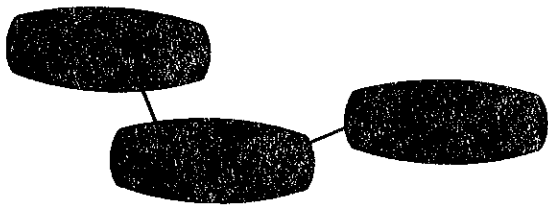


REVISED
CENTENNIAL WEST
MASTER DRAINAGE REPORT
APRIL, 1983

PREPARED FOR:
M.L. PROPERTIES, INC.

BY:
UNITED PLANNING & ENGINEERING CO., INC.
3730 Sinton Road, Suite 101
Colorado Springs, CO 80907
(303) 471-8222

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planners · consultants · engineers

3730 Sinton Road
Colorado Springs, Colorado 80907
(303) 471-8222

April 14, 1983

Mr. Dewitt Miller
Director of Public Works
City of Colorado Springs
30 South Nevada
Colorado Springs, CO 80901

SUBJECT: Revised Master Drainage Report and Plan for Centennial West.

Mr. Miller:

Submitted herewith is the subject drainage report and plan for your review and approval.

If you have any questions or if we can be of any service, please contact our office.

Sincerely,

UNITED PLANNING & ENGINEERING CO.

Michael J. Vinson, P.E.
Head of Engineering

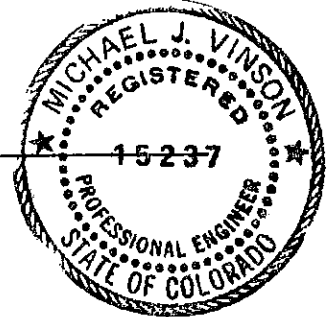
MJV:csn

DRAINAGE REPORT
CERTIFICATIONS AND APPROVALS

REGISTERED ENGINEER:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the City for drainage reports and said report is in general conformity with the Master Plan of the drainage basin. I accept responsibility for any liability caused by negligent acts, errors, or omissions on my part in preparing this report.

Michael J. Vinson
MICHAEL J. VINSON



Colorado P.E. No. 15237

OWNER OR DEVELOPER OF SITE:

The developer has read and will comply with all of the requirements specified in this drainage report as approved by the City Engineer.

Filed

BY: *George Hallsten*

TITLE: *VICE-PRESIDENT.*

CITY:

Filed in accordance with Section
15-3-906 of the Code of the City
of Colorado Springs, 1980, as
amended.

FILED:

Gayle Hayes 6-21-83
City Engineer Date

BY:

*Outfall facilities subject to
individual subdivision grading
plan compliance.*

TITLE:

CENTENNIAL WEST
MASTER DRAINAGE REPORT

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MASTER DRAINAGE REPORT

FOR

CENTENNIAL WEST

1. SCOPE:

This report is a master study of the Centennial West parcel and includes adjacent areas contributing to the South Douglas Creek Channel. It is intended to show the proposed plan for routing storm runoff and its effects on proposed and existing structures.

2. LOCATION:

Centennial West is located in the east half of the northeast quarter of Section 26 and the west half of the northwest quarter of Section 25, all in Township 13 South, Range 67 West of the 6th Principal Meridian, containing 45.61 acres, more or less.

The property is bounded on the north by Garden of the Gods Road, on the east by Buckingham Industrial Park, Holland Park Subdivision No. 7 and Holland Park Boulevard, on the south by Holli Heights Subdivision, and unplatted ground, and on the west by unplatted ground.

3. METHOD:

Major offsite flows are from the Douglas Creek Master Drainage Plan by Leigh Whitehead and Associates, dated June, 3, 1980.

The method used for onsite computation is the USDA/SDS Synthetic Hydrograph method as prescribed by the City of Colorado Springs. All interior flows are based on the "5-year" rainfall of 2.1 inches in 6 hours. The primary channel flows are based on a "100-year" rainfall of 3.5 inches in 6 hours. All computations are enclosed. Soils classifications were obtained from the SCS maps.

4. EXTERNAL FLOWS:

Approximately 121 cfs enters the site in a 48 inch R.C.P. from the north. This flow originates on the Kaman Sciences Property and will be carried in a 48 inch R.C.P. within the Centennial Boulevard right-of-way to the south Douglas Creek Channel. Approximately 50 cfs will enter the site from the United Technologys Property, and will also be carried in this pipe.

About 79 cfs flows onto the site from the northeast. (Areas F11, F12 and F14 on the Basin Master Plan.) These flows will be picked up in a pipe system and carried south to the channel.

4. EXTERNAL FLOWS (CONT.)

A 54 inch R.C.P. carrying 166 cfs empties into the channel from the south. An additional 14 cfs will be carried in existing Centennial Boulevard and will empty into the channel at the box structures.

According to the Master Basin Plan a little over 3000 cfs enters the site from the west in the south Douglas Creek Channel. This flow and the additional flows, both onsite and offsite; will be contained in a concrete lined channel through this project. (See channel design.)

5. SOILS, ZONING AND LAND USE:

The soils on this site consists of both Slocum Alluvium (pQs) and Physiographic Flood Plain. The Physiographic Floodplain is in the areas of stream valleys and is subject to recent deposition and erosion during flood stages. This area is mainly where the drainage channel will be built or will be filled over before any building construction. The Slocum Alluvium is poorly sorted stratified gravel containing layers of clay, silt, sand and clay balls. This soil is moderate to low runoff with a high resistance to erosion. Even though sites close to this one have been used for gravel mining a Hydrologic soil Group "C" will be used for this site.

This site will be zoned OC and PBC with mainly the northern half being used for a shopping center and the south half for Offices and a strip park.

6. INTERNAL FLOWS:

This section of the report is to mainly show the flows generated in the different sub-basins. A more detailed analysis of handling these flows will be submitted as these areas are platted and development plans are approved.

Sub-basins A1, A2, and A5:

Sub-basins A1 and A5 are parts of Garden of the Gods Road and Centennial Boulevard. Sub-basin A2 is a PBC site. Flows from all three sub-basins (7.6 cfs) will be collected in an inlet at the first major intersection and be carried in the 48" R.C.P. to the channel.

Sub-basin A-3:

Runoff in sub-basin A-3 (18.8 cfs) will flow to a sump in the southwest corner of the basin where it will be picked up in an inlet and carried to the 48" R.C.P.

Sub-basin A-4:

Sub-basin A-4 is a portion of Centennial Boulevard. Runoff from this sub-basin (3.6 cfs) will be collected in an inlet at the first major intersection and carried with the flows from "A-3" to the 48" R.C.P.

6. INTERNAL FLOWS (CONT.):

Sub-Basin A-6, A-7, and A-18:

Sub-basins A-6 and A-18 are also portions of Centennial Boulevard. Runoff from these sub-basin (5.8 cfs and 2.6 cfs respectively) will flow down Centennial Boulevard to the low point in the street where it will be collected in inlets. Sub-basin A-7 is an office site. The runoff from this sub-basin (6.7 cfs) will combine with A-6 and flow into the inlet in the low point.

Sub-Basin A-15:

Sub-basin A-15 is a portion of Centennial Boulevard. Runoff from this sub-basin (4.0 cfs) will be collected in an inlet and carried to the 48" R.C.P.

Sub-Basin A-9, A-10, A-11 and A-12:

These sub-basins are mainly parking lots and open space for the PBC and OC sites. Runoff from these sub-basins (24.4 cfs total) will either flow overland or be carried in a pipe system to the channel.

Sub-Basin A-13:

This sub-basin is part of the PBC and OC buildings, sidewalks, open space and internal drives. This runoff (10.9 cfs) will be carried in the street to the channel.

Sub-Basin "B":

Basin "B" consists of the back portions of the PBC and OC building. The east portion of the site and the park ground. Off-site flows from the east enter onto this basin.

Sub-Basin B-1:

Sub-basin B-1 is the back of northern PBC ground. Runoff from this site (10.3 cfs) will flow south where it will combine with the flow from the platted and unplatted ground to the east (60.0 cfs). This combined flow will be picked up in an inlet and carried south in a pipe to the channel.

Sub-Basin B-2:

Sub-basin B-2 is the back of the southerly PBC ground and OC ground. Runoff from this site (11.1 cfs) and runoff from the east (5.8 cfs) will flow to the south and into the channel.

Sub-Basins B-3 and B-4:

Sub-basins B-3 and B-4 are the easterly portion of this project. They consist of open space and some parking lots. Runoff will be overland to the channel.

6. INTERNAL FLOWS (CONT.):

Basin "C":

Basin "C" is the southwest portion of the project. It consists of office buildings and open space. Runoff (3.6 cfs) will sheet flow south to the channel.

7. BOX CULVERT UNDER CENTENNIAL BOULEVARD:

The Douglas Creek Master Drainage Plan by Leigh Whitehead and Associates calls for a double 7' x 10' reinforced concrete box to be placed under Centennial Boulevard at the south boundary of this property. This structure was sized for super-critical flow. Using Mannings formula $Q = 1.48/nR^{2/3}S^{1/2}A$ in which:

n = Mannings no. = 0.013

R = Hydraulic Radius

S = Slope = 1.5% (design)

A = Area

Q = Discharge = 3063 cfs

and using a depth of 5.0 feet a flow of 3100 cfs will be calculated. Using $Q = AV$ in which:

Q = Discharge

A = Area

V = Velocity

a velocity of 30.63 feet per second is calculated.

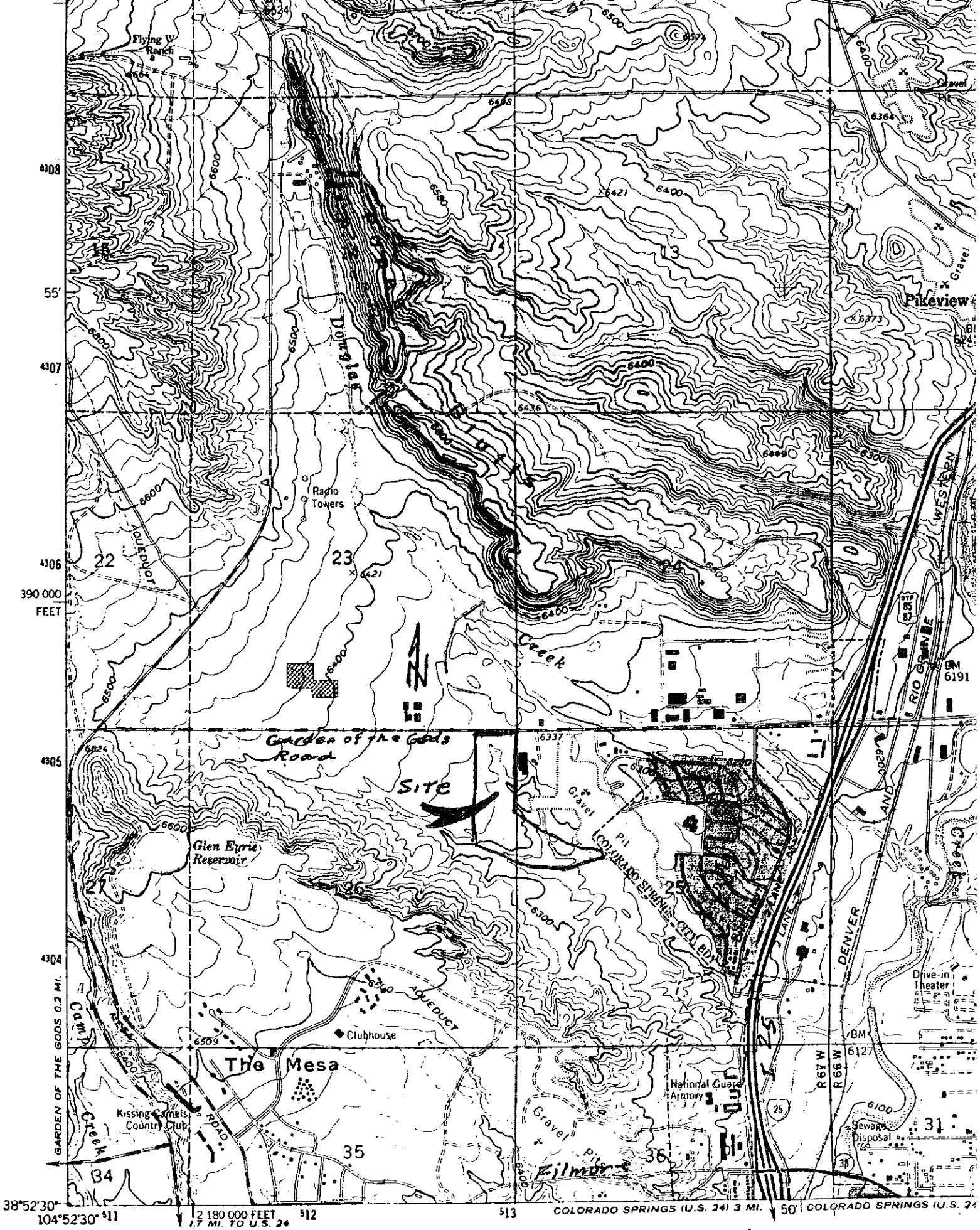
Critical depth for a 20 foot bottom vertical wall section is 8.8 feet and critical velocity is 17.4 fps.

At this time the City of Colorado Springs Park Department is planning on putting a pedestrian underpass along the north side of the 7' x 10' box. This structure will be approximately 8 feet high and 6 feet wide. This structure will also function as a "back up" should the drainage box become inundated.

8. EXISTING 6' x 10' RCB UNDER HOLLAND PARK DRIVE:

The existing 6' x 10' RCB under Holland Park Drive was constructed prior to the current Master Drainage Report. The super-critical depth of 5 feet is the same for this structure as the Centennial Boulevard structure. The channel should be designed to insure super-critical flow in this box. An energy dissipator will be constructed on the east side of this structure to slow the velocities for unlined channel flows.

APPENDIX



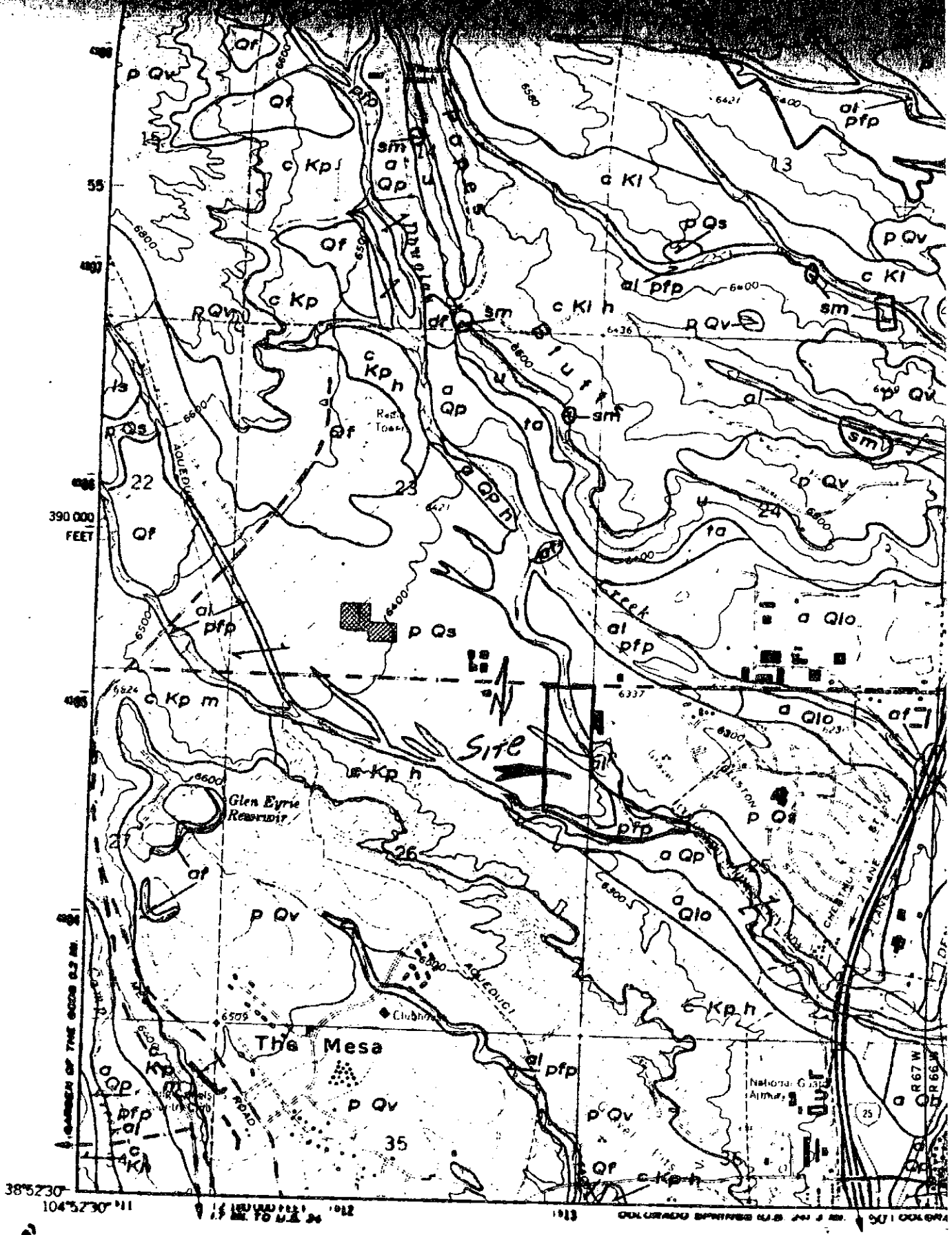
38°52'30" 104°52'30" 11 2 180 000 FEET 1.7 MI. TO U.S. 24 513 COLORADO SPRINGS (U.S. 24) 3 MI. 50 COLORADO SPRINGS (U.S. 24)

Mapped, edited, and published by the Geological Survey in cooperation with U. S. Corps of Engineers

Location Map

SPRINGS!

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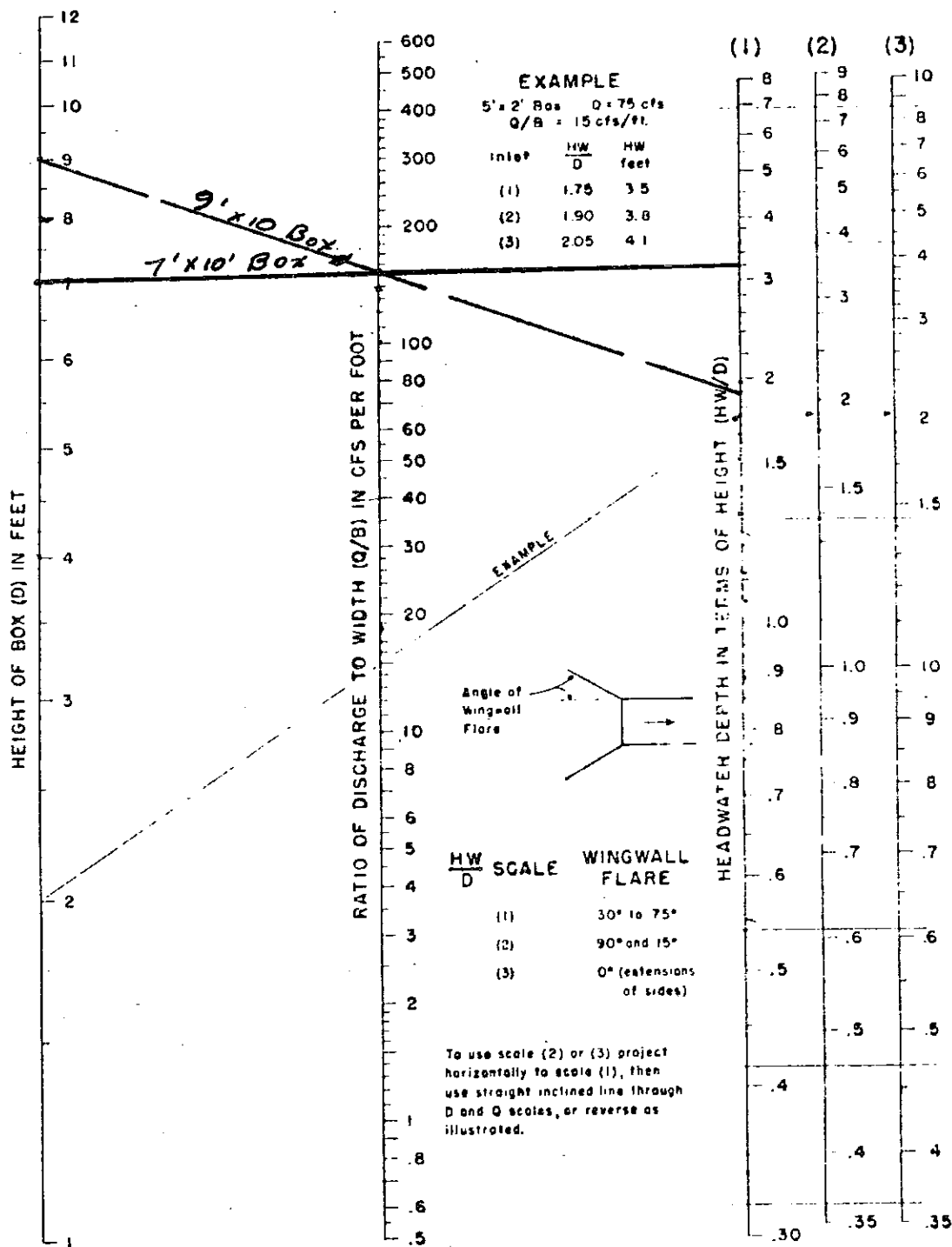


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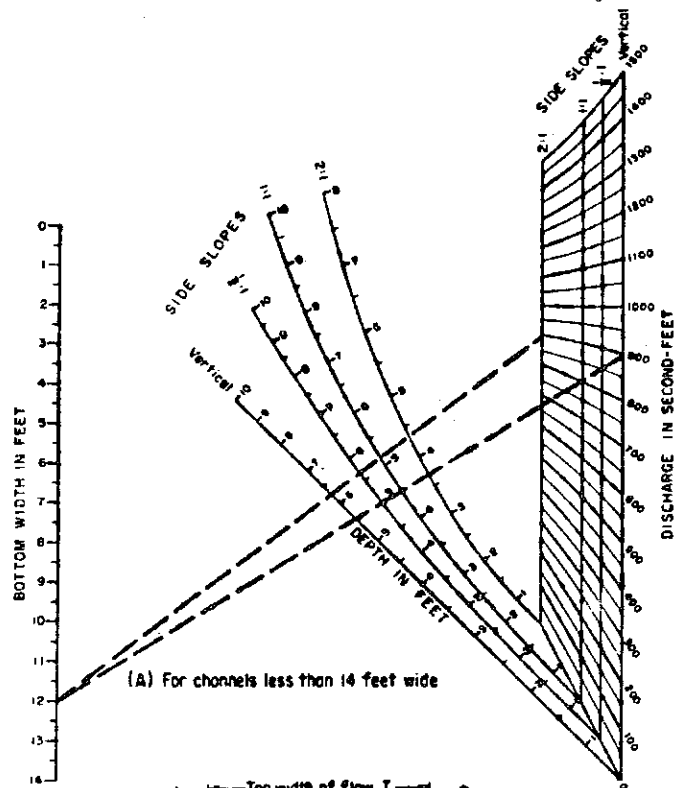
BASE MAP FROM U.S. GEOLOGICAL SURVEY 7.5' QUADRANGLE

SOIL Map

CHART I

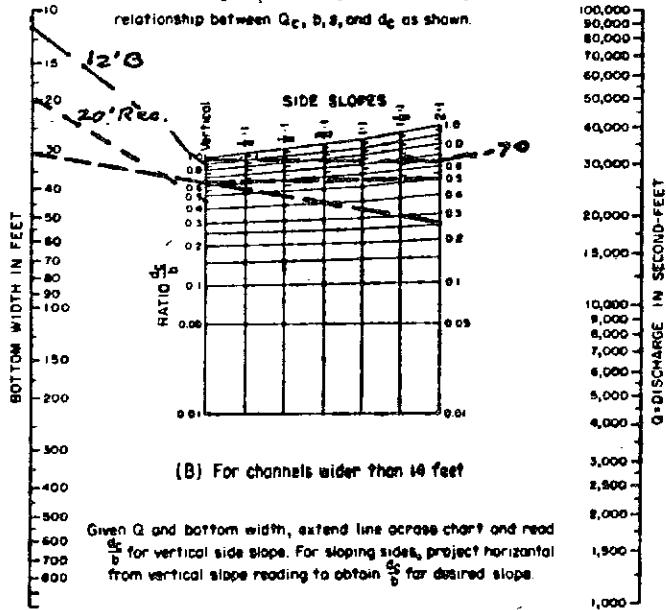


HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL



(A) For channels less than 14 feet wide

Chart gives values of d_c for known values of Q_c in the relationship $Q_c = \left(\frac{A^3 g}{T}\right)^{1/3}$. Single solution line gives relationship between Q_c , b , s , and d_c as shown.



(B) For channels wider than 14 feet

Given Q and bottom width, extend line across chart and read $\frac{d_c}{b}$ for vertical side slope. For sloping sides, project horizontal from vertical slope reading to obtain $\frac{d_c}{b}$ for desired slope.

Example No. 1
 $Q_c = 900$ cfs
 Bottom width " b " = 12'

Side slope	Critical depth " d_c " (feet)
2:1	4.4
Vertical	5.6

Example No. 2
 $Q = 15,000$ cfs
 Bottom width " b " = 30'
 Side slope = 2:1
 Vertical " d_c " = $.68b = 20'$
 " d_c " for 2:1 = $(0.5)(30) = 15'$

Figure B-4. Critical depth in trapezoidal sections. 288-D-2825

After C. Freeman

Figure 4

Hydro
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MAJOR BASIN	SUB BASIN	AREA		BASIN		Tc	K	SOIL GROUP	DEV. TYPE	CURVE NO.	FLOW	
		Planim. Recd.	MILE	LENGTH	HEIGHT						Q	6 hr. QP
A	A-1		.0011	600	6	.11	1260	C	Paved	98	1.87	2.6
	A-2		.0023	500	10	>.1	1280	C	PBC	94	1.49	4.38
	A3		.01	1000	25	.11	1260	C	PBC	94	1.49	18.8
	A4		.0015	850	20	.1	1280	C	Paved	98	1.87	3.6
	A5		.001	320	4	>.1	1280	C	Paved	98	1.87	2.4
	OC											50.0
	A1, A2, A5		.0044	1450	25	.17	1100	C	PBC & Paved	95	1.58	7.6
	A6		.0028	1600	34	.17	1100	C	Paved	98	1.87	5.8
	A7		.0035	620	24	>.1	1280	C	OC	94	1.49	6.7
	A6 & A7		.0063	1600	34	.17	1100	C	OC & Paved	96	1.67	11.6

HYDROLOGIC COMPUTATION - BASIC DATA

PROJ: Centennial West

By: MV
Date: 1-27-83



68

MAJOR BASIN	SUB BASIN	AREA		BASIN		Tc	K	SOIL GROUP	DEV. TYPE	CURVE NO.	FLOW	
		Planim. Recd.	MILE	LENGTH	HEIGHT						Q	5 hr. QP
A	A15		.0017	920	20	.11	1260	C	Paved	98	1.87	4.0
	A18		.0011	650	14	7.1	1280	C	Paved	98	1.87	2.6
	A9		.0048	520	9	7.1	1280	C	PBC	94	1.49	9.2
	A10		.0022	300	9	7.1	1280	C	PBC	94	1.49	4.2
	A9 & A10		.007	820	18	.1	1280	C	PBC	94	1.49	13.35
	A11		.0031	370	9	7.1	1280	C	PBC	94	1.49	5.9
	A9, A10 & A11		.0101	1190	27	.12	1205	C	PBC	94	1.49	18.1
	A12		.0043	400	9	7.1	1280	C	OC	94	1.49	8.2
	A9, A10, A11 & A12		.0144	1590	36	.16	1140	C	PBC & OC	94	1.49	24.4
	A13		.0067	1700	34	.19	1090	C	OC & PBC	94	1.49	10.9

HYDROLOGIC COMPUTATION - BASIC DATA

PROJ: Centennial West

By: MV
Date: 1-27-83



89.

MAJOR BASIN	SUB BASIN	AREA		BASIN		Tc	K	SOIL GROUP	DEV. TYPE	CURVE NO.	FLOW	
		Planim. Reod.	MILE	LENGTH	HEIGHT						Q	100yr QP
OS			0.148			.332	885			86	2.10	275
+ A1-A3			0.1614			.442	780			88	2.29	286
A7, A9, + A10, 11, 12	A6, A15, A18		0.1849			.612	660			90	2.45	300
	A9, A10, A11 & A12		2.2144			.76	550			94	2.84	46.82
B	B-2		.0065			.15	150			85	2.54	2123
	B-3		.0074			7.1	1280			87	1.94	5.28
	B-4		.0071			7.1	1280			1	1.24	1.45

HYDROLOGIC COMPUTATION - BASIC DATA

PROJ: Centennial West
100 year computation

By MVD
Date: 4/83



Sub-basin A-4

$$Q = 3.6 \text{ cfs}$$

$$\text{Slope} = 1.0\%$$

8" Vertical Curb

$$\underline{4' \text{ DIOR}} \text{ Capacity} = 8.6 \text{ cfs}$$

Sub-basin A-5

$$Q = 7.6 \text{ cfs}$$

$$\text{Slope} = 1.0\%$$

8" Vertical Curb

Master Drainage Report has 8' DIOR

$$\text{Cap.} = 9.4 \text{ cfs} \quad \underline{\text{Use } 8' \text{ DIOR}}$$

Sub-basin A-15

$$Q = 4.0$$

$$\text{Slope} = 3.3\%$$

8" Vertical Curb

$$\underline{4' \text{ DIOR}} \text{ Capacity} = 4.9 \text{ cfs}$$

Critical Depth:

$Q = 3590 \text{ c.f.s.}$

Bottom = 12' w/ 1.5:1 side slopes

From figure 4 $d_c = .7 b$

$d_c = .7(12) = 8.4 \text{ feet}$

$V_c = 17.4 \text{ fps}$

Super-Critical:

Depth = 5.6' 25% freeboard $\rightarrow d = 7.0'$

side slopes = 1.5:1

$b = 12'$

using $Q = 1.48/n R^{2/3} S^{1/2} A$

where:

$Q = 3590 \text{ c.f.s.}$

$n = 0.013$

$A = 114.24 \text{ sf}$

$R = 3.55 \rightarrow R^{2/3} = 2.33$

$\therefore S = \left(\frac{Qn}{R^{2/3} A (1.48)} \right)^2$
 $= .0141 \Rightarrow \underline{1.41\%}$

$V = \frac{3590}{114.24} = \underline{31.4 \text{ fps}}$

Hydraulic Energy Line = $H_E = d + \frac{V^2}{2g}$

$H_E = 5.6 + \frac{(31.4)^2}{64.4}$

$= \underline{20.91 \text{ ft.}}$

From figure 5

$H_E = d + \frac{q^2}{2gd^2(1+z\frac{d}{b})^2}$
 $= 5.6 + \frac{(299.17)^2}{2(32.2)(5.6)^2(1+1.5\frac{5.6}{12})^2}$

$= \underline{20.93 \text{ ft}}$ Close enough

42 SHEETS
 50 SHEETS
 5 SQUARE
 50 SHEETS
 42 SHEETS
 50 SHEETS
 5 SQUARE
 50 SHEETS
 42 SHEETS
 50 SHEETS
 5 SQUARE



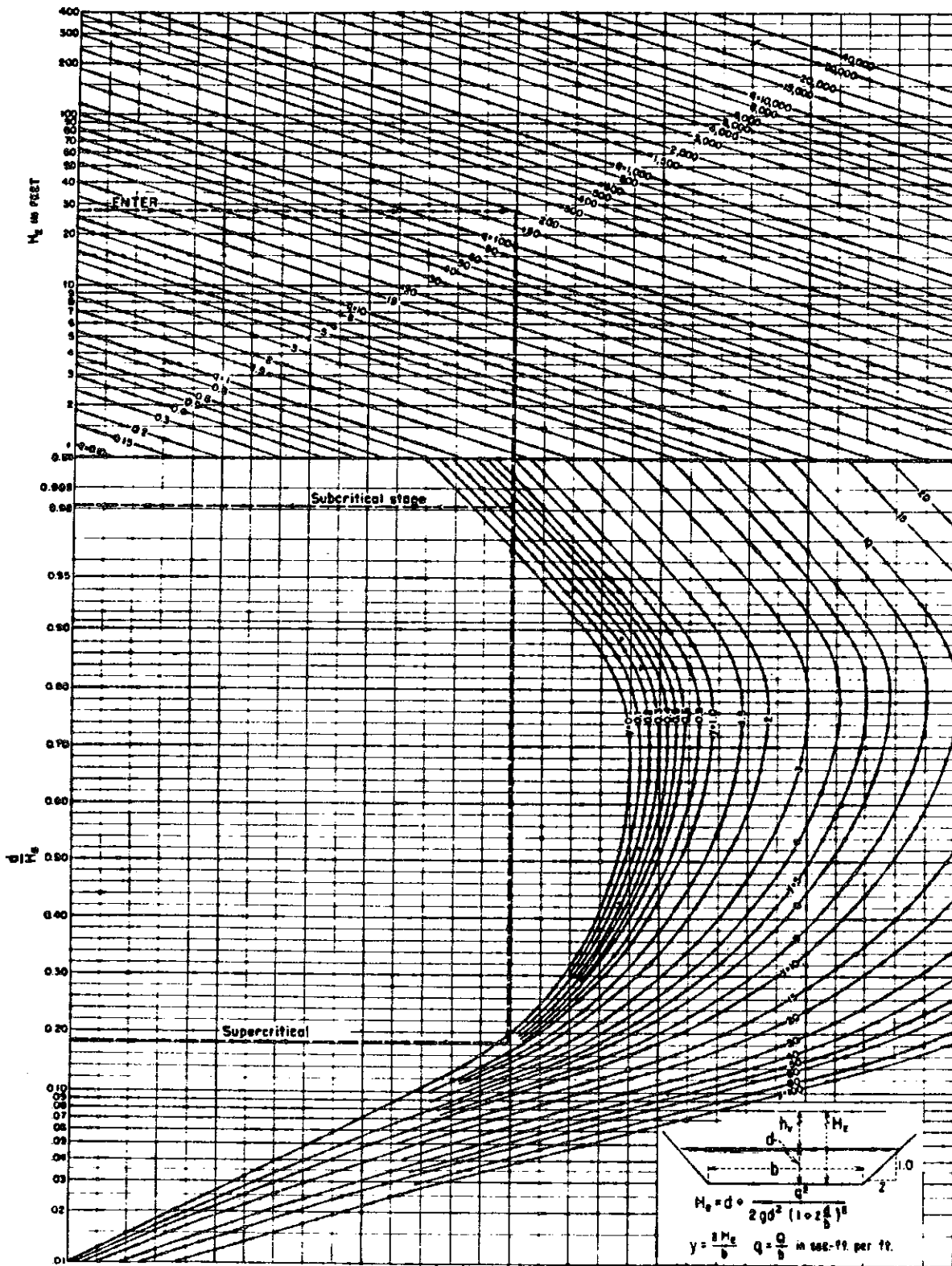


Figure B-3. Energy-depth curves for rectangular and trapezoidal channels. 268-D-2907.

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Figure 5

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Hydraulic Jump:

Assume: 1. Rectangular section out of the box

2. Super Critical at start of jump

$$d_{sc} = 5.0'$$

$$V_{sc} = 31.0 \text{ fps}$$

$$d_2 = -\frac{d_1}{2} + \sqrt{\frac{2V_1^2 d_1}{g} + \frac{d_1^2}{4}}$$

$$d_2 = -\frac{5}{2} + \sqrt{\frac{2(31)^2 5}{32.2} + \frac{(5)^2}{4}}$$

$$d_2 = 14.96 \text{ feet}$$

where:

d_2 = depth after jump

d_1 = depth before jump

V_1 = Velocity before jump

$$\text{Froude No.} = \frac{V}{\sqrt{gd}} = \frac{31}{\sqrt{32.2(5)}}$$

$$F = 2.4$$

from figure 6 $\rightarrow V_2 = 10 \text{ fps}$ at same cross section

$$\text{Length of jump} = d_2(4.8) = 71.8 \text{ feet (figure 7)}$$

from figure 7 $\frac{d_2}{d_1} = \frac{1}{2} (\sqrt{1+8F^2} - 1)$

$$\frac{d_2}{d_1} = 2.93$$

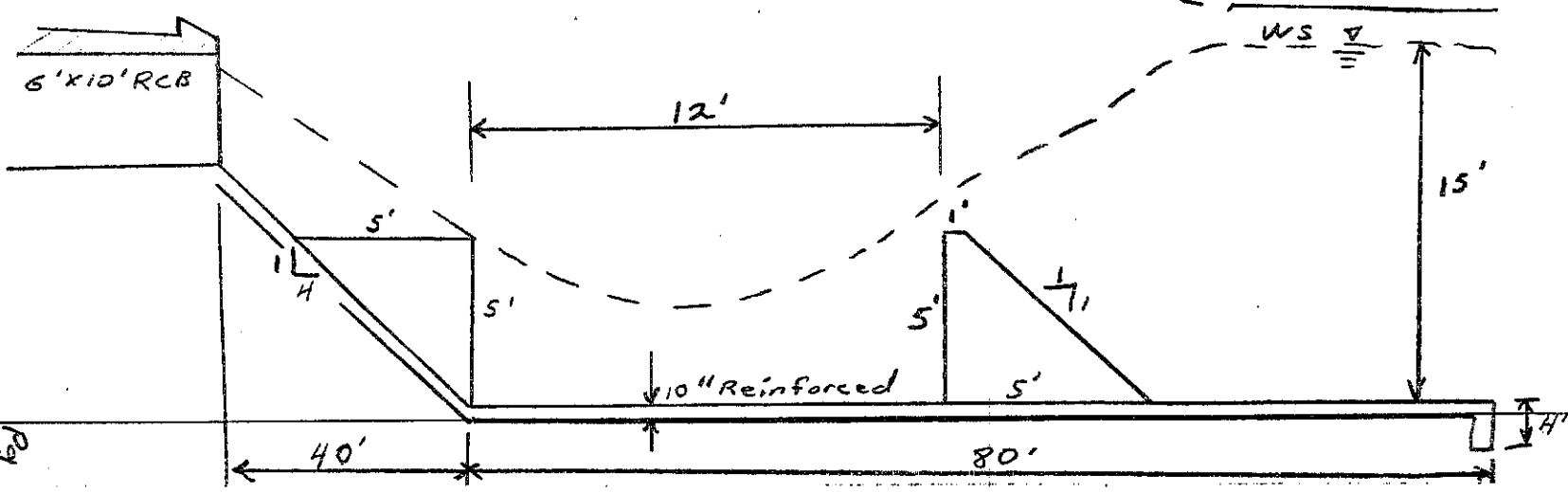
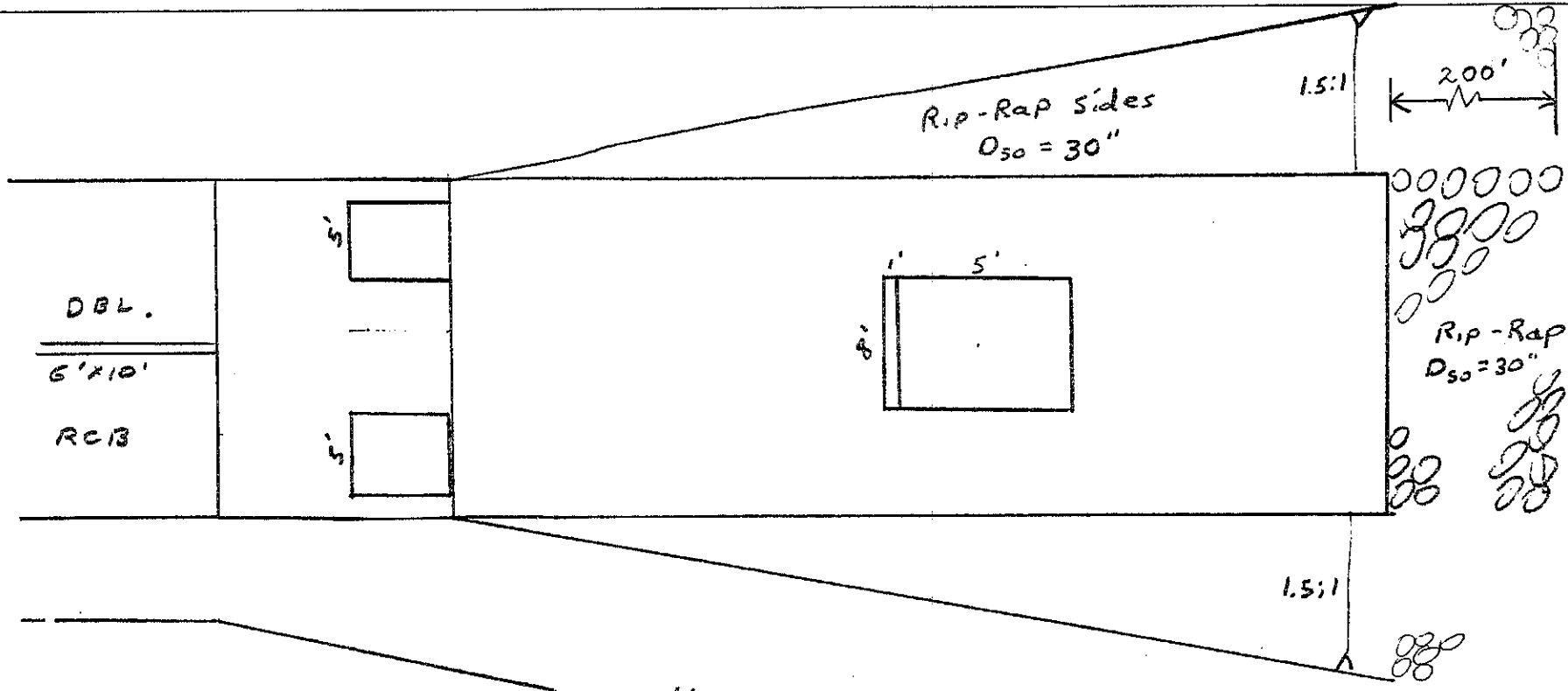
$$\frac{14.96}{5} = 2.99 \text{ close enough}$$



42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-383 200 SHEETS 5 SQUARE

Centennial West Energy Dissipator

Jan. 27, 1983
Revised April, 1983



1 of 1

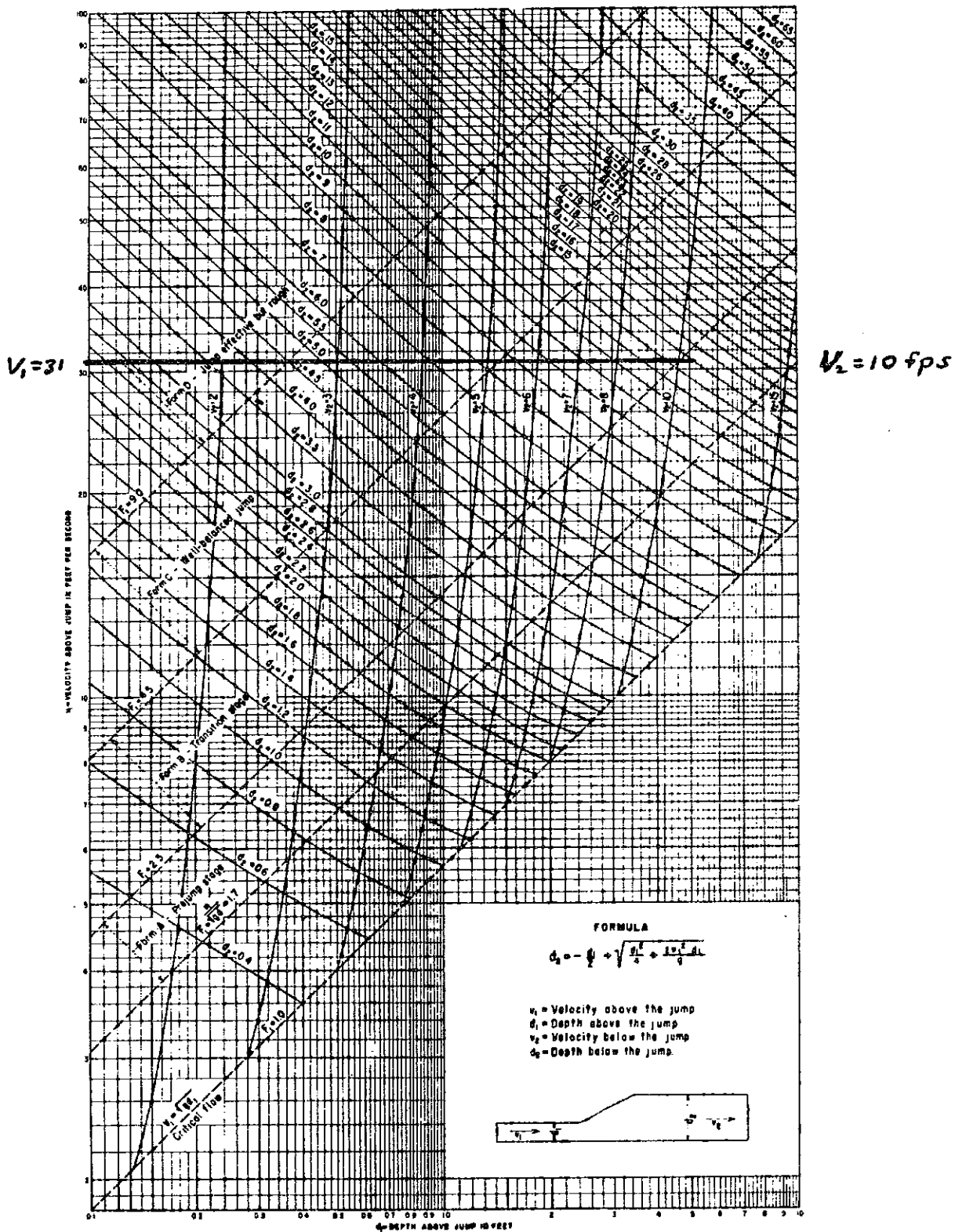
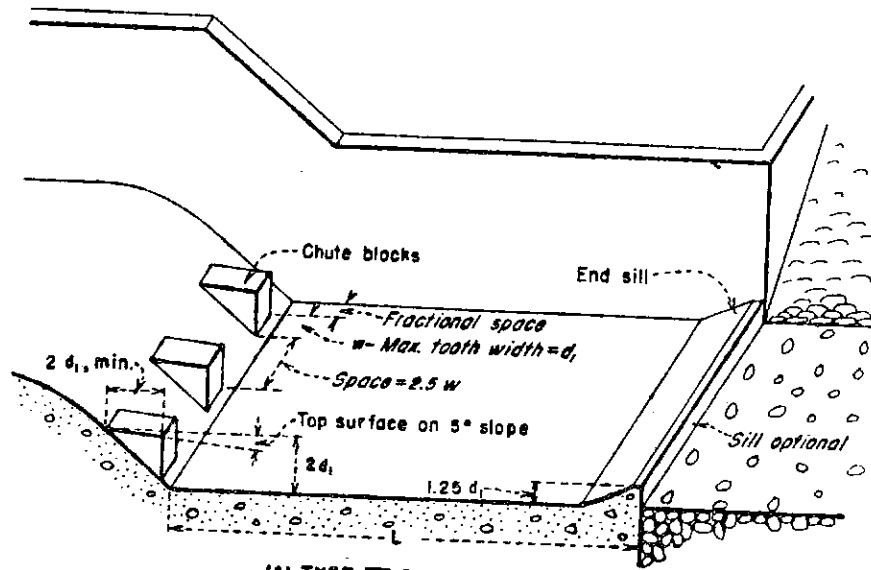


Figure 264. Relations between variables in hydraulic jump for rectangular channel. 288-D-2424.

Figure 6

Pg 13



(A) TYPE IV BASIN DIMENSIONS

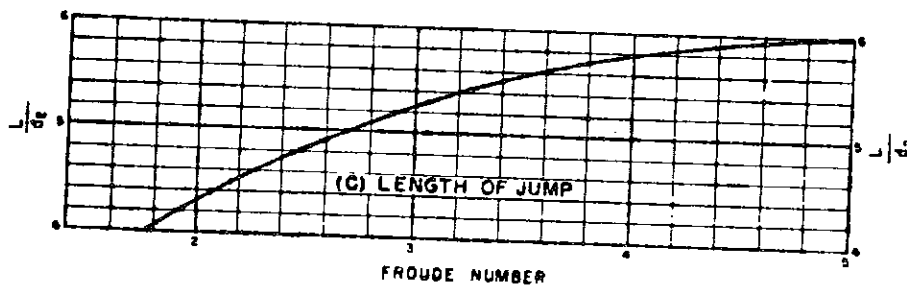
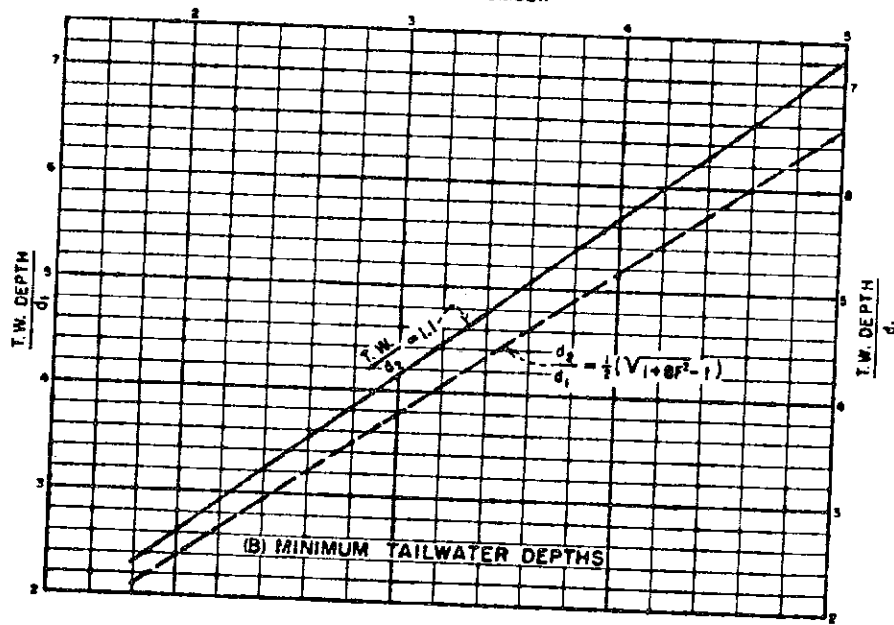


Figure 265. Stilling basin characteristics for Froude numbers between 2.5 and 4.5. 288-D-2425.

Figure 7

Pg. 20

9. CONCRETE CHANNEL:

The concrete channel was also intended for super-critical flow. Because of the high velocities related to the design discharge the channel should be constructed from Centennial Boulevard to Holland Park Drive. The design depth of flow is 5.6 feet with 25% free-board gives a depth of 7.0 feet. The 5.6 feet of flow depth gives a cross-sectional area of 114.24 square feet. Using $Q = AV$ and a $Q = 3590$ cfs then $A = 31.4$ feet per second. Using Mannings equation and solving for the slope shows that a slope of 1.41% is needed. This slope is greater than the 1.2% recommended in the Master Drainage Report.

10. COST OF PUBLIC IMPROVEMENTS:

48" R.C.P. - 2700 LF @ \$62.00/LF	= \$167,400.00 ✓
7' x 10' R.C.B. - 364 LF @ \$300.00/LF	= \$109,200.00 ✓
30" R.C.P. - 1300 LF @ \$38.00/LF	= \$ 49,400.00
24" R.C.P. - 100 LF @ \$25.00/LF	= \$ 2,500.00
Reinforced concrete channel - 1200 LF @ \$140.00/LF	= \$168,000.00 ✓
Transitions - 3 each @ \$5,000.00/EA	= \$ 15,000.00 ✓
Energy Dissipator - 1 each @ \$10,000.00/EA	= \$ 10,000.00 ✓
D-10R inlet - 5 each @ \$2,500.00/EA	= \$ 12,500.00
Drop Structures - 2 each @ \$5,000.00/EA	= <u>\$ 10,000.00</u>
Sub-Total	= \$544,000.00
Plus 20% Engineering & Contingencies	= <u>\$108,800.00</u>
Grand Total	= <u><u>\$652,800.00</u></u>

10. A. BASIS OF REIMBURSEMENT:

COST OF IMPROVEMENTS ON BASIN DRAINAGE REPORT:

48" R.C.P. CL III - 950 LF @ \$62.00/LF	= \$ 58,900.00 ✓
7' x 10' R.C.B. - 364 LF @ \$300.00/LF	= \$109,200.00 - In ✓
18" R.C.P. - 105 LF @ \$22.00/LF	= \$ 2,310.00
24" R.C.P. - 14 LF @ \$25.00/LF	= \$ 350.00
B=12' D=7.0' Reinforced Concrete Channel 1200 LF @ \$140.00/LF	= \$168,000.00 ✓
Transitions - 3 each @ \$5,000.00/EA	= \$ 15,000.00 ✓
Energy Dissipator - 1 each @ \$10,000.00/EA	= \$ 10,000.00 ✓
D-10R Inlet - 3 each @ \$2,500.00/EA	= \$ 7,500.00
B=D=2.75' Reinforced Concrete Channel - 700 LF @ \$70.00/LF	= \$ 49,000.00
B=D=3.25' Reinforced Concrete Channel - 1400/LF @ \$80.00/LF	= <u>\$112,000.00</u>
Sub-Total	= \$532,260.00
Plus 20% Engineering & Contingencies	= <u>\$106,452.00</u>
Grand Total	= \$638,712.00

Jim, FYI, Tom

See Westwind Marketplace
Subdiv. No. 1 for more info.

Bruce Thorson

From: Bruce Thorson
To: Gary Haynes
Subject: \$5000 from Gatto/Assistance Needed
Date: Friday, August 11, 1995 9:35AM

As I told you we received \$5000 from Gatto, developer of the Westwind Marketplace development (original Centennial West), to assist with stabilization of a portion of the natural channel downstream of the private 24" storm sewer on the unplatted parcel north of S. Douglas Creek. The end of the private pipe system had been plugged and the Street Div. went in and graded out approx. 200' to get it to drain after we had received permission from the RTC.

There is also a public concrete swale that discharges near the end of the 24" private RCP. The goal is to make "semi-permanent" improvements to the natural graded ditch, to minimize potential impacts to adjacent residential properties (e.g. Roy Ayala at 1410 Darby St.), and to obtain a public easement from the current owner (not RTC) for the improved portion of the channel and the right to continue to discharge flows downstream on the remainder of the parcel to Douglas Creek (do not want maintenance responsibility on the unimproved portion).

Key activities needed are:

1. Minimize design/field design; consider as a semi-permanent solution to minimize maintenance and potential adjacent impacts until property develops; rip rap confluence of 24" private RCP and public concrete swale; reshape/flatten sides of graded ditch for 200' +/- and determine if needs to be extended any further to south; rip rap channel. Provide graded/vegetated berm (St. Div. mounded up) on west side of channel to direct overland flow from north to stay on the west side of the channel.
2. Some field surveying to determine extent of work and easement needs.
3. Contact new owner to discuss needs and obtain permission/easement:

Midland Asset Limited Partnership

Contact: James C. Quillian, Midland Asset Management Co., Mid-First Plaza, Suite 160, 501 W. I-44 Service Rd., Oklahoma City, OK, 73118; Phone: 405-879-6160, Fax: 405-842-2237

4. Construction: Try first to coordinate with Kim Karr to see if Street Div. can do; give them \$5,000. Contract out if Street Div. can not do in next few months.

Please assign someone to work on these activities. I will be happy to meet with them after assigned to give additional info./assistance. I just spoke with Roy Ayala and told him the status and that it was our hope to get the work done in the next few months.



CITY OF COLORADO SPRINGS

July 20, 1995

Edward and Cynthia Gottlieb
1406 Darby Street
Colorado Springs, CO 80907

RECEIVED

JUL 25 1995

City Engineering/Stormwater

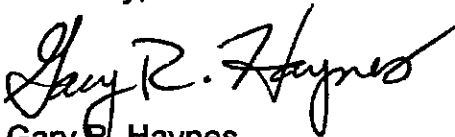
Dear Mr. and Mrs. Gottlieb:

The City Engineering Division continues to work on the drainage situation which developed following the Albertson's and Long's construction. There are several issues that we are attempting to resolve to improve the condition of the recently constructed earth lined ditch. We are negotiating an appropriate amount of private funding for the ditch work and will combine it with available City funding and construct a concrete or riprap rock lined channel later this year or early in 1996. This project will also include the revegetation of the earth embankments which need to be in place due to the potential of a 100 year storm event overflow from the shopping center parking lots.

I would like to replace the tree which was uprooted when the machinery cut the ditch. I will pay you for the cost to replace the tree up to \$350.00. Please contact me for details if you want to replace the tree.

I am sorry for any inconvenience this matter has caused you and I hope that the final outcome in a few months will be acceptable.

Sincerely,



Gary R. Haynes
City Engineer

c: City Manager
Director of Planning, Development and Finance
Mayor
- City Council





CITY OF COLORADO SPRINGS

July 6, 1995

John Gatto
Crestone Development
4065 Sinton Rd., #200
Colorado Springs, CO 80907

Re: Westwind Marketplace Subdiv. No. 1 and 2 Drainage Reports

Dear Mr. Gatto:

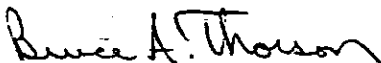
In order to finalize the above-mentioned Drainage Reports I have drafted language to be included as the first paragraph under the "Drainage Facilities" sections of the reports. I believe this language appropriately addresses our previous discussions on this matter. The language is as follows:

No public or new private storm sewer systems will need to be constructed to handle the flows from this subdivision. However, the developer will provide a one-time payment of \$5,000.00 to the City for all of the Westwind Marketplace development. These funds are intended to assist with stabilization of a portion of the natural channel downstream of the private 24" storm sewer on an unplatted parcel. It is the City's intent to work with the current owner of the unplatted parcel to construct stabilization improvements to a portion of the natural channel to minimize potential impacts to adjacent residential lots. If the owner grants a Public Drainage Easement or maintenance access to the City and agrees to let the City construct channel stabilization improvements, the City would then provide normal drainage maintenance to this improved section of channel. It is the responsibility of the developer of the Westwind Marketplace development to resolve drainage maintenance responsibilities for all onsite and offsite private storm sewer facilities.

It is my understanding a separate agreement between the City and you as the developer is appropriate. I discussed this with Al Ziegler and he felt this could be worked out later. After finalization of the Drainage Reports, recording of the plats and payment of the \$5,000.00 we would support issuance of building permits.

If you have any questions or comments please call me.

Sincerely,



Bruce A. Thorson
Stormwater & Subdivision Manager

c: Al Ziegler, City Attorney's Office
Dave Lethbridge, City Engineering
Jerry Weiss, Weiss Consulting Engineers, Inc.
Bruce Wright, Flynn, McEnna & Wright, 20 Boulder Crescent, 80903



CITY OF COLORADO SPRINGS

May 23, 1995

Roy Ayala
1410 Darby Street
Colorado Springs, CO 80908

Re: Drainage Near Rear of Lot

Dear Mr. Ayala:

Thank you for your letter of concern regarding drainage near the rear of your lot, primarily runoff from the upstream Centennial West developments. You are correct in your statement that the storm sewer pipe does not extend from the southerly end of the existing development to the Douglas Creek Channel. The pipe is also plugged. This private storm sewer was constructed with the first Centennial West development and was not extended beyond the development to Douglas Creek. The original developer also owned the undeveloped property south to Douglas Creek. As you are aware through discussions with Rob Kidder from this office, we are currently working with the same engineer and developer from the recent Albertsons/Longs sites on two new developments adjacent to Albertsons/Longs.

As a short term solution, the City has received permission from the current owner of the undeveloped property (Resolution Trust Corporation) to regrade a ditch from the end of the pipe to safely convey the runoff past your property and several adjacent properties. The Street Division maintenance staff have indicated they intend to complete the work this week.

The developer and engineer for the proposed developments adjacent to Albertsons/Longs have been notified they need to secure permission from the downstream owner to discharge developed flows onto the downstream property. In addition, they will need to insure adequate capacity of the ditch is maintained.

Another option for the developer is to obtain a Public Drainage Easement along the natural ditch from near the rear corner of your lot to the Douglas Creek Channel. It may be necessary to require the developer to provide some degree of improvement to this natural drainageway for some distance to alleviate potential problems with the adjacent residential lots. If a Public Drainage Easement and any necessary improvements were provided, the City would then provide necessary maintenance of the ditch/channel.

I hope this information assures you that we are aware of your concerns and that we are taking necessary actions to minimize drainage impacts to your property and the adjoining residential lots.

Sincerely,



Bruce A. Thorson
Stormwater & Subdivision Manager

c: City Council
Richard Zickefoose, City Manager
David Nickerson, Director, Planning, Development & Finance
Gary Haynes, City Engineer
Hugh King, Street Division Manager



CITY OF COLORADO SPRINGS

May 23, 1995

Jerry Weiss
2204 N. Cascade Ave.
Colorado Springs, CO 80907

Re: Drainage Concerns Downstream of Centennial West Developments

Dear Mr. Weiss:

Attached is a copy of a letter received from Mr. Ayala, 1410 Darby Street, and a copy of my response regarding drainage concerns downstream of the Centennial West developments. As previously discussed with you, these concerns need to be addressed and resolved in the proposed Drainage Reports for Westwind Marketplace Sub. No. 1 and 2. The issue is an inadequate drainage outfall and associated private maintenance responsibility downstream of the storm sewer system.

As outlined in my letter to Mr. Ayala, I believe you have two options. The first option is to obtain permission to discharge the developed flows and to address private responsibility for insuring adequate maintenance of the ditch. A second option is to provide a Public Drainage Easement to the City. However, first you would have to analyze the flows and the unimproved ditch to determine if some level of improvement is needed. Then, if necessary drainage improvements were provided along with a public easement, the City would provide the necessary maintenance. This public easement would only be allowed from where the public drainage enters the undeveloped property from Tulip Pl. If you would like to discuss these or other options, please let me know.

Sincerely,



Bruce A. Thorson
Stormwater & Subdivision Manager

Attachments

Gary Haynes

From: Dave Nickerson
To: Bruce Thorson
Cc: Gary Haynes; Robin Kidder
Subject: Holland Park - Long's/Albertson's Drainage Problem
Date: Thursday, May 18, 1995 02:42PM
Priority: High

Mr. Ayala has written the City Council about the subject problems. I have put his letter on Gary Haynes desk for response. Maybe he can fax to you if you or Robin are the ones to answer. From what I know of the situation, I believe we are on top of it and doing everything we can to fix it. Please get a memo out ASAP that says that and anything else that is appropriate. I assume you are in contact with Mr. Ayala but if not please let him know that a written response will be forthcoming ASAP. Thanks and let me know if there is anything I need to know right now.

MAY 17 1995

5/17/95

1410 Darby Street
Colorado Springs, CO 80908
May 17, 1995

CITY COUNCIL
P.O. Box 1575
City Administration Building
Colorado Springs, CO 80901

The recent expression of concern by residents of the Holland Park area is a reflection on the lack of trust we have for developers.

For four months, I have been debating with the city on the drainage situation for the new Albertson's development on Centennial and Garden of the Gods. I was finally able to convince a city inspector to come and check the drainage system. The findings were exactly as I had argued: the drainage pipe did not go anywhere, but stopped behind my lot.

City inspectors make a mistake by not following up on these developments. This confession has been made to me as consolation. A ditch to connect the drainage to Douglas Creek has been promised, but has consistently been delayed. The ditch is probably unacceptable, but it's the only correction that has been offered.

I have tried to find resolution to this problem at the lowest level; however, it has been impossible to establish a priority for this project. Also, Mr. Robin Kidder, Regional Building, has informed me that he is not getting good cooperation from the Albertson's developer.

I am not against growth or in anyway protesting this development. I do believe that good planning is the key to growth.

I ask for your help in making this project a priority, avoiding problems which could become critical if we get heavy rains in this area.

Respectfully,


ROY AYALA

Encl.