

PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411

July 27, 1981

RECEIVED

JUL 30 1981

DIVISION OF
OIL, GAS & MINING

Donald A. Crane, Director, Region VI
Office of Surface Mining
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Mr. Crane:

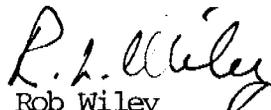
I have been requested by Sally Keefer, Utah Division of Oil, Gas and Mining, to send you mapping and information describing our proposed activities. We intend to utilize a portion of the previously disturbed mine site (prior to 1977) on Willow Creek for a helicopter landing area, materials storage and pole assembly area in conjunction with the construction of the powerline to our development in Crandall Canyon. We received verbal permission to begin construction of drainage controls on July 23, 1981 from M.S. Keefer. We will begin storage of materials at the site upon completion of the drainage controls.

I have included in the enclosed folder, a description of the site preparation, site maps and hydrologic calculations.

If you need any further clarifications, please contact me.

Sincerely,

PRICE RIVER COAL COMPANY



Rob Wiley
Environmental Engineer

RW/jd

cc: Sally Keefer, DOGM
Ken Hutchinson
Gene Haub

SITE DEVELOPMENT FOR A TEMPORARY HELICOPTER
LANDING AND MATERIALS STORAGE AND ASSEMBLY FACILITY
TO BE USED IN CONJUNCTION WITH CONSTRUCTION OF THE
CRANDALL CANYON POWERLINE.

JULY 22, 1981

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MAP OF WILLOW CREEK
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THREE (3) SEQUENTIAL MAPS OF
SITE DEVELOPMENT AT 1"=50' SCALE

INTRODUCTION

Price River Coal Company received limited permission on June 30, 1981 to construct the 46 KV transmission line from Hardscrabble Canyon to Crandall Canyon. At the time of the approval, no one considered the specific needs of the construction contractor, Wasatch Electric, for a helicopter landing and service area nor an on site assembly area other than at Crandall Canyon. Upon the contractor's review of the region in early July, the Willow Creek #6 Mine development area was chosen as most satisfactory due to the reasonable proximity to the construction site and a minimum concentration of existing power lines. Price River Coal Company contacted Jim Smith at DOGM on July 10, 1981, when concurring with the contractor's wishes, we realized that Willow Creek was the only reasonable site available to us.

The Willow Creek area is on Price River Coal Company fee land. The Willow Creek site has been disturbed by mining activities since about 1910 when the Utah Fuel #2 Portal was driven on the south side of the creek. Active mining continued by North American Coal Company until about 1974. In 1975-76 Braztah/AEP initiated some re-development activities which finally comprised about 1000 feet of Willow Creek channel relocation, facing up a potential portal location on the east end of the site and covering and leveling of the gob disposal area on the north side of the creek. These developments were to be part of the mining activities for the eastern coal reserve and were designated in our 211 Plan as the #6 Mine. The present status of the site is inactive, although there exists several old structures and a small substation which is occasionally turned on to operate the Castle Gate #2 Mine fan.

The area that will be re-affected for the helicopter pad, etc., is about 3.3 acres on the east end of the leveled area, north of Willow Creek and an access road which crosses Willow Creek, running southwest from the needed site

to state route 33. The segment of the access road from the north side of Willow Creek to route 33 is temporarily across the leased property of Gray-Co Construction Company. The cross-hatched areas on the included maps represents the described area. Duration of intended use is 3 to 4 months, paralleling the construction time for the Crandall powerline.

The intend for this area after completion of the powerline is to maintain and upgrade the drainage controls for continued, infrequent use of the area as storage until such time as the #6 Mine development proceeds.

SITE DEVELOPMENT

The site development activities will consist of the installation of drainage controls including installation of minimum two (2) foot berms around affected areas, construction of sediment and drainage retention basins, designed to hold the 10 year 24-hour event without discharge and diversion of overland flow from unaffected areas. Development will proceed as follows:

1. A 2' high earthe- berm will be installed around the area designated on maps #1, #2 and #3 as WC#3. No berm will be needed on the north end of WC#3 since the line here indicates the break point of the gradient. Note the contour lines and elevations on Map #2 of 4. The north end of the cross-hatched area is in a depression. We intend to operate in about 3/4 of this depression and leave the low end free to collect and evaporate any potential runoff. No water is currently impounded in this depression, nor to anyone's memory, has it ever. The berm will be kept at a minimum of four (4) feet from the edge of the leveled area on the side facing Willow Creek.

2. Pond 001 as designated on Map 3 of 4 will be excavated to the design capacity of 7,790 ft³ for retention of WC#3 drainage.
3. A ditch will be installed on the uphill side of WC#3 to divert unaffected runoff around the site to culvert "A", shown on Map 3 of 4.
4. Approximately 80' of 36" culvert, culvert "A" will be installed, draining the 37 acre watershed designated as WC#1. Earth cover culvert "A" will be built up to isolate WC#3 and assure all drainage flow to Pond 001.
5. The drainage controls for WC#5 will be constructed including:
 - A. Berming both sides of the road;
 - B. Installation of culvert "B", an 18" cnp, draining the 12 acres of WC#2;
 - C. Ditching for diversion of overland flow as shown by arrows;
 - D. Excavation of Pond 003 to a capacity 1.180 ft³.

See Map #4 of 4.

6. Development of the WC#4 area 13.5 acres, and installation of Pond 002 will be done in a similar manner as indicated for WC#3. This area is not directly needed for the helipad but is being brought into compliance at this time since we will have equipment on site. The existence of the operational substation and various other bits of potentially useful mining paraphernalia leaves Price River Coal Company in a borderline need for compliance situation, which installation of drainage controls should rectify.

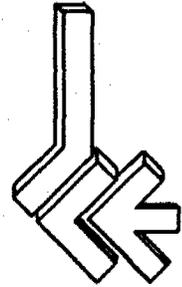
The area to be used, though totally previously affected by mining, supports a sparse to heavy stand of herbaceous and shrubby vegetation. We have petitioned to not disturb this vegetation by removal of 6" of the present growth medium, in order to minimize the potential for dust clouds produced by helicopter turbulence.

Reclamation plans for this area will be included in a future submittal detailing #6 Mine development.



HORROCKS & CAROLLO ENGINEERS

A JOINT VENTURE
ONE WEST MAIN
P. O. BOX 377
AMERICAN FORK, UTAH 84003



July 24, 1981

Robert L. Wiley
Environmental Engineer
Price River Coal Company
P.O. Box 629
Helper, Utah 84526

Subject: Willow Creek Facilities
Hydrology Computations

Dear Mr. Wiley:

As per our verbal conversations, and your letter of July 21, 1981, I have performed the hydrologic calculations on the maps transmitted with your letter. I have the following results and conclusions:

1. Using the 10 year 24-hour rainfall data and the rational equation, the peak runoff for Willow Creek Area No. 1 is 35 cfs. My recommendation is to use a 30" corrugated metal pipe at a 5% slope which would require 22" of head water depth over the top of the pipe at the inlet end.
2. Using the same method as above, the computed runoff for Willow Creek Area No. 2 would be 11 cfs. I would recommend the use of an 18" corrugated metal pipe at a 5% slope which would require 15" of head water over the top of the pipe at the inlet end.
3. Using the Soil Conservation Service method for computing the volume runoff, the required volume of the retention basins are as follows:

<u>Subbasin</u>	<u>Area</u>	<u>Volume</u>
Willow Creek Area #3	3.3 acres	7,790 cu.ft.
Willow Creek Area #4	3.5 acres	8,260 cu.ft.
Willow Creek Area #5	0.5 acres	1,180 cu.ft.

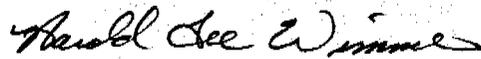
Robert L. Wiley
July 24, 1981
Page 2

I have attached to this letter all of my engineering calculations, a certification and back up data for your files.

If you desire clarification or have any additional questions, please contact me at (801) 756-7628.

Very truly yours,

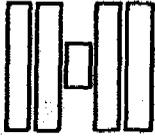
HORROCKS & CAROLLO ENGINEERS



Harold Lee Wimmer, P.E.
Hydrologist

Enclosures

HLW/11



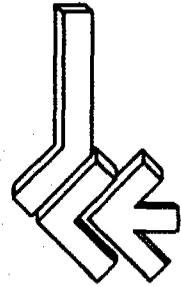
HORROCKS & CAROLLO ENGINEERS

A JOINT VENTURE

ONE WEST MAIN

P. O. BOX 377

AMERICAN FORK, UTAH 84003



July 24, 1981

WILLOW CREEK FACILITIES

HYDROLOGICAL CERTIFICATION

I, Harold Lee Wimmer, do certify that I am a registered professional engineer, and that I hold certificate No. 3535 as prescribed under the laws of the State of Utah. I further certify that I have a Bachelor of Engineering Science Degree in Civil Engineering from Brigham Young University and a Master of Science Degree in Civil Engineering from the University of Southern California, with an emphasis on Hydrology. I further certify that by authority of the owners I have performed the hydrology computations attached and that said calculations and computations have been correctly performed in accordance with professional standards of practice relating to hydrology, and that the conclusions contained herein are true and correct and represent use of current hydrologic and climatological information.

Harold Lee Wimmer, P.E.
Utah P.E. No. 3535

Willow Creek Area Drainage

Surface runoff

Design Data

See Map #1 for drainage Subbasins

Area in acres by planimetric methods

10 year 24 hour storm: Use Scofield Dam return period
data by E. Arlo Richardson

Rational Equation C Value: 0.4

DeterminationsUse Rational Formula for peak runoff, $Q = CIA$
Estimate Time of concentration with formula
 $T_c = 0.0078 L^{0.77} S^{-0.385}$ with $T_c(\text{min}) = 10$ minutes

Willow Creek Area No. 1

Area = 37 acres

L = 2500 feet

S = .65 ft/ft $\Rightarrow T_c = 3.8$ min, use $T_c = 10$ min. $\Rightarrow I = 2.34$ in/hr $Q = CIA = (0.4)(2.34)(37) = 35$ cfs \Rightarrow Use 27" CMP @ 6% slope with 48" of
headwater over top of pipe at inlet end, or
Use 30" CMP @ 5% slope with 22" of headwater

Willow Creek Area No. 2

Area = 12 acres

L = 1450 feet

S = .41 ft/ft $\Rightarrow T_c = 3.0$ min, use $T_c = 10$ min. $\Rightarrow I = 2.34$ in/hr $Q = CIA = (0.4)(2.34)(12) = 11$ cfs \Rightarrow Use 18" CMP @ 5% slope with 15"
of headwater over top of pipe at inlet end

Willow Creek Area Drainage ^{cont.}

Volume of runoff

Design Data

as listed on sheet 1

SCS National Engineering Handbook, section 4 "Hydrology"

Determinations

Use SCS method for computing volume of runoff

Willow Creek Area No. 3

Area = 3.3 acres

CN = 82

Rainfall = 2.12 inches

⇒ Runoff = 0.65 inches

⇒ Volume of runoff = $(3.3)(43,560)(0.65)(1/12) = 7,790 \text{ ft}^3$

Willow Creek Area No. 4

Area = 3.5 acres

CN = 82

Rainfall = 2.12 inches

⇒ Runoff = 0.65 inches

⇒ Volume of runoff = $(3.5)(43,560)(0.65)(1/12) = 8,260 \text{ ft}^3$

Willow Creek Area No. 5

Area = 0.5 acres

CN = 82

Rainfall = 2.12 inches

⇒ Runoff = 0.65 inches

⇒ Volume of runoff = $(0.5)(43,560)(0.65)(1/12) = 1,180 \text{ ft}^3$

ESTIMATED RETURN PERIODS FOR SHORT DURATION PRECIPITATION
(inches)

Station: [REDACTED]
Latitude: 39° 47'

Elevation: 7630
Longitude: 111° 07'

DURATION

RETURN PERIOD (years)	DURATION									
	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	[REDACTED]
1	.15	.23	.29	.40	.51	.58	.65	.81	.96	1.11
2	.17	.27	.34	.47	.60	.69	.78	1.00	1.20	1.40
5	.22	.34	.43	.60	.76	.88	1.00	1.29	1.55	1.82
[REDACTED]	.25	.39	.49	.68	.86	1.00	1.14	1.49	1.80	[REDACTED]
25	.31	.48	.60	.84	1.06	1.23	1.39	1.80	2.16	2.54
50	.33	.51	.64	.89	1.13	1.33	1.52	2.00	2.43	2.87
100	.36	.55	.70	.97	1.23	1.46	1.67	2.21	2.69	3.19

Station: Silver Lake Brighton
Latitude: 40° 36'

Elevation: 8700
Longitude: 111° 35'

DURATION

RETURN PERIOD (years)	DURATION									
	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr
1	.07	.11	.14	.19	.24	.42	.59	1.01	1.39	1.78
2	.10	.16	.21	.28	.36	.56	.75	1.22	1.64	2.08
5	.17	.26	.33	.46	.58	.80	1.01	1.53	2.00	2.48
10	.20	.31	.39	.54	.68	.92	1.16	1.74	2.26	2.80
25	.25	.38	.48	.67	.85	1.13	1.39	2.05	2.64	3.25
50	.28	.44	.56	.77	.98	1.28	1.57	2.30	2.95	3.62
100	.32	.50	.64	.88	1.12	1.45	1.76	2.54	3.24	3.96

Chart 2-53: HEADWATER DEPTH FOR C.M.P. CULVERTS WITH INLET CONTROL

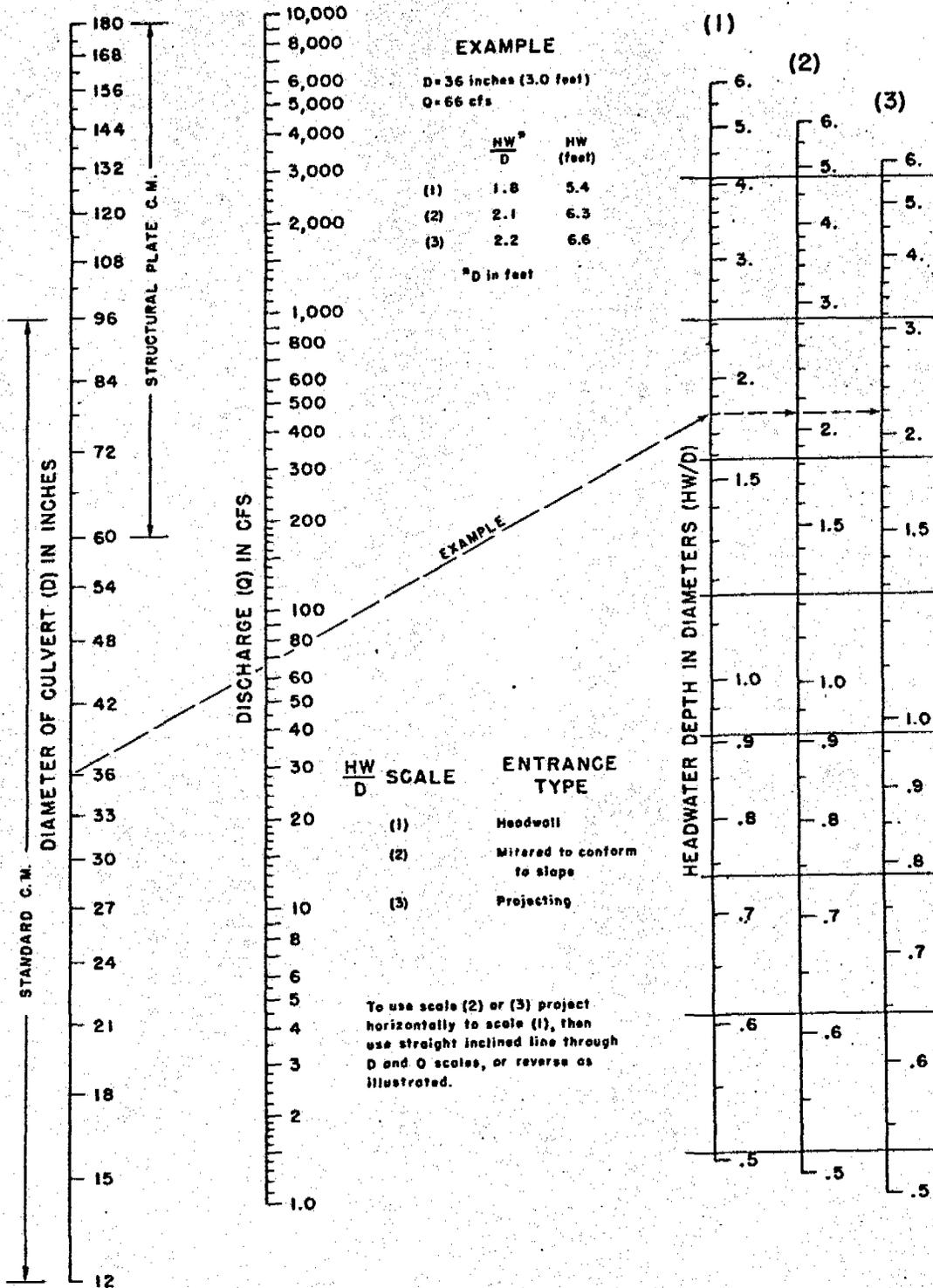


Table 9.1.--Runoff curve numbers for hydrologic soil-cover complexes

(Antecedent moisture condition II, and $I_a = 0.2 S$)

Land use	Cover		Hydrologic soil group			
	Treatment or practice	Hydrologic condition	A	B	C	D
Fallow	Straight row	----	77	86	91	94
Row crops	"	Poor	72	81	88	91
	"	Good	67	78	85	89
	Contoured	Poor	70	79	84	88
	"	Good	65	75	82	86
	"and terraced " " "	Poor Good	66 62	74 71	80 78	82 81
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	"and terraced	Poor Good	61 59	72 70	79 78	82 81
Close-seeded legumes ^{1/} or rotation meadow	Straight row	Poor	66	77	85	89
	" "	Good	58	72	81	85
	Contoured	Poor	64	75	83	85
	"	Good	55	69	78	83
	"and terraced "and terraced	Poor Good	63 51	73 67	80 76	83 80
Pasture or range		Poor	68	79	86	89
		Fair	49	69	79	84
		Good	39	61	74	80
	Contoured	Poor	47	67	81	88
	"	Fair	25	59	75	83
	"	Good	6	35	70	79
Meadow		Good	30	58	71	78
Woods.		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	25	55	70	77
Farmsteads		----	59	74	82	86
Roads (dirt) ^{2/} (hard surface) ^{2/}		----	72	82	87	89
		---	74	84	90	92

^{1/} Close-drilled or broadcast.^{2/} Including right-of-way.

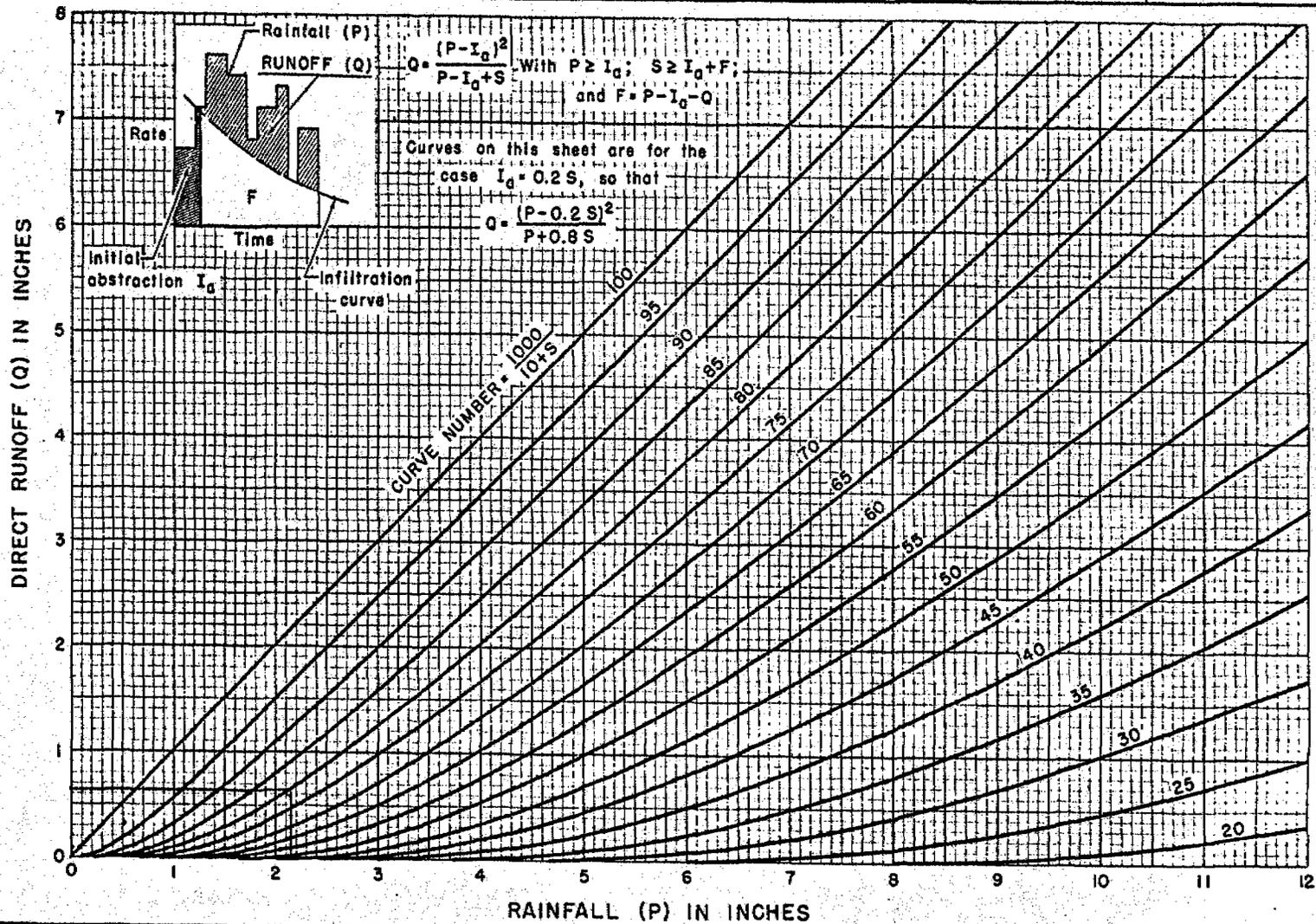


Figure - 10.1 (1 of 2)

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REFERENCE

Mockus, Victor; Estimating direct runoff amounts from storm rainfall:
Central Technical Unit, October 1955

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ENGINEERING DIVISION - HYDROLOGY BRANCH

STANDARD DWG. NO.
ES-1001
SHEET 1 OF 2
DATE 6-29-56

REVISED 10-1-64

10.21