

CP#4
ELEVATION = 98.695

N1015.20
E1336.95
IE = 95.91

SKEW CUT AS PER
MANUFACTURER RECOMMENDATION
30° SKEW SHOWN

96 97 98 99 100

0+00 0+05 0+10 0+15 0+20 0+25 0+30 0+35 0+40

NOTE: RESIDENT FISH STREAM

RD 40000
MP 3.337

SITE PLAN

1:100

0 1 2 3 4 5 M

1 CM

NOTE: GROUND IN THIS AREA IMPROPERLY MODELED
AS-BUILT STRUCTURE WAS SHIFTED EAST & CHANNEL
RECONSTRUCTED TO AVOID REMOVAL OF LARGE TREE

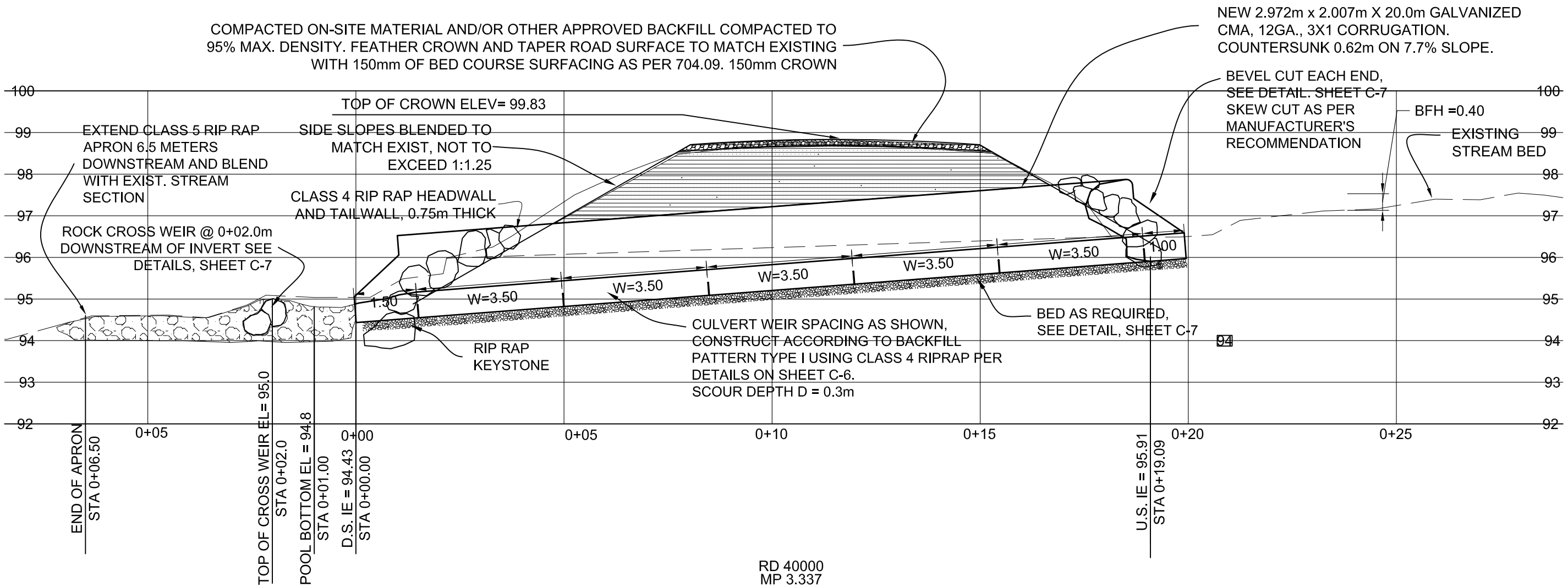
CHINOOK ENGINEERING
860 Windrose Drive
Cosmopolis, Washington 98239
(360) 678-4747
Professional Consulting Engineers

REV DATE	ISSUED	DWN	DES	CHK	APP
6/1/2002	CULVERT ORDERS	CR	KC		
6/1/2002	FOREST SERVICE REVIEW	CR	KC		R.G.
6/11/2002	ADF&G TITLE 16 REVIEW	CR	KC		
7/4/2002	CONSTRUCTION	CR	KC		

Mitkof Fish Passage Improvements Rd-40000 MP-3.337

Site Plan

C-7

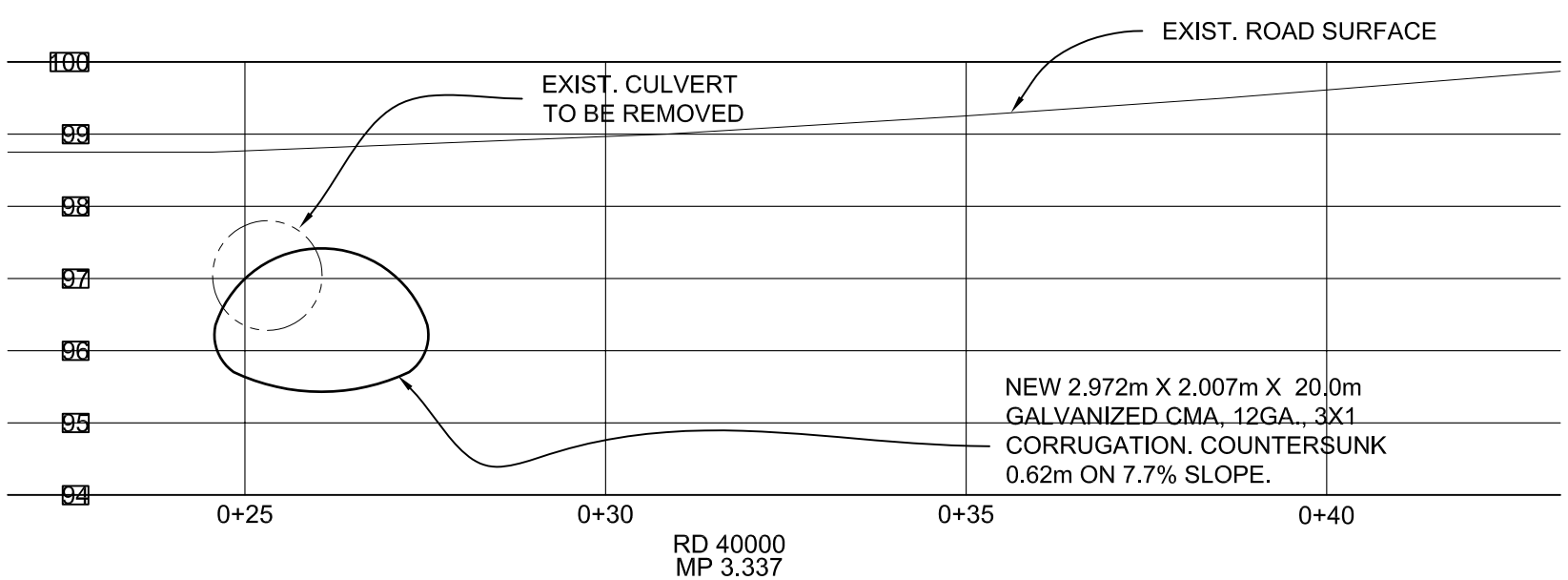


RD 40000
MP 3.337

CULVERT PROFILE

1:100

Metric Unit Drawings



RD 40000
MP 3.337

ROAD PROFILE @ C.L. LOOKING UPSTREAM

1:100

0 1 2 3 4 5 M
1 CM

CHINOOK ENGINEERING
8601 Winrose Drive
Coupeville, Washington 98239
(360) 678-4747
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REV DATE	ISSUED	DWN	DES	CHK	APP
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7/4/2002	CONSTRUCTION	CR	KC		

Mitkof Fish Passage Improvements Rd-40000 MP-3.337

Culvert/Road Profiles

C-8
8 OF 10

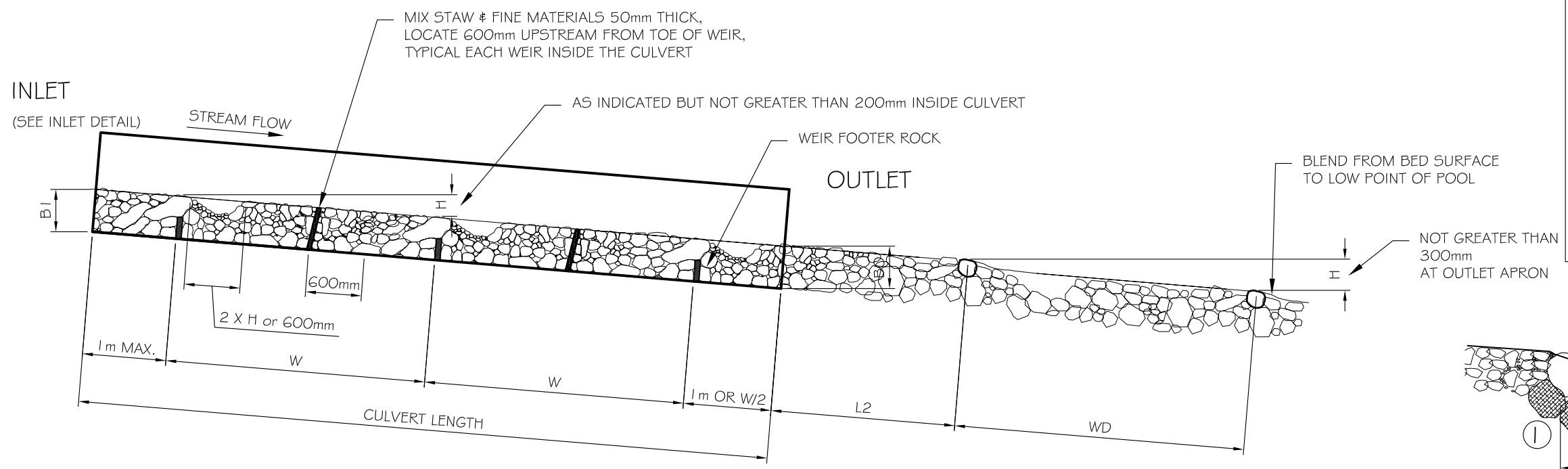
NOTES:

1. BANKS MAY NOT BE REQUIRED. CONSTRUCT BANKS ONLY WHEN SHOWN ON THE SITE PLAN.

2. SPACE FIRST WEIR 1m FROM OUTLET END OR 2/W, WHICHEVER IS GREATER (STEEL WEIRS ONLY) OR AS SHOWN ON THE PLANS.

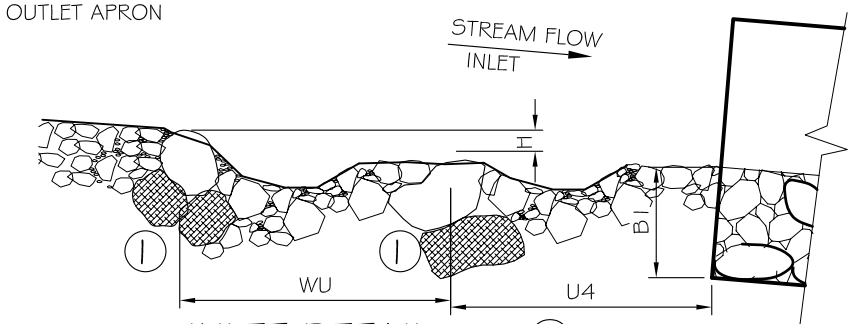
3. TOP OF ROCK WEIR SHALL PROTRUDE ABOVE UPSTREAM BED BY NO MORE THAN 0.2 X BANK FULL DEPTH OR AS STAKED BY THE C.O.R.

4. WHERE SHOWN ON THE PLANS, UTILIZE LOW-GRADIENT OUTLET APRON CONFIGURATION.



1 TYPICAL CMP INFILL & WEIR - HIGH GRADIENT

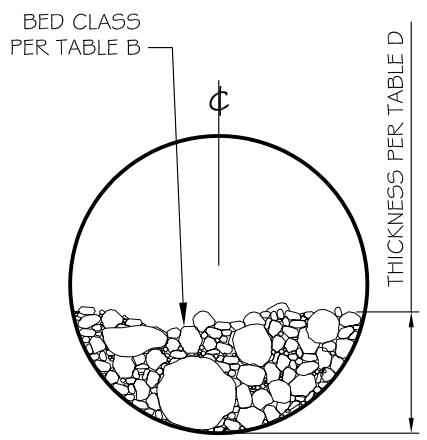
NOT TO SCALE



2 INLET DETAIL

NOT TO SCALE

1 NOTE: ROCK OR LOG WEIRS USED IN STREAM REGRADING SHALL BE INSTALLED AS SHOWN ON THE PLANS.

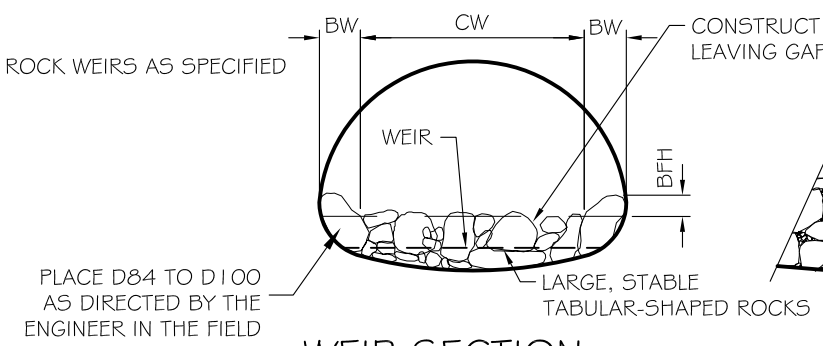


3 X-SECTION TYPE I

NOT TO SCALE

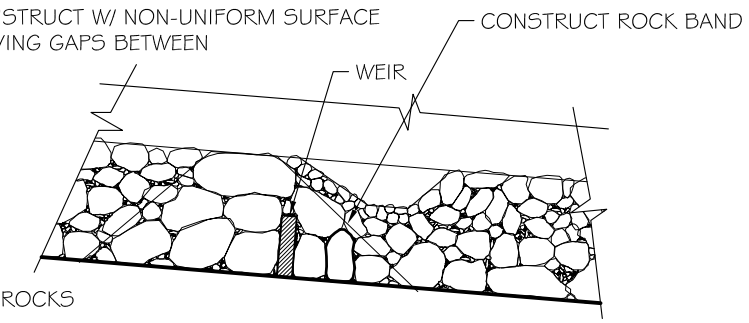
NOTES:

1. PLACE CULVERT INFILL & ROCK WEIRS AS SPECIFIED ON THE PLANS.



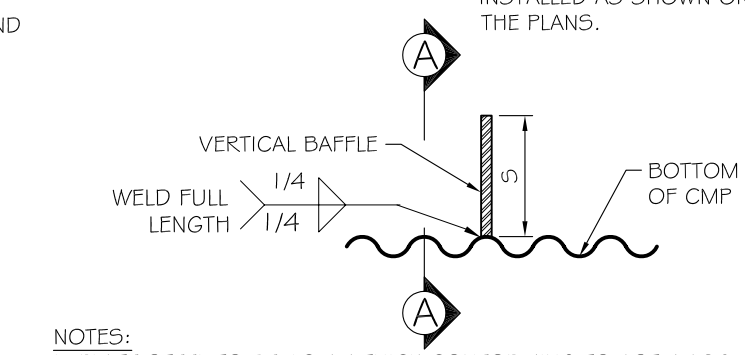
4 WEIR SECTION

NOT TO SCALE



5 POOL DETAIL (ROUND PIPE)

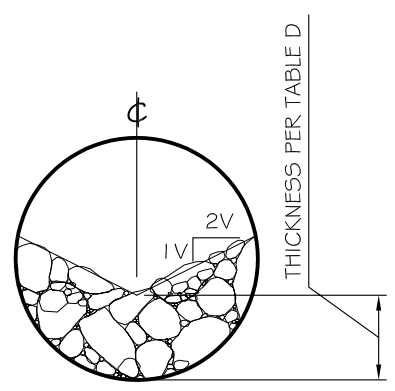
NOT TO SCALE



NOTES:
1. PLATE STEEL TO BE 10MM THICK CONFORMING TO ASTM A36
2. ALL COMPONENTS TO BE GALVANIZED PER ASTM A123 AFTER FABRICATION
3. REPAIR GALVANIZING WITH HOT STICK GALVANIZATION OR OTHER METHOD AS APPROVED BY THE C.O.

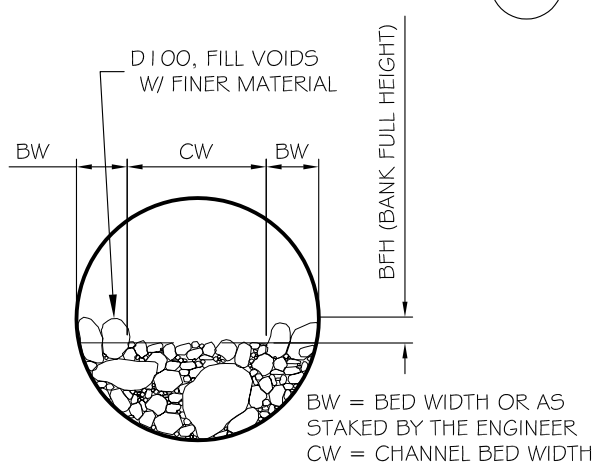
6 WEIR WELDING DETAIL

NOT TO SCALE



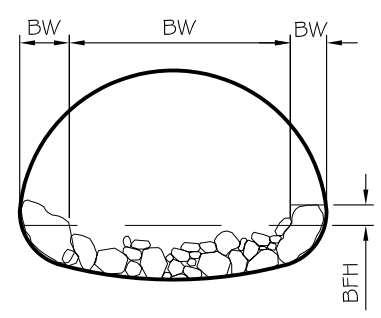
7 X-SECTION TYPE II

NOT TO SCALE



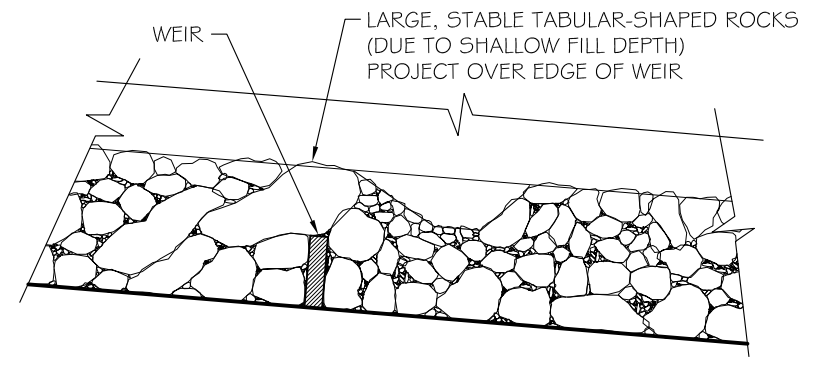
8 X-SECTION TYPE III

NOT TO SCALE



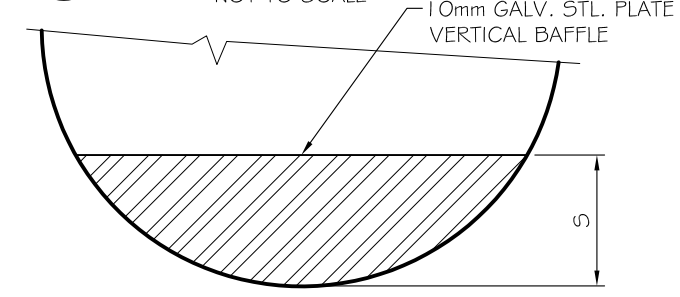
9 POOL SECTION

NOT TO SCALE



10 POOL DETAIL (PIPE ARCH)

NOT TO SCALE



A SECTION A-A

NOT TO SCALE

TONGASS ENGINEERING & RECREATION	DESIGNED: X. XXXXXXX	DATE: XX/XX/XX	DATE:	REVISION:	BY:	FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE	ROAD 40000 - M.P. 2.492 & 3.337
	DRAWN: X. XXXXXXX	DATE: XX/XX/XX	XX/XX/XX	XXXXXXXXXX	X. XXXXXX		USDA FOREST SERVICE - TONGASS NATIONAL FOREST
	REVIEWED: X. XXXXXXXXXX	DATE: XX/XX/XX	XX/XX/XX	XXXXXXXXXXXX	X.XXXXXX		R-10 - ??? DISTRICT
	TNFTYP:03/04		XX/XX/XX	XXXXXXXXXXXX	X. XXXXXX		

TYPICAL CULVERT DETAILS - HIGH GRADIENT

CMP_DETAILS_HI_GRADIENT.DWG
PLOT ON 11"X17" PAPER

SH. 10 of 10