

**Forest Service Handbook  
National Headquarters - Washington Office  
Washington, DC**

**Forest Service Handbook 2309.18 – Trails Management Handbook**

**Chapter 3 - Trail Preconstruction and Construction**

**Amendment:** 2309.18-1991-2

**Effective date:** November 08, 1991

**Duration:** This amendment is effective until superseded or removed.

**Approved by:** F. Dale Robertson, Chief

**Date approved:**

**Responsible Staff:**

**Last Change:** 2309.18-1991-1

**Superseded Document(s):** 2309.18-91-1, March 21, 1991; 1, June 1987; New, June 1985

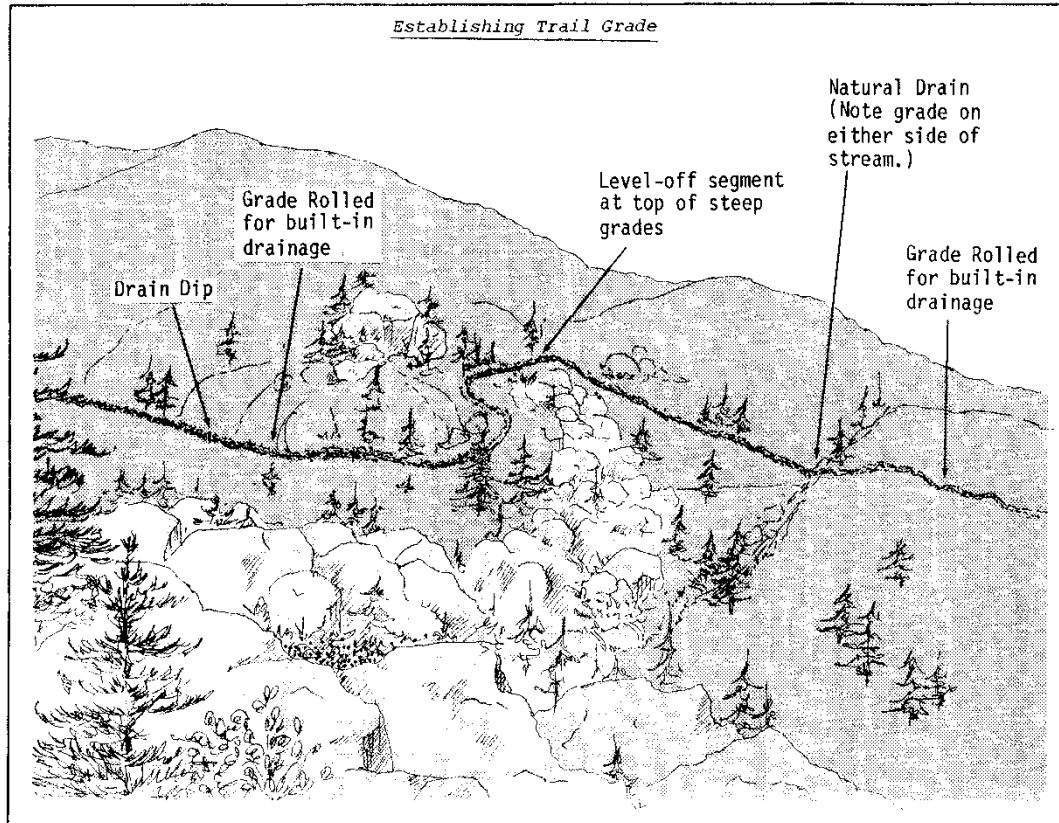
**Digest:** Following is an explanation of the changes throughout the directive by section.

This amendment is a reissuance of FSH 2309.18 to conform the format and structure of the Handbook to the requirements of electronic directive issuance.

This amendment makes no substantive changes to the text. The only changes made are those necessary to meet new format requirements or to correct spelling, punctuation, unit names or coding errors.

This Handbook is now available electronically in the National Information Center in the same format as the paper copy. Henceforth, amendments to this Handbook will be issued to Forest Service units electronically on a document basis.

Forest Service Manual-Handbook 2309.18 – Trails Management Handbook  
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**3.12b – Exhibit 01**

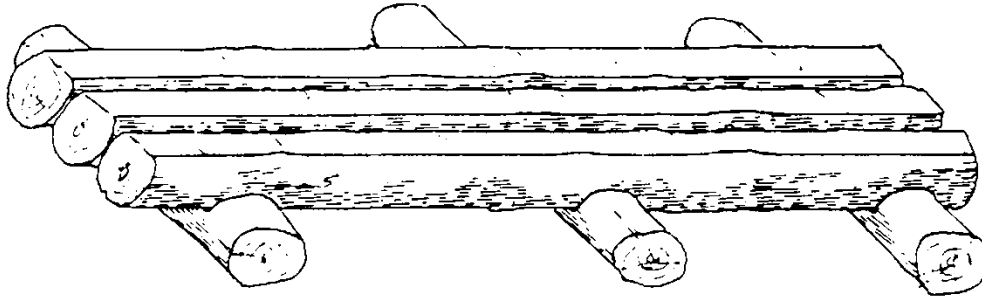


3.12b - Exhibit 01

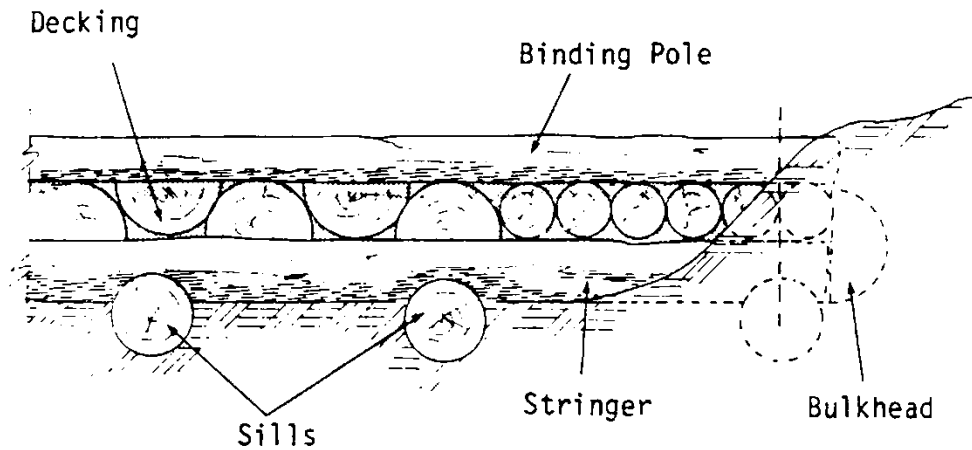
2309.18

**3.12b – Exhibit 03**

Puncheon Walkways and Bridges

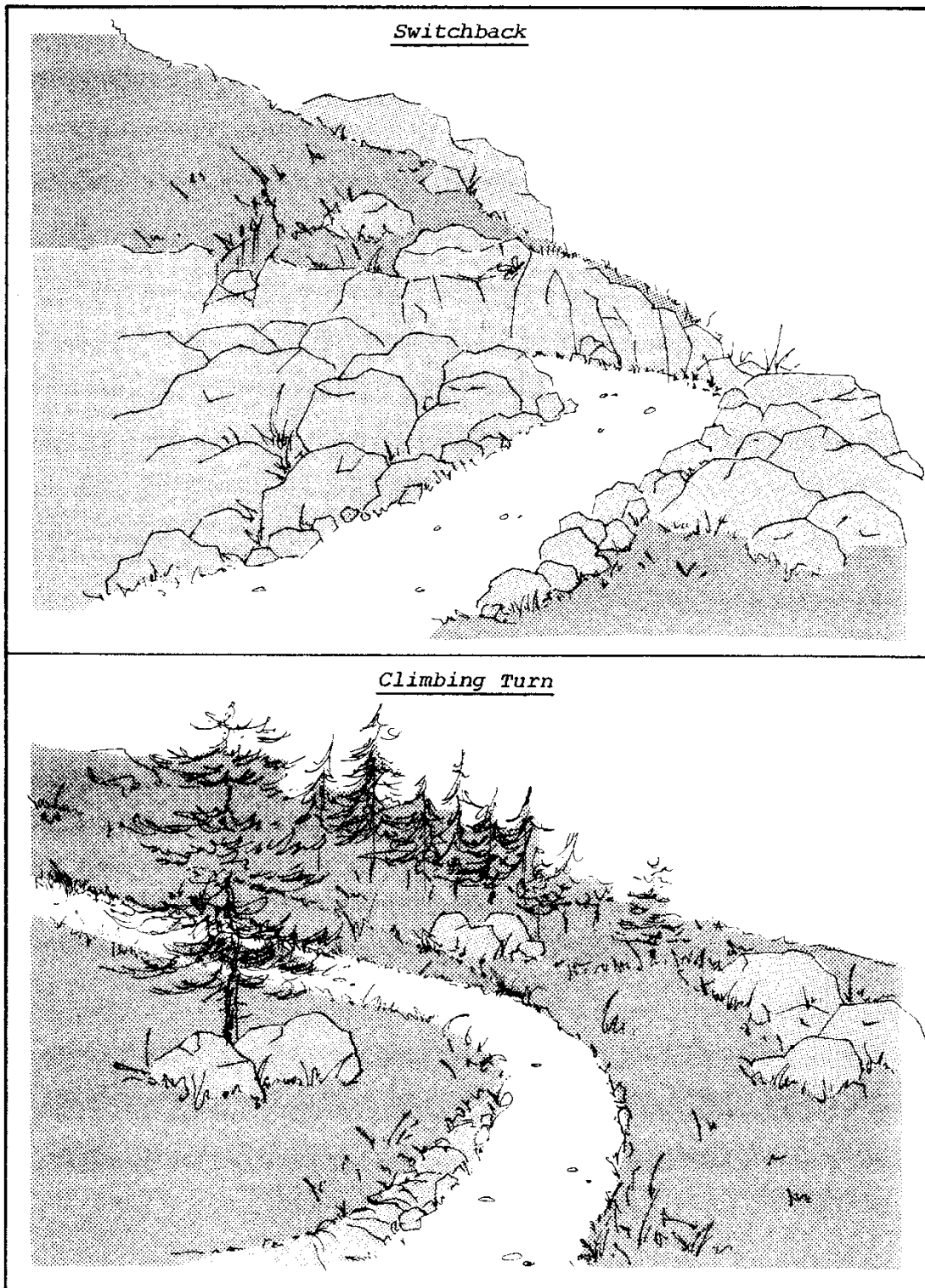


PUNCHEON WALKWAY  
(Do not use on  
Pack and Saddle Trails)



PUNCHEON BRIDGE

**3.12c Exhibit 01**



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### 3.13b Exhibit 01

Sample Field Notes									
STA	Lt. ± Cross	Rt. Slope	± Grade	Type Soil	Type Clearing	Work Items	#	Building Materials	Remarks
1151+00	160	-60	+8	C	10				
1151+80						DANGER TREE	36"	40' Lt.	Sta. 115+30
1152+00	+56	-52	+8	C	10	ROCK WATERBAR	1	in area	
1152+35						ROCK WATERBAR	1	100'	Top of ridge.
1153+00	+65	-60	+6	MR	6				
1153+56	+68	-68				ROCK UNDERDRAIN	60 LF	within 300'	Spring 52' above the trail.
1154+00	+40	-35	-10	C	10	ROCK GULLY X-ING	1	150'	Ø Side drain.
1154+20	+35	-35	+14	C	10				
1155+00	+70	-68	+8	HR	10				
1155+45						ROCK WATERBAR		50'	No spillway needed. Vertical bluff above trail.
1156+00	+65	-65	+8	C	6				
1156+40									Large wildlife tree below fr. <u>DO NOT REMOVE</u>

NO AMENDMENT 2309.18-91-2  
EFFECTIVE 11/8/91

2309.18.3  
Page 15 of 28

3.13b - Exhibit 01

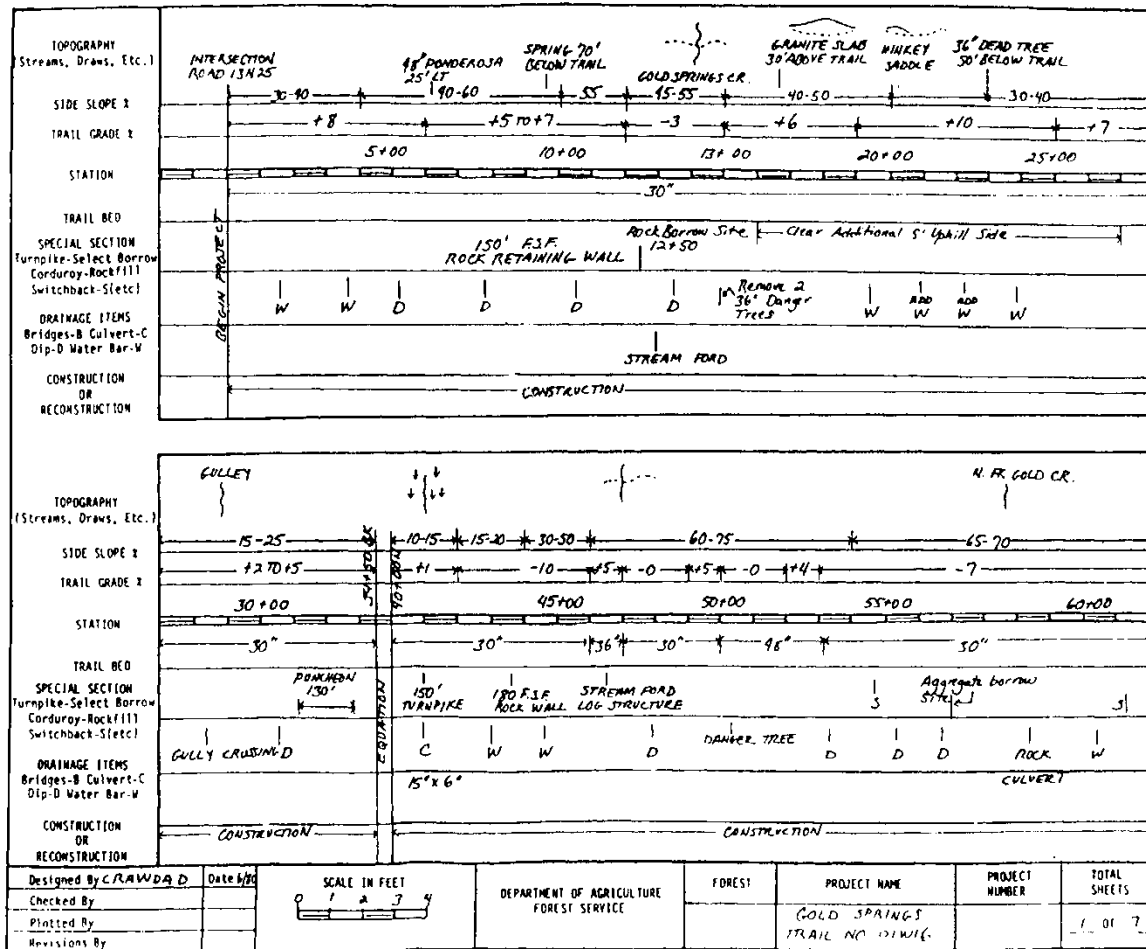
# Forest Service Manual-Handbook 2309.18 – Trails Management Handbook

## Chapter 3 - Trail Preconstruction and Construction

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### 3.15 Exhibit 01



WO AMENDMENT 2309.18-91-2  
EFFECTIVE 11/8/91

3.15 - Exhibit 01

2309.18.3  
Page 17 of 28

### 3.16a Exhibit 01

Previous edition is obsolete

(Contd.)

FD-2700-18 (7-81)

Forest Service Manual-Handbook 2309.18 – Trails Management Handbook

Chapter 3 - Trail Preconstruction and Construction

Amendment: 2309.18-1991-2

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3.16a Exhibit 01--continued

F. CONSTRUCTION COST ESTIMATE								
1. PROJECT NAME BARCLAY LAKE TRAIL		2. PROJECT NO. 1055		3. APPROVED BY				
4. PREPARED BY		5. DATE PREPARED APRIL 17, 1984		6. TITLE		7. DATE APPROVED		
ITEM NO.	DESCRIPTION	METHOD OF MEAS.	UNIT	QUANTITY	ENG. ESTIMATE PUBLIC WORKS		PURCHASER CREDIT LIMIT	
					UNIT PRICE	TOTAL	UNIT PRICE	TOTAL
901(01)	CLEARING		MILE	2.3	2415.	5554		
901(02)	GRUBBING		MILE	2.3	1040.	2392		
901(03)	DANGER TREES + SNAGS		EACH	4	25.	100		
903(01)	EXCAVATION		MILE	2.3	5600.	13440		
903(03)	ALUMINUM CULV. 12"		LN. FT.	6'	12.	72		
905	SWITCH BACKS		EACH	1	200.	200		
906	30" PUNCHION		LN. FT.	569	35.	19915		
907	WATER BARS		EACH	7	25.	175		
908(01)	WIND DITCH		LN. FT.	12	3.	36		
908(02)	PARALLEL DITCH		LN. FT.	51	3.	153		
908(05)	STREAM CHANNEL CLEAN		EACH	1	25	25		
908(06)	LEAD OFF DITCH		LN. FT.	200	2.	400		
914(08)	PIT RUN GRADING (2" MINUS)		LN. FT.	470	2.	940		
918	FOOT LOG BRIDGE #1		EACH	1	500	500		
918	FOOT LOG BRIDGE #2		EACH	1	1500	1500		
SUB-TOTAL PROJECT WORK						45402		