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File 1982-0034
Date 6/12/02

Project Name: Rusty Sun Subdivision – Flood Plain Permit

Present	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the in some instances, not all entries designated to be scanned by the department are present in the file. There are also documents specific to certain files, not found on the standard list. For this reason, a checklist has been provided. **Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick guide for the contents of each file.** **Files denoted with (**) are to be located using the ISYS Query System. Planning Clearance will need to be typed in full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.**
X		***Summary Sheet – Table of Contents**
X	X	**Review Sheet Summary**
X		Application form
X		Review Sheets
		Receipts for fees paid for anything
		***Submittal checklist**
		***General project report**
		Reduced copy of final plans or drawings
		Reduction of assessor's map
		Evidence of title, deeds
X	X	***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
X		Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or nonbound reports
		Traffic studies
		Individual review comments from agencies
		***Consolidated review comments list**
		***Petitioner's response to comments**
		***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**
		***Letters and correspondence dated after the date of final approval (pertaining to change in conditions or expiration date)**

DOCUMENTS SPECIFIC TO THIS DEVELOPMENT FILE:

X	X	Action Sheet			
X	X	Review Sheet Summary			
X		Review Sheets			
X	X	Memo from Bob Goldin to Ron Rish re: comments – 5/10/82			
X		Outline for Hydrology and Hydraulics Report for M 7502 (1) F Road and 29 Road			
X		City of Grand Junction Flood Plain Permit			
X	X	Flood Plain Permit			
X		Orthophoto Map			

CITY OF GRAND JUNCTION, COLORADO

MEMORANDUM

Reply Requested
Yes ☐ No ☐

Date
May 10, 1982

To: (From:) Bob Goldin From: (To:) Ron Rish RPR

Subject: Flood Plain Permit - Rusty Sun Subdivision

As requested, I have reviewed the materials submitted on the above as received from you on April 26, 1982, and have the following comments.

1. I take no exception to the qualitative analysis but disagree with some of the quantitative analysis. Specifically, I do not believe the estimated flood elevations shown which are based on localized analysis at each cross-section without any stream profile "smoothing".

   Sheet 12 of 14 shows the following data:

   Section DD Flood elev. = 89.0
   Section AA Flood elev. = 88.0
   Section EE Flood Elev. = 88.0
   Section BB Flood Elev. = 84.0
   Section CC Flood elev. = 81.5

   This results in the following:

   DD to AA Water surface drop = 1 ft. length = 110 ft.
   AA to EE Water surface drop = 0 ft. length = 120 ft.
   EE to BB Water surface drop = 4 ft. length = 140 ft.
   BB to CC Water surface drop = 3.5 ft. length = 410 ft.

2. Qualitatively, it appears the minimal channel changes should have minimal affect upstream.

3. If the site grading elevations shown are constructed, I do not believe the structures should be hazarded by the 100 year flood. (Note: minimum elevation shown adjacent to buildings on Filing 1 is 84.5.)

4. I noticed that none of the plans submitted show any park improvements in or along Indian Wash. I understood there was to be some and caution that if they change the channel cross-sections within the 100-year flood plain, the analysis could be invalidated. Without knowing what is planned, it is impossible for me to have any opinion concerning flood plain impacts.

cc - Ken Idleman
Jim Patterson

CITY OF GRAND JUNCTION FLOODPLAIN PERMIT

APPLICANT Rusty Sun, Ltd., James W. Lindell, Managing General Partner

MAILING ADDRESS 843 25 Road

Grand Junction, CO 81501

TELEPHONE HOME (303) 245-9366 WORK (303) 243-6588

OWNER (IF DIFFERENT THAN APPLICANT) _____

MAILING ADDRESS _____

_____

TELEPHONE HOME ( ) WORK ( )

COMMON LOCATION OF THE PROJECT SITE: _____
(STREET ADDRESS)

MESA COUNTY ASSESSOR'S TAX PARCEL NUMBER 2943-064-00 - 060 & 061

BRIEF DESCRIPTION OF THE PROPOSED USE OF THE SITE

Construction of Townhouses

RIVER, STATION: Indian Wash - North of "F" Road

ELEVATION OF THE 100 YEAR FLOOD EVENT: See Cross Sections

DETERMINED FROM: ( ) CORPS OF ENGINEERS, FLOOD HAZARD STUDY, NOVEMBER 1976
( ) HUD FLOOD INSURANCE STUDY, JANUARY 1978
(x) Hydrology Report for Federal Aide Project M7502(1) (Attached)

ENGINEER Paragon Engineering, Inc.

MAILING ADDRESS 2784 Crossroads Blvd., Suite 104

Grand Junction, CO 81501

TELEPHONE WORK (303) 243-8966

TO BE COMPLETED BY STAFF Bob G. FP Adm. City of GJ

FEE $40.00

DATE RECEIVED _____ RECEIPT NO. _____ FILE NO. #34-82

REQUIRED DOCUMENTS: ① As per City Eng's review 5/10/82 Refer to #85-81 for Rusty Sun 1 & 2

② • min base elevation will be 84.5 for filing #1

③ • Requirements as per Sec 5-8 GJ Zoning & Dev. Code

④ • Any revisions or changes will require re-review by this Dept. especially for any park walkway proposed.

Bob Golden

OUTLINE FOR HYDROLOGY AND HYDRAULICS REPORT FOR M 7502 (1) F Road and 29 Road

Site Location:

Indian Wash at F Road, center line station 157+29 located at the South-east corner of Section 6 and the Northeast corner of Section 7, in Township 1 South, Range 1 East, of the Ute Meridian in Mesa County, Colorado.

Hydrology:

The hydrology of Indian Wash has been of concern for many years. In May 1961 the Soil Conservation Service announced the plans to build a detention pool of 1,615 acre feet, located in Section 29, Township 1 North Range, 1 East Ute Meridian. The detention pool and dam (SCS Structure No. I-WI) was constructed in 1965.

The spillway of the detention structure is designed to allow a maximum flow of 800 CFS into Indian Wash, and is the only major contributor of storm water. The I-WI structure is approximately three miles North of the proposed project M7502 (1). Other very small tributaries flow into this channel and may contribute a total of not more than 150 - 200 CFS during a 100 year storm. The maximum Q100 at the proposed project M7502 (1) would then be 950 to 1000 CFS.

The cross section of the channel varies. Cross sections were taken at 100 feet, 250 feet, 500 feet, 750 feet, and 1000 feet North of the proposed project site. The width varies from bank to bank from 130 feet to 80 feet. The depth of the stream at the proposed project site (from bank to invert) is 13.3 feet deep. The area immediately adjoining Indian Wash is Greenbelt. Many large trees grow in the area along the wash with smaller size vegetation dominating most of the remaining area. The soil series along Indian Wash is predominately Billings Silty Clay, 2 to 5 percent slopes (B_B).

The flow capicity of the 14'0" X 8'7" arch structural pipe should pass the 100 year frequency storm without causing the water to over top the stream banks. Potential damage to surrounding property and roadways is not anticipated for the 100 year flood.

No detrimental impacts are forseen. After the installation of the arch culvert the County Road Department forces will improve the channel upstream and downstream as needed. A perpetual maintenance agreement states the City and County shall maintain the Indian Wash from the SCS I-W.1 structure to the Colorado River. The culvert installation will definitely improve the aesthetics of the area and greatly enhance traffic safety. All areas disturbed by construction will be beneficial in a sense that most of the area is presently overgrown with trash vegetation. This vegative matter will be removed which will also help the aesthetics.

Several structure alternates have been proposed and due to economic constraints and structural limitations the 14'0" X 8'7" aluminum structural

plate was chosen for extended life due to the corrosive properties of the soil and water. Cost comparisons were made between concrete and aluminum. Aluminum was the obvious choice.

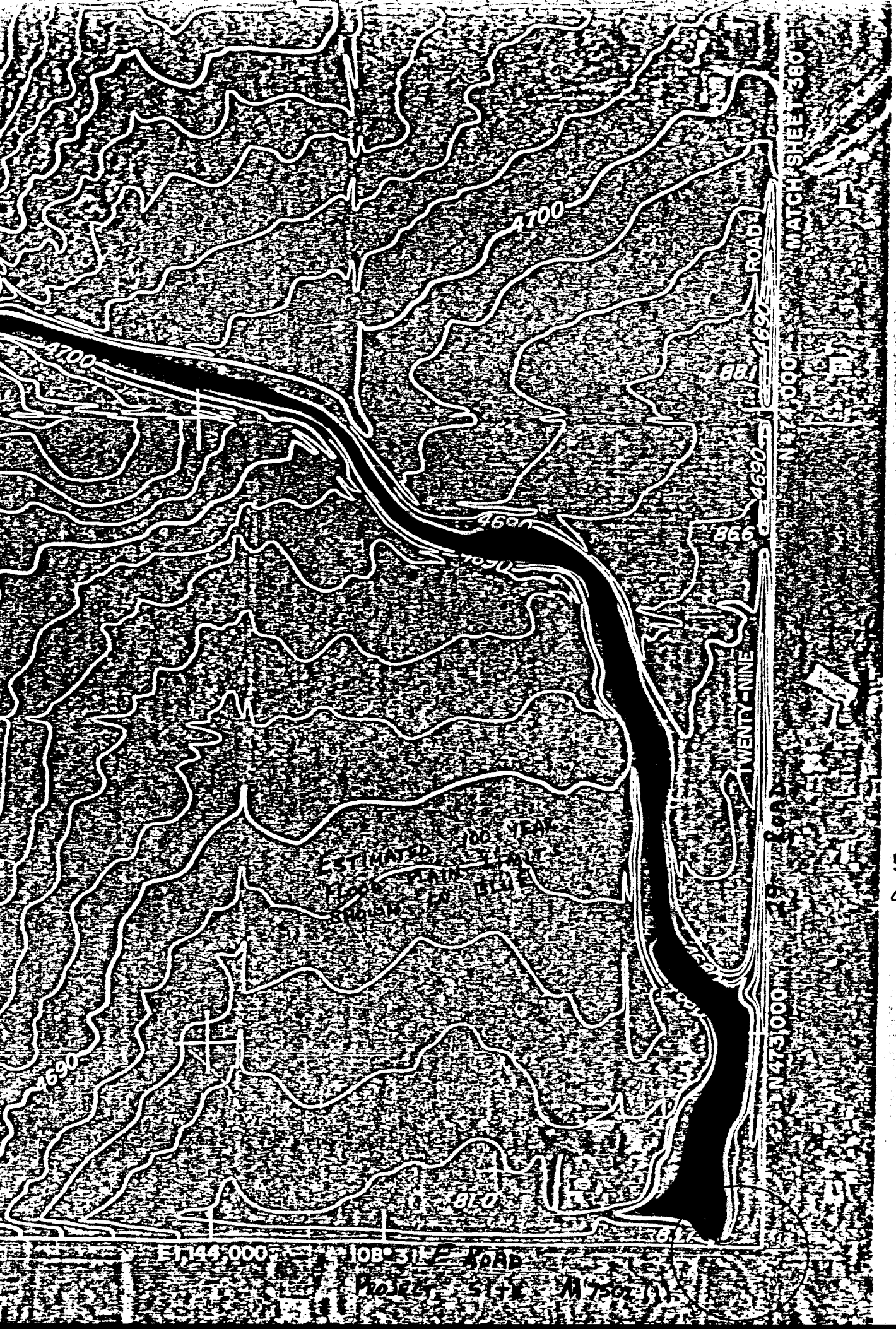
RECOMMENDED DESIGN:

Size of Structure: 14'0" X 8'7" aluminum structural plate culvert. Metal thickness = 0.175". Length 152 feet.

Skew of Structure: 90^{0} to roadway centerline.

Channel Improvement: The existing channel presently conforms to the proposed culvert. Some channel alignment may be necessary to allow for culvert installation.

It is hoped that a major portion of the proposed culvert can be constructed under the existing bridge without disruption to traffic. When the existing superstructure is removed, and the culvert is backfilled, the road will be closed.



SCALE 1" = 200'

CONTOUR INT. 2

ORTHOP

200

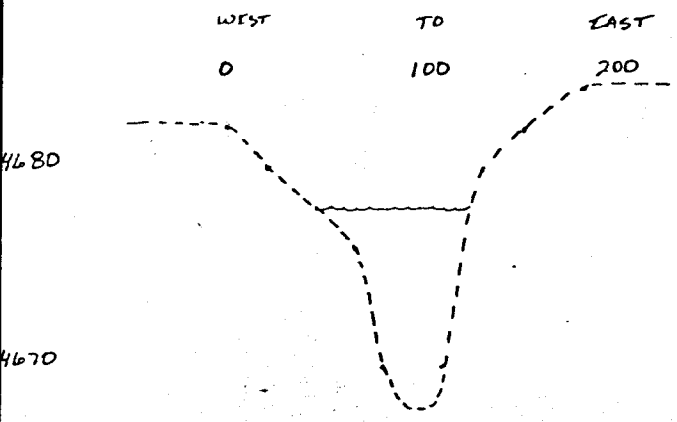
INFORMATION FOR PLANS

D.A. = 8.31 Square Miles. Detention pond located 3 miles North of project has a metered flow of 800 CFS maximum.

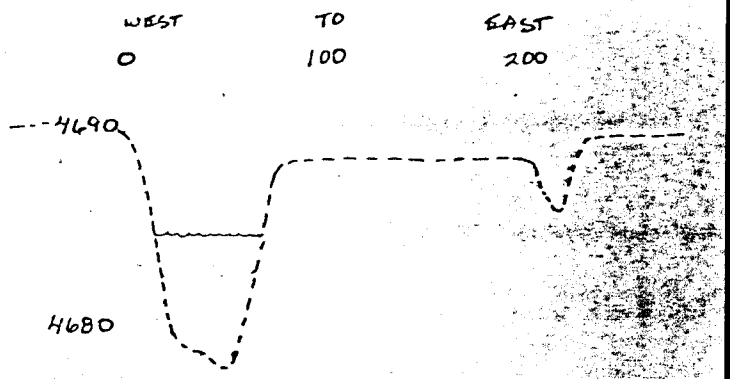
Q100 = 1000 CFS
HW = 4678.2
AHW = 4683.3
DHW = 4680.0
QM, W.S. = Information not available.
Q less than 100 = Information not available.

PROJECT NO. M 7502 (1) 29 & F ROAD INTERSECTION – "INDIAN WASH CROSSECTIONS

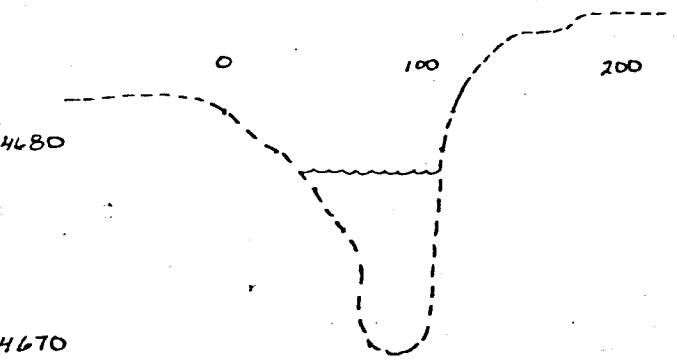
100' NORTH OF F ROAD CENTERLINE



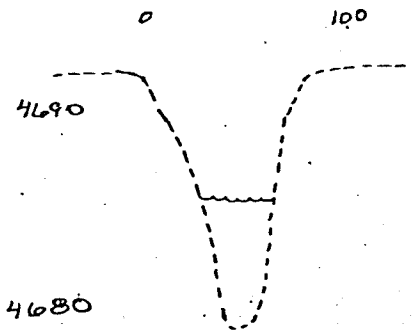
750' NORTH OF F ROAD CENTERLINE



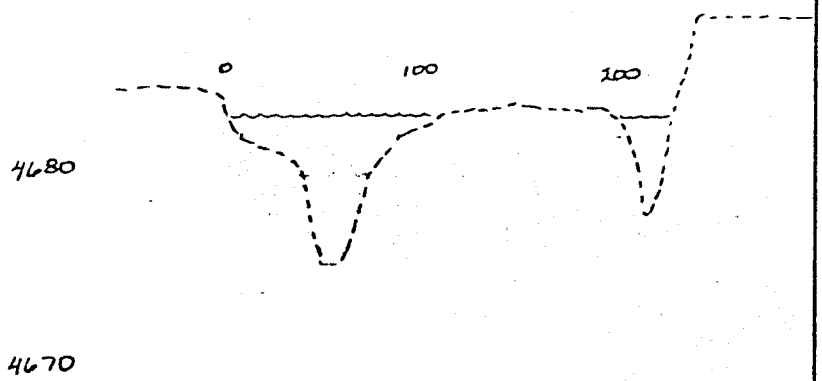
250' NORTH OF F ROAD CENTERLINE



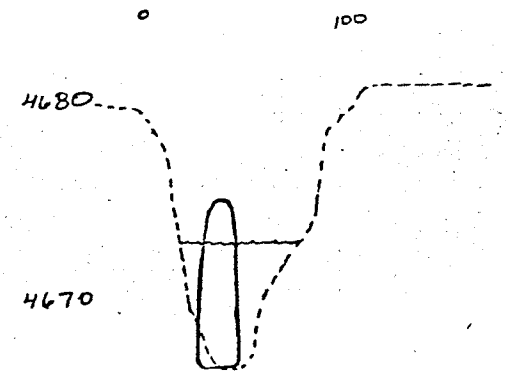
1000' NORTH OF F ROAD CENTERLINE



500' NORTH OF F ROAD CENTERLINE



100' SOUTH OF F ROAD CENTERLINE



CITY OF GRAND JUNCTION

FLOODPLAIN PERMIT

FOR

RUSTY SUN FILING NO. 1 AND FILING NO. 2

Following is the required documentation as required by the Permit Procedure:

Plot Plan

Please see Grading and Drainage Plans for both filings. These plans show limits of 100 year floodplain, building locations, streets, driveways, and grading improvements.

Structures

There are no existing or proposed structures located within Rusty Sun Filing No. One or Filing No. Two that lie within the 100 year floodplain. The proposed townhouse structures are of frame type and finished floor, or top of foundation, elevations are as shown on the Grading and Drainage Plans. The identified datum point is as shown on the plans, which is a Mesa County Brass Cap located at the intersection of 29 Road and F Road, elevation 4683.60.

Cross Section

Please see the cross sections provided for each Filing at the most critical points. Supplemental cross sections and hydraulic calculations are also included. Cross sections and grading plans include the following information:

a. Full channel of stream
b. Adjoining property
c. 100 year floodplain elevation
d. Lowest floor elevation

e. No flood proofing is required on any structure
f. Street elevations
g. Fill areas or excavated areas
h. No water or wastewater treatment facilities are proposed or exist
i. No storage areas are proposed or exist

Stored Materials

No materials are presently or are proposed to be stored within the 100 year floodplain on the project sites for Filing No. One or Filing No. Two.

Specifications

A set of construction specifications for these projects is included with this Permit Application. In general, all fill shall be compacted to a minimum of 95% of its maximum Proctor Dry Density, ASTM D-698.

Watercourse Alterations or Relocations

No watercourse alterations or relocations within the 100 year floodplain are being proposed for either Filing No. One or Filing No. Two. It should be noted that improvements being constructed at 29 and F Road intersection under Federal Aide Project M-7502 (1) will effect the grading around Rusty Sun Filing No. One and that those improvements and corresponding impact are reflected on the Grading and Drainage Sheet for Filing No. One.

Narrative

The development of these two parcels will not effect the flood water height, velocity and/or direction of 100 year flood waters. Due to the backwater effect of the culvert at 29 and F Road, some fill will be placed within the floodplain along Filing No. One so that proper grading around the foundations can be obtained. The structures themselves lie outside the historic floodplain limits.

The grading will match into that as proposed for the 29 and F Road improvements.

The 29 and F Road culvert is the controling point. The proposed construction of this porject will not effect the 100 year flood flows up-stream or down-stream from this project. As no effect is anticipated, no additional protective measures are necessary.

No toxic or hazardous materials will be stored within the 100 year floodplain.

Access

Access during 100 year flood will be via East Indian Creek Drive, "F" Road and "29" Road. None of these streets or proposed internal Drives will be effected by flood waters.

Flood Proofing Utilities

No utilities lie within the 100 year floodplain so no special flood proofing is required.

Floatables

The developer is not proposing any floatables within the 100 year floodplain.

Floodplain / Hazard Boundary Map

The Grading and Drainage Plans provide the necessary information as required by the Floodplain/hazard Boundary Map.

RUSTY SUN #1 & #2

FLOODPLAIN PERMIT CALCULATIONS

1. Per Information from City of Grand Junction

   Q_{100} = 1,230 CFS

2. Backwater Pond Elevation at 29 and F Roads Culvert

   4,680.60 per City of Grand Junction

3. Calculate Floodplain

$$\frac{n\,Q}{1.49\,s^{1/2}} = \frac{A^{5/3}}{WP^{2/3}}$$

n = .035
Q_{100} = 1,230 CFS

s = 58%

$$\frac{n\,Q}{1.49\,s^{1/2}} = 379.5$$

s = .71%

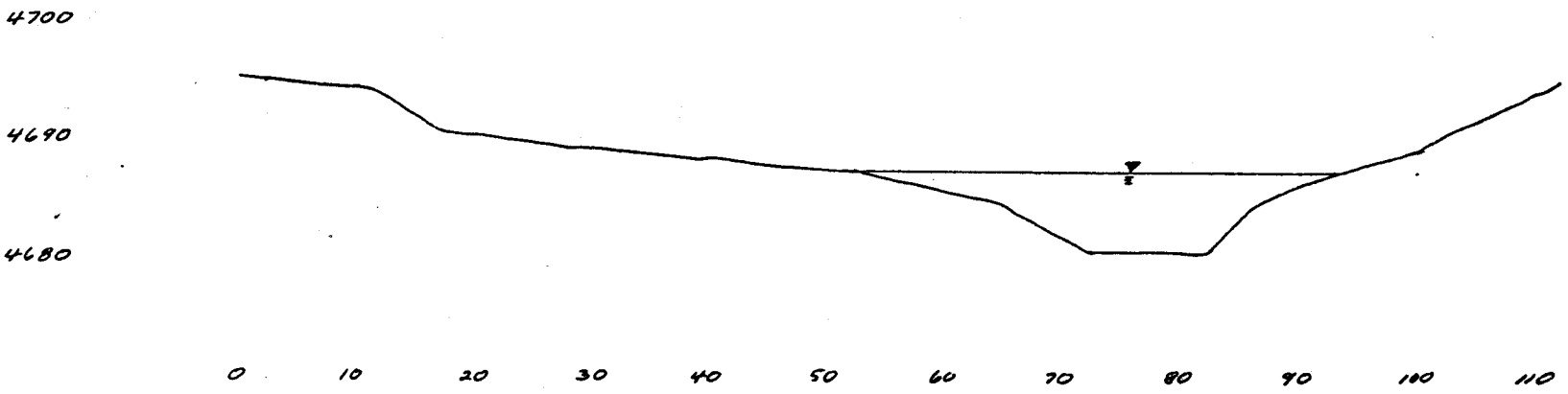
$$\frac{n\,Q}{1.49\,s^{1/2}} = 343.0$$

See Individual Sections

$\frac{A^{5/3}}{WP^{2/3}} < 343$

SECTION A – A

S = .71%



WATER ELEVATION 88.0

WP = 45'
A = 155 SF

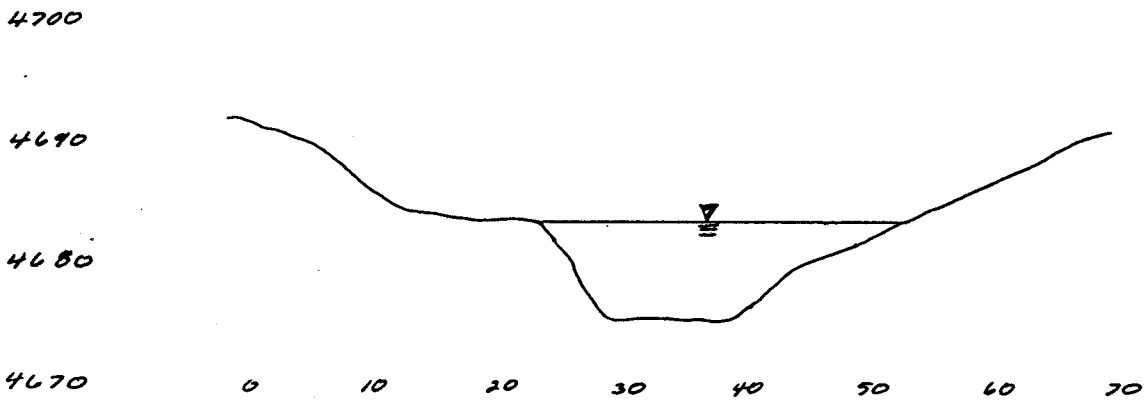
$\frac{155^{5/3}}{45^{2/3}} = 353 > 343$ REQ

100 YEAR FLOOD ELEVATION
Q_{100} = 1230 CFS 4688.0 I

$S = .58\%$

SECTION B - B

$\frac{A^{5/3}}{WP^{2/3}} > 379.5$



WATER ELEVATION 84.0

$A = 152$ SF
$WP = 36'$

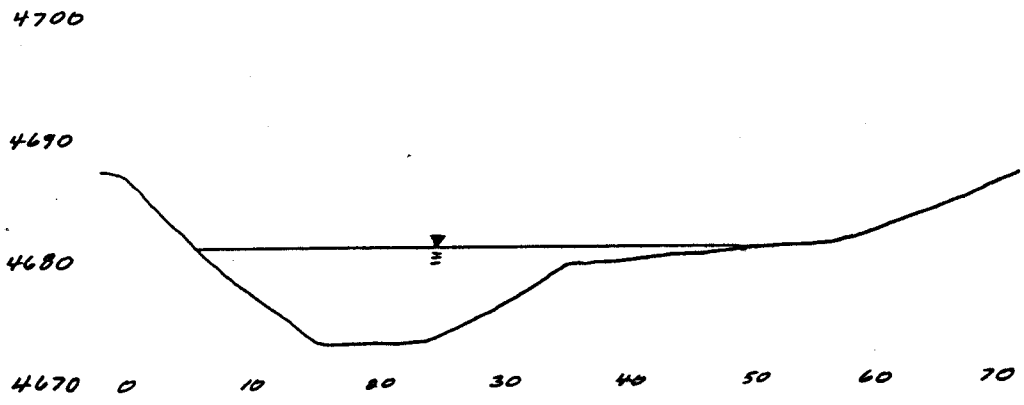
$\frac{152^{5/3}}{36^{2/3}} = 397 > 379.5$

100 YEAR FLOOD ELEVATION
$Q = 1230$ CFS 4684.0 ±

$S = .58\%$

SECTION C-C

$\frac{A^{5/3}}{WP^{2/3}} > 379.5$



WATER ELEVATION 81.5

$A = 175$
$WP = 52$

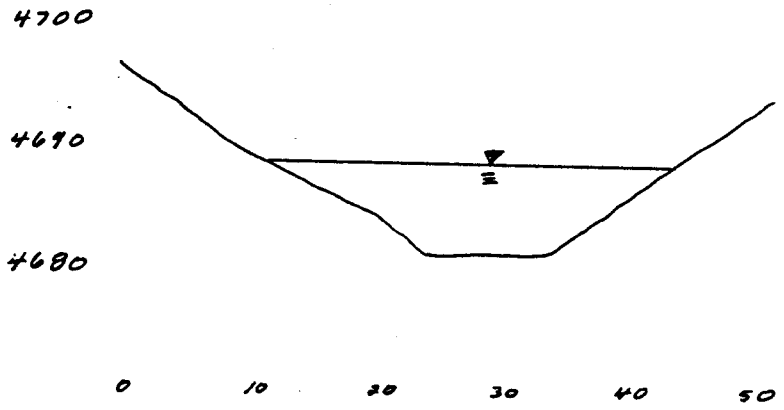
$\frac{175^{5/3}}{52^{2/3}} = 393 > 379.5$

100 YEAR FLOOD ELEVATION
$Q = 1230$ CFS 4681.5

S = .71%

SECTION D – D

$\frac{A^{5/3}}{WP^{2/3}} > 343.0$



WATER ELEVATION 89.00

A = 145 SF
WP = 39 F

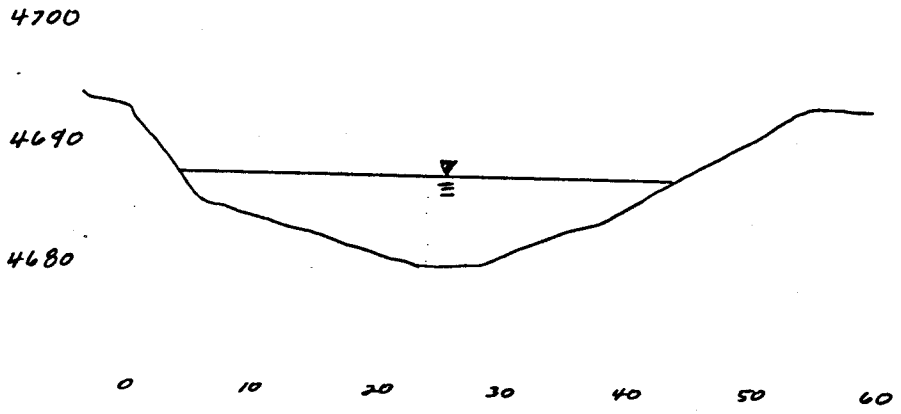
$\frac{145^{5/3}}{39^{2/3}} = 348 > 343$

100 YEAR FLOOD ELEVATION
Q = 1230 CFS 4689.0

$S = .71\%$

SECTION E-E

$\frac{A^{5/3}}{WP^{2/3}} > 343.0$



WATER ELEVATION 88

$A = 170$
$WP = 42$

$\frac{170^{5/3}}{42^{2/3}} = 431.0 > 343$

DUE TO CURVE OF STREAM CHANNEL
USE WATER ELEVATION OF 88

100 YEAR FLOOD ELEVATION
$Q = 1230$ CFS 4688.0

RUSTY SUK

OUTLINE FOR HYDROLOGY AND HYDRAULICS REPORT FOR M 7502 (1) F Road and 29 Road

Site Location:

Indian Wash at F Road, center line station 157+29 located at the Southeast corner of Section 6 and the Northeast corner of Section 7, in Township 1 South, Range 1 East, of the Ute Meridian in Mesa County, Colorado.

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AHW = 4683.3
DHW = 4680.0
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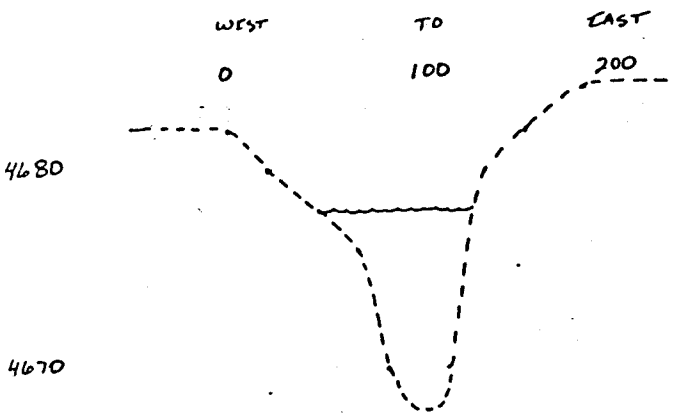
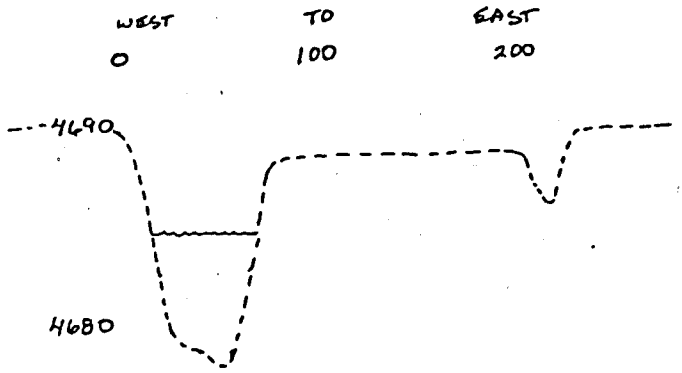
Q less than 100 = Information not available.

PROJECT NO. M 7502 (1) 29 & F ROAD INTERSECTION - INDIAN WASH CROSSING

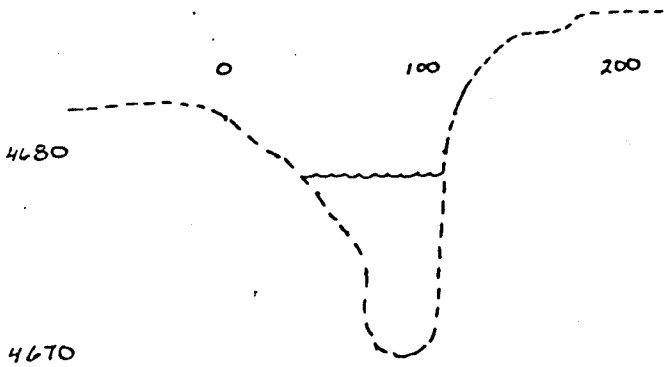
100' NORTH OF F ROAD CENTERLINE



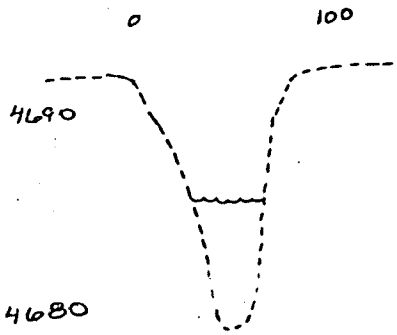
750' NORTH OF F ROAD CENTERLINE



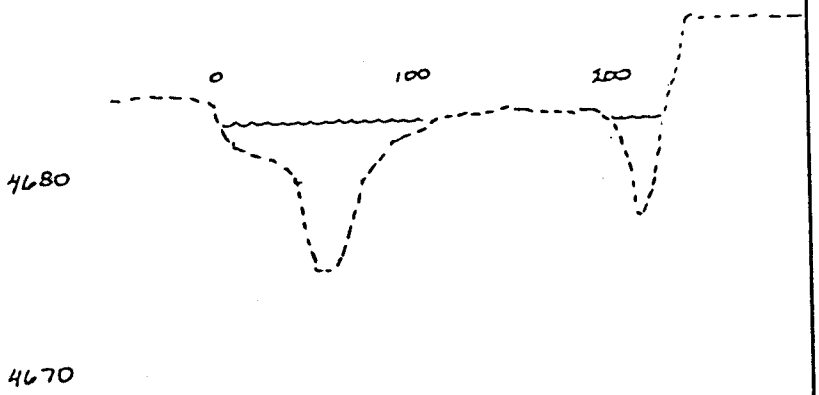
250' NORTH OF F ROAD CENTERLINE



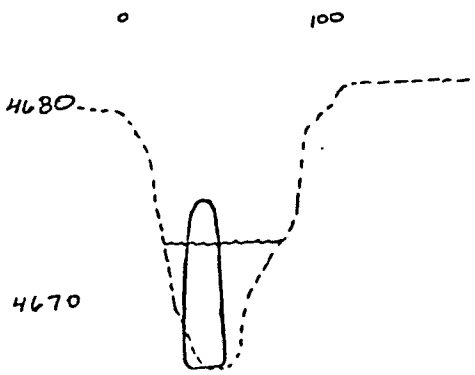
1000' NORTH OF F ROAD CENTERLINE



500' NORTH OF F ROAD CENTERLINE



100' SOUTH OF F ROAD CENTERLINE



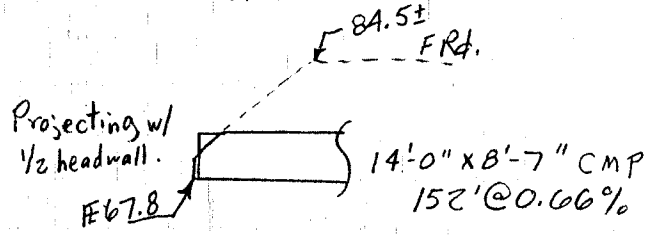
CITY OF GRAND JUNCTION
DEPARTMENT OF PUBLIC WORKS AND UTILITIES
ENGINEERING DIVISION

PROJECT: Indian Wash Flood Analysis
SUBJECT: Culvert @ 29 & F Rd. by Mesa Co.
DATE 3-23-82 : **BY** Ron Rish : **FILE NO.** _____ : **SHEET** 1 **OF** 1

I received the following documents on 3-15-82 and 3-17-82:

1. "Outline for Hydrology and Hydraulics Report for M 7502(1) F Rd and 29 Rd" (No author credited but presumably prepared by Bob Carmen)
2. Construction plans for FAP M 7502(1), F & 29 Rd.

Ref. 1 states Q_{100} = 950 to 1000 cfs
(Note: MSM "Hydrologic Analysis, Indian Wash", Jan, 1980 estimates Q_{100} at this location = 1230 cfs)

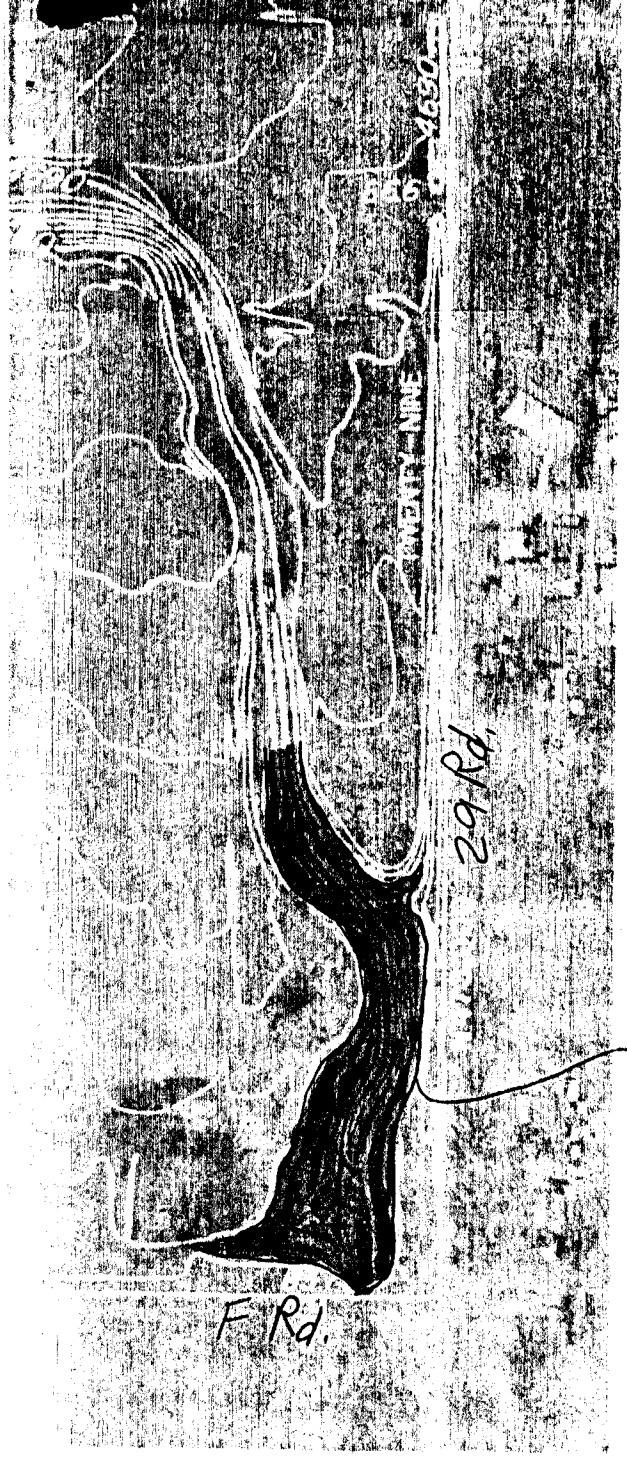


Check Headwater Pond. Elev. for Q_{100}

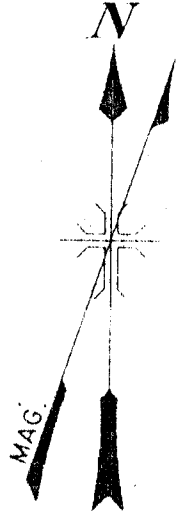
for Q_{100} = 1000 cfs	HW/D = 1.2	HW = 10.2 ft.	HW elev. = 78.0
for Q_{100} = 1230 cfs	HW/D = 1.5	HW = 12.8 ft.	HW elev. = 80.6

cc: Bob Goldin w/ 2 maps showing Q_{100} ponding


29 Rd.
S.E. Corner
Section 6
T. 1S., R. 1E., U.M.
Pond @ 4680.6 for Q100 = 1230 cfs
4679
4678
4680
N. 01°06'44" W.
59.22'
N. 52°49'55" W. 82.78'
160.36'
N. 86°22'25" W.
F ROAD
50'
1/2 R.O.W.
249.17'
6' Screen Wall
(30")
8'
18
Propo
14' x 8
Arch P



Pond @ 4680.6 for Q_{100} = 1230 cfs



354	366	379
355	367	380
356	368	381

SHEET INDEX

ORTHOPHOTOGRAPHY IMAGES OF OBJECTS NOT AT GROUND LEVEL MAY BE DISPLACED

COLORADO STATE PLANE COORDINATES CENTRAL ZONE
BASED ON ELEVATION 4700 FEET. C.A.E. 0.9999288278

200 0 200 400 600

SCALE OF FEET

U.S.C. & G.S. DATUM
CONTOUR INTERVAL 2 FEET

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

COLORADO RIVER BASIN SALINITY CONTROL PROJECT
GRAND VALLEY UNIT - TO SCALE

ORTHOPHOTO MAP
TOPOGRAPHY

TOPOG.	SURVEYED
MAP'D	RECOMMENDED
DRAWN	APPROVED

GRAND JUNCTION, COLORADO APRIL 13, 1975
SHEET 367 OF 488

1295-417