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File 1980-0090  
Date 10/4/ 01

Project Name: Four Square - Flood Plain Permit

**P** A few items are denoted with an asterisk (\*), which means they are to be scanned for permanent record on the in some  
**r** instances, not all entries designated to be scanned by the department are present in the file. There are also documents  
**e** specific to certain files, not found on the standard list. For this reason, a checklist has been provided.  
**s** Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick  
**e** guide for the contents of each file.  
**n** Files denoted with (\*\*) are to be located using the ISYS Query System. Planning Clearance will need to be typed in  
**d** full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.

X	*Summary Sheet - Table of Contents
X	Application form
	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
	*Mailing list to adjacent property owners
	Public notice cards
	Record of certified mail
	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	Letter from Karl Metzner to Dept. of Army re: Permit of fill and rechannel drainage way-9/25/79
X	X	Review Sheet	X	X	Letter from Paul Kavanaugh -Public Notice No. 6894-9/21/79
X		Letter from Rolland Oliver to Jeff Ollinger re: response to questions generated at last meeting-12/19/80	X	X	Memo from Ron Rish-Horizon Channel easement-7/11/79
X	X	Information for Mesa County Floodplain Permit	X	X	Subsurface Soils Investigation and Foundation Study-5/79
X		Letter from Fred Pastor to City re: reducing quantity of fill in rechanneled areas in order to maintain the integrity of the property lines-2/21/80			Letter from David Leonard to Mesa Co. re: response to comments-1/16/81
X	X	Letter from G.W. Probasco, Construction-Operations Division, Dept. of Army to Reverend Fred Parker re: requesting additional stream flow information-5/13/80	X		Handwritten note from Jeff Ollinger, Mesa Co. Flood Plain Admin. to Dave Leonard re: permit submitted for filling Horizon Drive Channel-no date
X		Staff Conference Memo			
X	X	Letter from William Sightler, Western Eng., Inc. to T.L. Benson, Inc. re: concern about fill operations taking place north of Westwood Subdivision-11/21/80			
X	X	Memo from Charly Ray to Jim Wysocki re: Horizon Drive Channel-8/28/80			
X	X	Attachment #1			

FLOOD AND DRAINAGE ANALYSIS  
FOR  
WESTWOOD  
PLANNED DEVELOPMENT

Client: T.L. Benson  
Grand Junction, Colorado



Prepared by:  
Western Engineers, Inc.,  
Grand Junction, Colorado  
March, 1979

FLOOD AND DRAINAGE ANALYSIS

WESTWOOD - PLANNED DEVELOPMENT

T.L. BENSON - DEVELOPER

INTRODUCTION

This analysis is for a 6.7 Acre tract of land on the southeast side of Horizon Drive between the Grand Valley Highline Canal and the Main Line Grand Valley Canal. The effects of the 100 year flood and the site drainage are both evaluated. The primary reference is "Flood Hazard Information, Colorado River and Tributaries, Grand Junction, Colorado," November, 1976 (hereafter referred to as the FLOOD STUDY).

CONCLUSIONS

As the developer of this subdivision has planned on leaving the Horizon Drive Channel as it is, with a beaver pond, etc., the flow restrictiveness of the channel in a 100 year flood state will cause the water surface to rise at the upper portions of the proposed development. This potential threat to residential structures can be mitigated by an increase of over lot gradation or by placement of berms.

For the lower portions of the subdivision, the entry road and its culvert will be able to pass the 100 year flood, but the water surface will top the road elevation. To assure that this entry road will not be washed out, it is required that it be wide enough and weigh enough to prevent overturning under the hydraulic load.

In topping the road, the water surface will rise no higher than an elevation of 4,643 feet. As the present natural grades

at building locations are below this water surface elevation, overlot gradation and berms can also mitigate this potential threat of flooding of structures.

The surface improvements of the subdivision will not increase the flow of water from the subdivision to the Horizon Drive Channel and can therefore be considered as negligible.

#### DISCUSSION

The 100 year flood through this section of the Horizon Drive Channel will have a volume of 620<sup>✓</sup> cubic feet per second according to the FLOOD STUDY (see Attachment 1). The section of the Horizon Drive Channel which is fronted by the Westwood Development, is from FLOOD STUDY Station 14+25 to Station 15+25. The FLOOD STUDY'S plot of flow depths is included as Attachment 2.

The culvert entrance effects of the proposed entry road culvert, as well as the culvert passing under the Main Line Grand Valley Canal, downstream, will both be limiting flow and incurring the water level to rise; thereby topping the road and canal in that sequence.

The proposed buildings in Westwood will be above the high water elevation of the 100 year flood. The only structure which will be within the flood plain will be the culvert for the entry road. The existing culvert under the Main Line Grand Valley Canal is a concrete box culvert, seven feet wide and five feet high. The same size of culvert will be installed for the entry road. The capacity of the entry road culvert is 469 cubic feet per second, based on entrance losses. With this in mind, 151 cubic feet per second will overflow the entry road, after ponding first.

The depth of flow at the mouth of the culvert will be 11 feet compared to the 3.5 feet with the open channel (see Attachments 2 and 3). The additional depth will be contained within the channel and cause no damage to the proposed buildings.

The streets within Westwood will have a combination of gutters with vertical curbs and valley gutters to convey the surface water to the Horizon Drive Channel. This will cause an increased flow off of the parcel. The flow off the existing undeveloped property from the one-hour 100 year storm is 2.7 cfs and for the property when developed is 6.4 cfs:

$$Q = CiA$$

$$C = 0.25 \text{ existing}$$

$$C = 0.60 \text{ developed}$$

$$i = 1.6 \text{ inches/hour}$$

$$A = 6.7 \text{ Acres}$$

Design and Construction of Sanitary and Storm Sewers, ASCE - Manual and Reports on Engineering Practice - No. 37, 1970, Page 51.

The increase in runoff is 3.7 cfs, which is less than one percent of the flood volume. The increased runoff will therefore have a negligible effect upon the features of the channel further downstream.

The Westwood Development will not be impaired by the 100 year flood, in the Horizon Drive Channel. The effects of the development on the flow in the channel will be insignificant.

Prepared by:

WESTERN ENGINEERS, INC.,

William J. Sightler

William J. Sightler

WJS/dc

ATTACHMENT 1

Cross Section Location	Peak Flow (Cubic Feet per Second) / Stage (Feet mean sea level)							
	10-Year Flood Flow	10-Year Flood Stage	50-Year Flood Flow	50-Year Flood Stage	100-Year Flood Flow	100-Year Flood Stage	500-Year Flood Flow	500-Year Flood Stage

**GUNNISON RIVER**

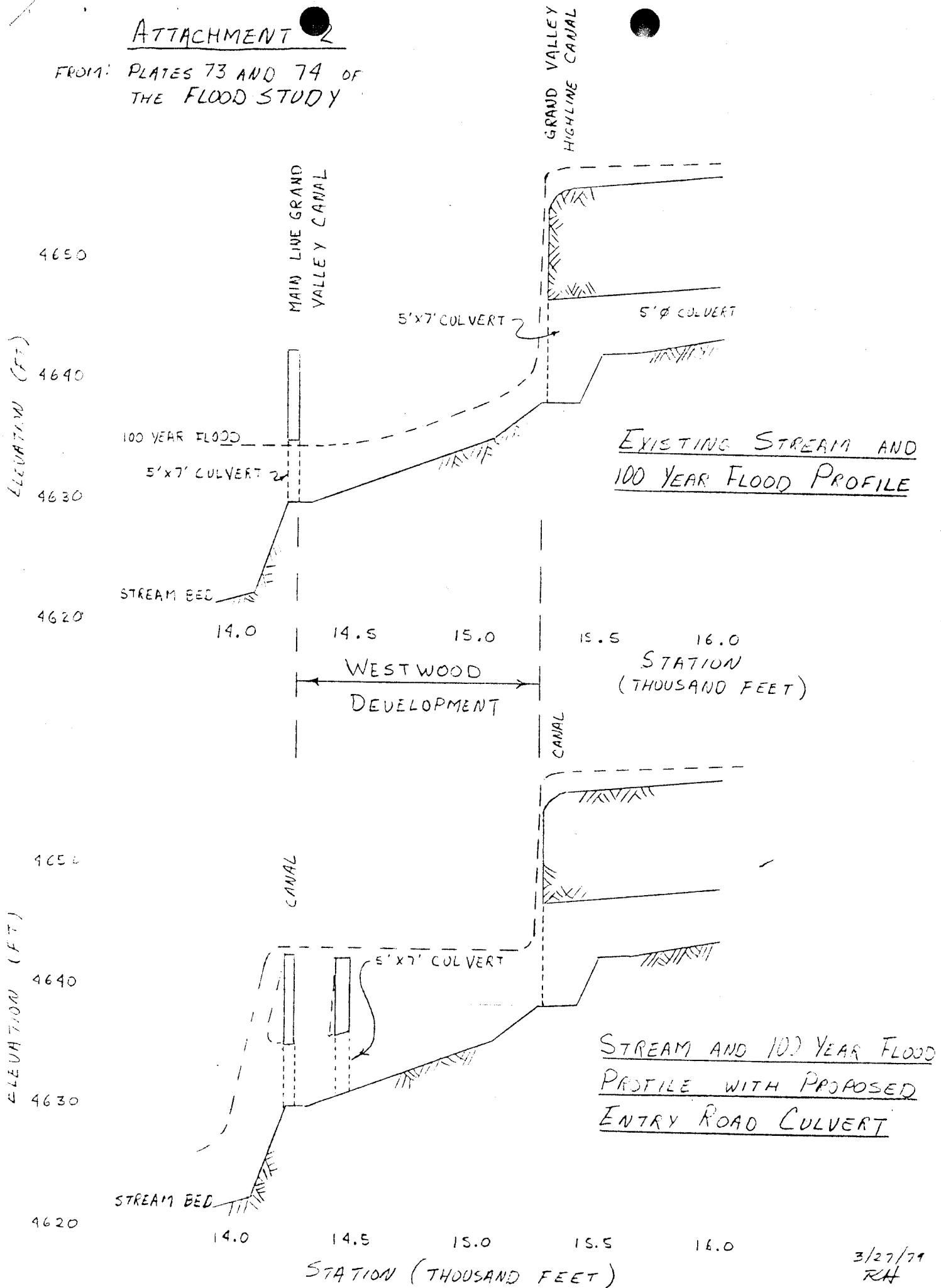
0.80	15,000	4,559.3	17,000	4,560.9	20,000	4,561.6	25,000	4,563.1
1.20	15,000	4,559.8	17,000	4,561.1	20,000	4,562.0	25,000	4,563.5
1.49	15,000	4,561.8	17,000	4,562.8	20,000	4,563.6	25,000	4,564.9
1.52	15,000	4,562.0	17,000	4,563.0	20,000	4,563.7	25,000	4,565.0
1.62	15,000	4,563.1	17,000	4,564.0	20,000	4,565.0	25,000	4,566.5
1.95	15,000	4,564.1	17,000	4,565.0	20,000	4,566.1	25,000	4,567.5
2.35	15,000	4,565.1	17,000	4,566.0	20,000	4,567.1	25,000	4,568.6
2.59	15,000	4,565.8	17,000	4,566.6	20,000	4,567.8	25,000	4,569.3
2.79	15,000	4,566.4	17,000	4,567.2	20,000	4,568.4	25,000	4,569.9
3.15	15,000	4,567.7	17,000	4,568.6	20,000	4,569.5	25,000	4,570.8

**HORIZON DRIVE CHANNEL**

5.45	160	4,561.8	180	4,561.9	200	4,563.1	220	4,563.5
6.06	160	4,562.1	180	4,562.2	200	4,563.2	220	4,563.5
6.08	160	4,566.8	180	4,566.9	200	4,567.2	220	4,567.3
7.48	160	4,570.1	180	4,570.2	200	4,570.4	220	4,570.5
7.85	160	4,572.3	180	4,572.5	200	4,573.0	220	4,573.1
7.93	160	4,572.8	180	4,573.1	200	4,573.3	220	4,573.5
8.62	160	4,576.0	180	4,576.1	200	4,576.8	220	4,577.0
8.67	160	4,577.0	180	4,578.0	200	4,578.2	220	4,578.4
9.19	160	4,582.7	430	4,583.6	670	4,584.2	1,850	4,586.5
9.20	160	4,584.4	430	4,590.3	670	4,590.7	1,850	4,591.0
9.75	160	4,589.5	430	4,592.0	670	4,592.0	1,850	4,595.0
9.77	160	4,591.0	430	4,595.5	670	4,595.8	1,850	4,596.3
9.86	160	4,592.1	430	4,595.6	670	4,596.0	1,850	4,596.5
10.29	160	4,599.5	430	4,601.5	670	4,605.0	1,850	4,606.6
10.55	160	4,605.0	430	4,606.0	670	4,606.5	1,850	4,607.3
10.77	160	4,605.1	430	4,606.1	670	4,606.6	1,850	4,607.8
11.36	160	4,605.3	430	4,606.2	670	4,606.7	1,850	4,608.2
12.00	160	4,607.0	430	4,609.3	670	4,610.7	1,850	4,613.5
13.15	160	4,617.5	430	4,618.2	670	4,619.0	1,850	4,621.8
13.38	160	4,619.0	430	4,620.8	670	4,621.8	1,850	4,624.1
13.52	160	4,624.8	430	4,633.6	670	4,635.1	1,850	4,636.2
14.07	160	4,628.0	430	4,633.6	670	4,635.1	1,850	4,636.3
14.20	160	4,632.3	430	4,633.6	670	4,635.1	1,850	4,636.3
14.30	110	4,633.2	380	4,634.2	620	4,635.1	1,800	4,643.8
15.05	110	4,637.4	380	4,638.5	620	4,639.2	1,800	4,643.9
15.27	110	4,645.5	380	4,656.5	620	4,657.8	1,800	4,659.0
16.19	110	4,648.1	380	4,658.4	620	4,658.9	1,800	4,659.8
16.26	110	4,649.8	380	4,658.5	620	4,658.9	1,800	4,659.8
16.49	110	4,650.0	380	4,658.5	620	4,659.0	1,800	4,660.0
16.60	110	4,653.5	380	4,659.3	620	4,659.9	1,800	4,661.2

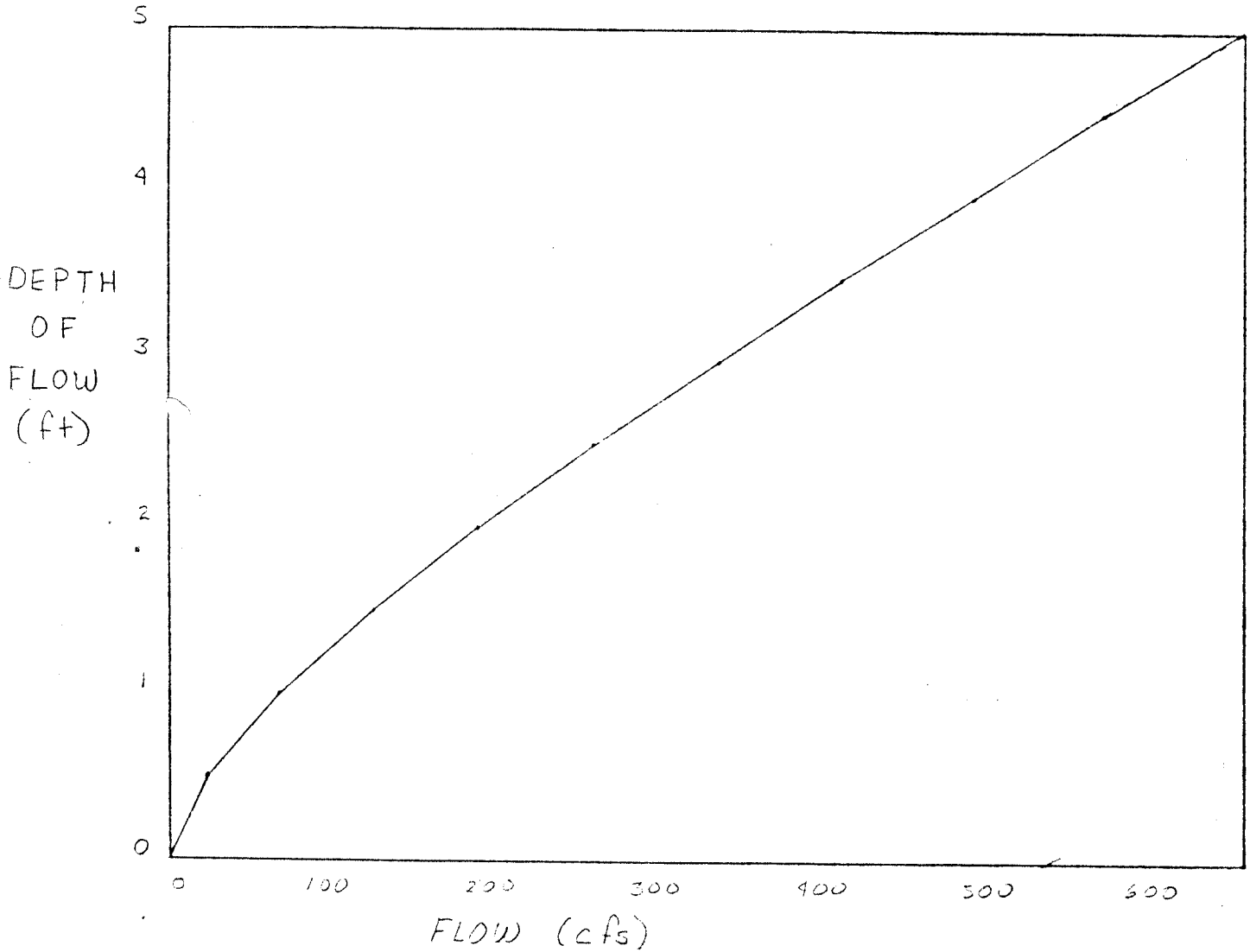
# ATTACHMENT 2

FROM: PLATES 73 AND 74 OF THE FLOOD STUDY



3/27/79  
RAH

ATTACHMENT 3



FOR NON-SUBMERGED INLET CASE (NO SURGE)

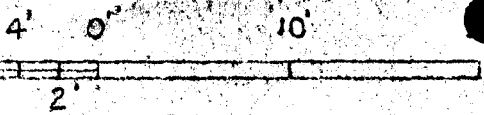
Flow in concrete box culvert: 7' wide x 5' high

Slope = 1.0 %

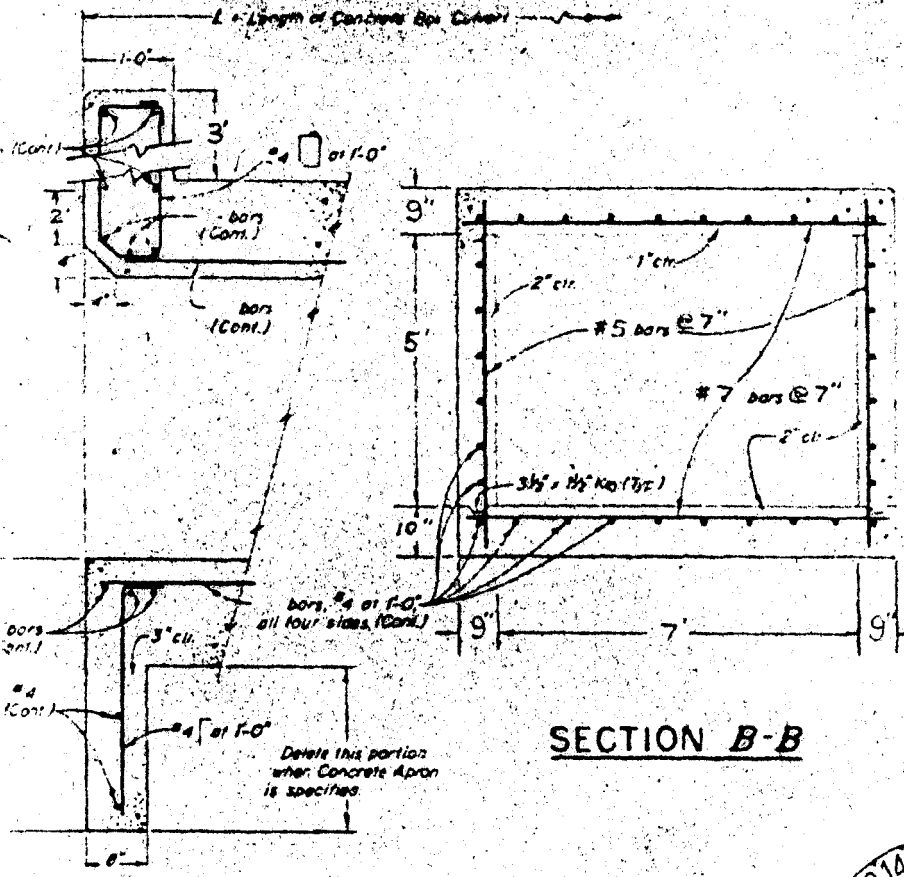
Manning's n = 0.013

3/26/79 R.H.





SCALE 1" = 10'



SECTION A-A

SECTION B-B

**GENERAL NOTES**

- shall be done in accordance with the Standard applicable to the project.
- bars shall be Class "A" (Box Culvert).
- construction joints shall be thoroughly cleaned before fresh concrete is placed.
- construction joints shall be spaced at 33 foot max centers and rounded. The entire cross section of the Box Culvert shall be finished.
- quantities for longitudinal bars are not included.

AASHTO, 1973.

- 1.  $f_c = 20,000$  psi
- 2.  $f_s = 1,200$  psi
- 3.  $n = 10$

excavation on unyielding subgrade, or culvert untraced section. For culverts on piles or rock foundations, special design will be required.

- 4. AASHTO, HS 20-44
- 5. Earth Load = 64 lbs/cu ft.
- 6. Equipment Fluid Pressure = 30 lbs/cu ft.
- 7. minimum splice length for common bar sizes shall be as follows:



WESTERN ENGINEERS, INC  
 ENTRY ROAD & CULVERT  
 GRADING PLAN  
 WESTWOOD

REVIEW SHEET

TO: City Engineer - Riski  
ITEM: Westwood - Final

Date Item Submitted to  
Planning Office 5/1/79  
Date Sent to Review  
Department 5/7/79

Item # 12-79

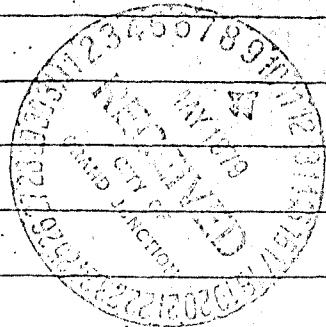
Location: South side of Horizon Drive, West of Lakeside

Engineer: Western

Petitioner: T.L. Benson, Inc.

Address: \_\_\_\_\_

Phone: \_\_\_\_\_



The attached plat has been sent to your office for your review and comments. Failure to object or comment by May 18, 1979, shall constitute approval by your office.

- \*Comments:
- ① Western Engineers soils report cautions about poor load bearing capacity of site soils and canal seepage problems. Special designs for buildings are recommended and subgrade stabilization with gravel under pavements.
  - ② Power of attorney for full street improvements on Horizon Drive should be granted.
  - ③ A drainage easement should be granted for Horizon channel.
  - ④ I assume there are no public streets in the development and no City maintenance responsibilities.
  - ⑤ "Flood and Drainage Analysis" by Western Engineers as submitted to me on May 14, 1979, predicts 100 year flood depth of 11 ft. at the 5'x7' culverts entrances. Building floor

Send to: Planning Department, P.O. Box 897, Attn: Karl Metzner

Reviewing Office City Engr - Pub Wks by Ron Riski Date May 30, 1979

\*Use additional sheets if necessary and refer to Item #. elevations should be based on this flood potential. Site grading and/or channel filling should not be allowed OVER

create channel "bottlenecks" which would cause any worse backwater condition than the 5'x7' box culverts. Their engineer should control this during design and construction.



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



PROJECT: Westwood Subd.

SUBJECT: Horizon Channel Easement

DATE July 11, 1979 BY Ren Rish : FILE NO. \_\_\_\_\_ : SHEET 1 OF 1

The petitioner has not shown a drainage easement on the plat at of this date.

To estimate the appropriate easement width to insure adequate room should channel filling occur to the extent improvements to the channel may be necessary to avoid flooding, I have analyzed what would be required to provide an earth channel sized to carry the 100 year storm flow:

1.  $Q_{100} = 620$  cfs
2. bottom width assumed to be 7' to match 5'x7' culverts.
3. assume 2:1 side slopes on channel
4. assume  $n = 0.03$  (grassed channel)
5. channel slope:

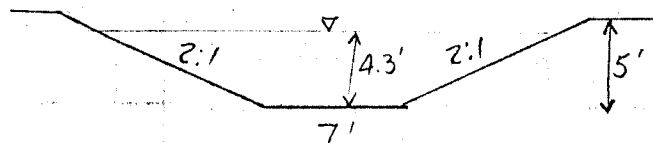
Inv. @ NE 5'x7' culvert = 39.0 (scaled from western Engr. drainage report.)

Inv. @ entrance road 5'x7' culvert = 31.5 per Western Engr. submitted plans.

Scaled length between culverts = 710 ft. ±

$$\therefore S_0 = \frac{39.0 - 31.5}{710} = 0.0106 \text{ ft/ft}$$

Depth of  $Q_{100}$  in above described channel = 4.3 ft.  
Use depth = 5' to match culverts.



$$\begin{array}{r} 7' \\ +10' \\ \hline 10' \\ +17' \\ \hline 27' \text{ use } 30\text{ft.} \end{array}$$

Note: This does not provide maintenance access (longitudinal)

DIVISION SKETCH PLAN

Proposal: FLOODPLAIN DEV. - FILL Conference Date 9.29.79

Attendance: JOHN BALLAGH / ROLLAND OLNER / CHARLY

Developer: SQUARE HORIZON CHURCH Engineer: \_\_\_\_\_

Division Type: Conventional \_\_\_\_\_ PD \_\_\_\_\_ Minor \_\_\_\_\_ Existing Zone X

Parcel No. \_\_\_\_\_ Common Location: SO. OF HORIZON DR. NO. OF RANCHMAN'S DITCH EAST OF 7<sup>TH</sup> STREET

Intend Use: DRAINAGE

Adjacent Uses: North \_\_\_\_\_ South WESTWOOD East \_\_\_\_\_ West \_\_\_\_\_  
TOM BENSON OWNER

Geology/Topography: Type PROPOSAL IS TO FILL FOR AESTHETIC  
POSES NO "CONSTRUCTION" AS SUCH. BASIC RECHANNELIZATION

Rights Requested: Geology \_\_\_\_\_ Radiological \_\_\_\_\_ Floodway X Soils \_\_\_\_\_

UTILITY PLAN:

Water: Source / Canal \_\_\_\_\_ Shares / Amount \_\_\_\_\_ System \_\_\_\_\_

Water: Line Size \_\_\_\_\_ Sewer \_\_\_\_\_

Electricity: Natural Gas \_\_\_\_\_ Other \_\_\_\_\_ kind / source \_\_\_\_\_

TRANSPORTATION PLAN (N, S, E, W - VEHICULAR, PEDESTRIAN, BICYCLE, BUS LOADING, TRUCKING)

Arterials: Major Arterial \_\_\_\_\_ Minor Arterial \_\_\_\_\_

Intersections: Internal \_\_\_\_\_

Cuts \_\_\_\_\_

Intersections: (Internal / External) \_\_\_\_\_

Signaling Perimeter Intersections \_\_\_\_\_

Design Standards: Internal \_\_\_\_\_

Water Meter \_\_\_\_\_

Adjacent Public Site \_\_\_\_\_ Payment to Public Site Fund \_\_\_\_\_

Adjacent Private Common Open Space \_\_\_\_\_

City Policies Applying to this Proposed Project:

Cooley \_\_\_\_\_  
rt \_\_\_\_\_

Cultural \_\_\_\_\_  
Resource \_\_\_\_\_

COUNTY FLOODPLAIN PERMIT (VALID FOR 12 MO. '80)

4638 (100 YR) 4644 (500 YR)

ADDITIONAL COMMENTS: IN A NUTSHELL - SUBMIT INFO FROM PROFESSIONAL  
EROSION ENGINEER THAT STATES HOW ANY FILL IN FLOODPLAIN  
WILL BE MITIGATED. FLOOD PLAIN PERMIT WILL BE  
ISSUED ON BASIS OF ARMY CORPS OF ENGINEER SIGN-OFF

Operator Signature \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Acres \_\_\_\_\_  
Units \_\_\_\_\_  
Density \_\_\_\_\_

CITY ACTION SHEET

File # 90-80

Zone \_\_\_\_\_

Activity Floodplain Permit  
Phase \_\_\_\_\_  
Date Submitted \_\_\_\_\_  
Date Mailed Out \_\_\_\_\_  
Date Posted \_\_\_\_\_  
Legal Ad Date \_\_\_\_\_  
Date Neighbors Notified--  
    Planning Commission \_\_\_\_\_

Date Neighbors Notified--  
    City Council \_\_\_\_\_  
Date CIC Legal Ad \_\_\_\_\_  
Hearing Date--  
    Planning Commission \_\_\_\_\_  
Hearing Date--  
    City Council \_\_\_\_\_  
    Review Period-Return By \_\_\_\_\_

Review Agencies

Send

~~\_\_\_\_\_ COUNTY ROAD DEPARTMENT  
\_\_\_\_\_ MOUNTAIN BELL  
\_\_\_\_\_ PUBLIC SERVICE COMPANY  
\_\_\_\_\_ FIRE  
\_\_\_\_\_ IRRIGATION  
\_\_\_\_\_ DRAINAGE  
\_\_\_\_\_ SEWER  
\_\_\_\_\_ WATER (UTE, CLIFTON)  
\_\_\_\_\_ FLOODPLAIN  
\_\_\_\_\_ CITY ENGINEER~~

~~\_\_\_\_\_ CITY UTILITIES  
\_\_\_\_\_ CITY POLICE  
\_\_\_\_\_ TRANSPORTATION ENGINEER  
\_\_\_\_\_ PARKS AND RECREATION  
\_\_\_\_\_ ENERGY OFFICE  
\_\_\_\_\_ TECH REVIEW  
\_\_\_\_\_ WATER AND POWER RESOURCES~~

Common Location \_\_\_\_\_

<u>Board</u>	<u>Date</u>	<u>Comments</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Staff Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Original Documents

\_\_\_\_\_ Improvement Agreement  
\_\_\_\_\_ Improvement Guarantee  
\_\_\_\_\_ Covenants  
\_\_\_\_\_ Development Schedule

# Foursquare Church

Jesus Christ the same yesterday, and today, and forever.

Hebrews 13:8

December 23, 1980

Mr. Jeff Ollinger  
County Flood Plain Adm.  
City-County Development Dept.  
559 White Avenue, Room 60  
Grand Junction, Co. 81501

Dear Mr. Ollinger:

Attached please find the report of Mr. Vernon Leonard, Engineer for the Foursquare Gospel Church, in which he has endeavored to answer the questions generated at our meeting with you December 19, 1980.

This is also in answer to the question in paragraph 3 of the letter dated May 22, 1980 and addressed to Rev. Fred K. Parker.

According to your voiced opinion at our December 19 meeting, this is the needed information to complete the processing of our application for a "flood plain" permit.

The Foursquare Gospel Church would like to continue with the controlled filling of this area as soon as the permit is issued.

If there are any further questions concerning this permit application, please contact me. Thank you for your cooperation.

Sincerely,

*Rolland M. Oliver* → 242-3154  
Rolland M. Oliver  
Sr. Council Member  
New Horizons Foursquare Church  
641 Horizon Drive  
Grand Junction, Co. 81501

Enclosure

cc. V. R. Leonard  
Rev. Fred Parker  
file

Foursquare Church  
Fred Parker  
641 Horizon Drive  
~~1622 Glenwood Avenue~~  
Pastor

Grand Junction, Colorado 81501 303-243-9336  
Linda Oliver Christian Education Director

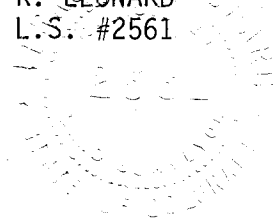
## INFORMATION FOR MESA COUNTY FLOODPLAIN PERMIT

The proposed development will include filling a portion of the existing channel which will be mitigated by re-channeling portions of the Independent Ranchmen's Ditch as shown on the attached plan sheet (Attachment #2) wherever necessary to maintain a channel no less than seven (7) feet wide at the bottom with 2:1 side slopes. A typical section of the fill and channel configuration is included herewith as Attachment #3, which also shows predicted 100 year flood elevations with and without the downstream control (the culvert under the Westwood approach road).

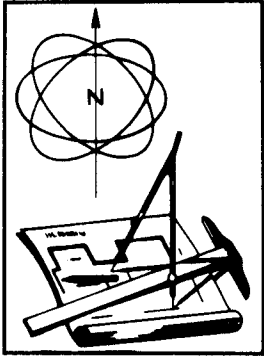
The proposed channel and fill will be protected from excessive erosion by a two foot thick layer of heavy rip rap. This rip rap will be placed above the 100 year flood level for maximum protection.

If this fill construction is performed as shown, there will be no effects upon the water surface elevation ~~in the channel~~ in the event of a 100 year flood. *← ADD HERE*  
The water surface of the 100 year flood should be at approximately elevation 4643 based on the predicted flow of 620 cubic feet per second as shown in the Corps of Engineers' "Flood Hazard Information, Colorado River and Tributaries, Grand Junction, Colorado, November 1976". The controlling feature for this flood elevation is the capacity of the 7 foot by 5 foot concrete box culvert downstream under the approach road to the Westwood subdivision. This water surface elevation is in agreement with the Flood and Drainage Analysis dated March 1979 prepared by Western Engineers for the Westwood subdivision.

  
VERNON R. LEONARD  
P.E. - L.S. #2561







# ARMSTRONG ENGINEERS and ASSOCIATES, INC.

861 Rood Avenue - Grand Junction, Colorado 81501 - (303) 245-3861

RECEIVED MESA COUNTY  
DEVELOPMENT DEPARTMENT

JAN 19 1981

January 16, 1981

Mesa County Development Dept.  
P. O. Box 897  
Grand Junction, CO 81502

Attn: Jeff Ollinger

Re: Horizon Drive Channel Fill  
Four Square Church  
#792430

Dear Mr. Ollinger:

With respect to the above referenced project I have the following comments or requests:

1. Request benchmark or other elevation information tying the indicated elevations to the Grand Junction Flood Hazard Study of 1976.
2. Request cross sectional analysis of the channel with respect to the anticipated flows. The question is what effect construction of the channel will have on stream velocities. This will affect size of riprap which may be used.
3. Recommend using riprap base course beneath the riprap layer, depending upon stream velocities.
4. Request that the proposed contours of the fill be shown in order that erosiveness at the entry of the section can be evaluated.
5. Request phasing information. Time scheduling is important, in that we do not want the fill in place for a lengthy period awaiting riprapping due to monetary or other constraints.

Mesa County Development Dept.  
January 16, 1981  
Page 2

6. Recommend that the time schedule be made a part of the permit.

If you need additional information, please do not hesitate to contact me.

Sincerely,

ARMSTRONG ENGINEERS AND ASSOCIATES, INC.

*David M. Leonard*

David M. Leonard, P.E.  
Vice President

DML/kr



DEPARTMENT OF THE ARMY  
SACRAMENTO DISTRICT, CORPS OF ENGINEERS  
650 CAPITOL MALL  
SACRAMENTO, CALIFORNIA 95814

REPLY TO  
ATTENTION OF SPKCO-0 (6894)

13 May 1980

Reverend Fred K. Parker  
New Horizons Foursquare Church  
641 Horizon Drive  
Grand Junction, Colorado 81501

RECEIVED MESA COUNTY  
DEVELOPMENT DEPARTMENT

MAY 19 1980

Dear Reverend Parker:

This is in reference to review of your application Number 6894 to place fill in wetlands along Horizon Drive in Grand Junction, Mesa County, Colorado.

Since your application was received, we have reviewed our jurisdiction of the area and have requested additional stream flow information from the Water and Power Resources Service. We were thus able to determine that a Nationwide Permit already issued applies to the location of your proposal.

The Department of the Army has issued a Nationwide Permit that allows for the placement of fill material in "waters of the United States" and their wetlands above the headwaters. Therefore, the proposed buildings and associated facilities can be accomplished under the Nationwide Permit for Work Above the Headwaters provided the work meets the conditions listed on the attached information sheet.

The Corps recommends fill be minimized within the 100 year flood plain along Horizon Drive in order to preserve the flood capacity in the interest of all developments along Horizon Drive.

It is also recommended that as much existing wetland along the stream as possible be maintained in order to preserve the quality of water delivered to downstream users. The wetlands act as filters to entrap pollutants from non point runoff sources.

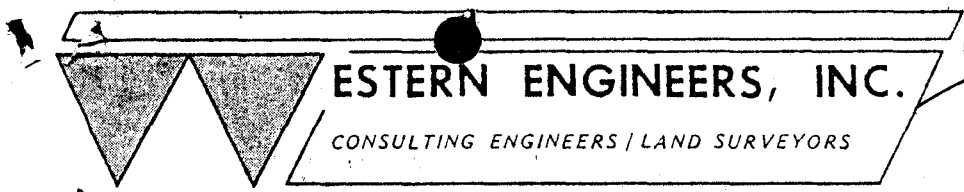
We apologize for the delay in your project and if we may assist you regarding this matter, please contact Regulatory Unit 4, 2784 Crossroads Blvd., Suite 111, Grand Junction, Colorado 81501, telephone (303) 243-1199.

Sincerely,

G. W. PROBASCO  
Chief, Construction-Operations  
Division

1 Incl  
As stated

Copy furnished:  
Department of Health, Denver, CO 80220  
U.S. Environmental Protection Agency, Denver, CO 80203  
Division of Wildlife, Denver, CO 80216  
U.S. Fish & Wildlife Service, Salt Lake City, UT 84138  
City-County Development Department, Grand Junction, CO 81502



Charley Ray  
RPR 12-1-80  
Rec. 11-26-80  
From Mike Benson

November 21, 1980

T.L. Benson, Inc.  
3154 Lakeside Drive  
Grand Junction, Colorado 81501

Dear Sirs:

This letter is to notify you of my recent concern about fill operations taking place north of your Westwood Subdivision.

Our initial Flood and Drainage analysis (March, 1979) for that property assured no one-hundred year flood hazard if the Horizon Drive Channel was left as it was (with Beaver Pond, etc.). I feel the present fill operations by the property owner to the north of your property is now changing the drain channel contours of that channel and causing potential flood hazard to the residents of your property.

The changes of the flood channel contours with non-erosionable material (salvage concrete block and asphalt refuse) will change the basis of the initial study, ("The Flood Hazard information, Colorado River and Tributaries, Grand Junction, Colorado, November, 1976") on which I based my report.

The specific aspects that will change in the above study in my opinion would be:

- 1.) A higher flood waterline due to constriction of the Horizon Drive Channel by placement of additional fill material.
- 2.) New possible erosion problems due to redirection of flow caused by additional fill material.

If you have any questions about my above concerns, or if you need my help in regard to the above, please feel free to contact me at your convenience.

Sincerely,

WESTERN ENGINEERS, INC.

*William J. Sightler, Jr.*

William J. Sightler

WJS:slv

Met w/ Mike Benson, Charley Ray & Jim Wysocki  
11-26-80

Sent Westwood file data to Charley. He will have Mesa Co. Engr. contact 4-Square Church.

## MEMORANDUM

Reply Requested

Date: 8.28.80

 YES  NO

To: JIM WISOCKI

From: Charly ray

RE: THE HORIZON DRIVE CHANNEL @ WESTWOOD

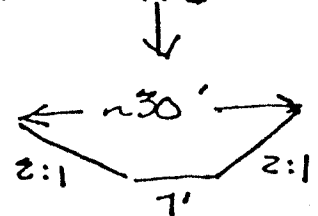
JIM.....

I MADE A TRIP OUT TO WESTWOOD SUBDIVISION YESTERDAY TO CHECK ON THE HORIZON DRIVE CHANNEL AND CONSTRUCTION AFFECTING IT.

FROM JUST A VISUAL INSPECTION, IT APPEARS THAT BOTH WESTWOOD AND "THE FOUR SQUARE OPERATION" OPPOSITE ARE IMPACTING THE CHANNEL.

SPECIFICALLY:

- IT LOOKS AS THOUGH RECENT FILL HAS SLID INTO THE CHANNEL NORTH OF THE ENTRANCE ROAD AND.
- PROPOSED CROSS-SECTIONS SOUTH OF THE ENTRANCE ARE BEING ALTERED  
i.e. THE PROFILE SUBMITTED LOOKED LIKE



IT'S NOW MORE LIKE

WHILE NOT CRITICAL (YET) THE SITUATION IS WELL WORTH MONITORING.

OTHER POINTS OF INTEREST.....

- THE FILL PUT IN BY THE FOUR SQUARE CHURCH WAS SUPPOSED TO BE "CLEAN"  
ASPHALT & BROKEN SEWER PIPE?
- THE IMPACT OF THIS FILL IS AS MUCH VISUAL AS ANYTHING RIGHT NOW - AND THE RIP-RAPPING TO COVER THIS EYE SORE WILL ALMOST CERTAINLY ENKROACH ON THE EXISTING CHANNEL.


CC: BOB BRIGHT (NEW) CITY FLOODPLAIN ADMINISTRATOR  
EON RISH

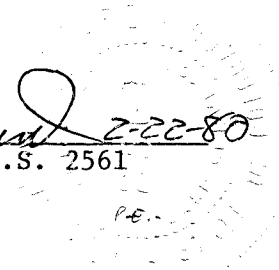
Attachment #1

The proposed development will include filling a portion of the existing channel (see enclosed Sheet #1) which will be mitigated by rechanneling about 225' of the ditch. As indicated in the elevated section of the development (see enclosed Sheet #2), the rechannelization will be sufficient enough to carry existing water levels as well as water from the 100 year flood. The bottom (flowline) of the existing channel on Sheet #2 is marked at an elevation of 4,633'. The elevation of the proposed channel would be identical, although the width of the new channel would be somewhat greater.

The proposed channel and fill will be protected from excessive erosion by a 2'-thick layer of heavy rip rap. This rip rap will be placed far above the 100 year flood level for maximum protection (see Sheet #2).

As a result of the precautions taken with this proposal, there should be no significant effects upon downstream, upstream or adjoining properties at the time of a 100 year flood. The development will not raise the floodplain more than 1 foot over the existing flood level or adversely affect the channel entering into the Benson culvert to the west. The proposal will create a significant improvement to the appearance of the property.

  
Vernon Leonard, P.E.-L.S. 2561



City  
County  
Development  
Department

CITY OF GRAND JUNCTION—MESA COUNTY—COLORADO 81501  
559 WHITE AVE.—ROOM 60—DIAL (303) 243-9200 EXT. 343

September 25, 1979

Department of Army  
Sacramento District Corps of Engineers  
650 Capitol Mall  
Sacramento, California 95814

Re: Public Notice No. 6894 - Permit to fill and rechannel drainage way

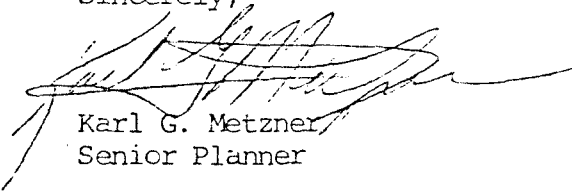
Dear Sirs,

In response to your public notice 6894 you should be aware that a residential project has received final approval on land owned by Mr. T.L. Benson immediately adjacent to the proposed fill/rechannelization area. At the time of processing and approval of the residential project a floodplain analysis including hydrological study was done on the drainage way to insure that there would be no adverse effect of the floodplain on the project or adjacent areas. Any filling or rechannelization of the drainage way should not adversely impact the development right of the approved residential project. It also seems that some portions of the existing channel are on the property owned by Mr. Benson. I question how the rechannelization will affect those portions of channel not on the petitioner's property.

I noted that the information given was that an apartment complex was planned for the site. You should be aware that the existing zoning on the subject property is for single family residential units on one acre minimum sites. No application or commitment for zoning change has been made. It should also be noted that any filling, excavation, or rechannelization in a floodplain area requires a Mesa County Floodplain Permit prior to commencement of any activity in the channel as per the regulations adopted in accordance with the regular phase of the National Flood Insurance Program. As of this date no such application has been made.

Enclosed are copies of the approved development plan for "Westwood" and the floodplain/hydrological information which was submitted with that project.

Sincerely,



Karl G. Metzner  
Senior Planner

cc: Four-Square Horizons Church  
Rodney Woods - Local Corps of Engineers  
Ron Rish ✓  
T.L. Benson  
Grand Valley Irrigation

Enclosure: Development Plan Westwood  
Flood Plan/Hydrological Analysis for Westwood





DEPARTMENT OF THE ARMY  
SACRAMENTO DISTRICT, CORPS OF ENGINEERS  
650 CAPITOL MALL  
SACRAMENTO, CALIFORNIA 95814

REPLY TO  
ATTENTION OF  
SPKCO-O

21 September 1979

PUBLIC NOTICE NO. 6894

TO WHOM IT MAY CONCERN:

Application has been made to this office by New Horizons Foursquare Church, 641 Horizon Drive, Grand Junction, Colorado 81501, for a Department of the Army Permit to place fill in a natural drainage ditch and adjacent wetland, in Grand Junction, Mesa County, Section 2, Township 1 South, Range 1 West, Colorado, as shown on the attached drawings.

New Horizons Foursquare Church is proposing to modify approximately 225 feet of the drainage channel and wetland areas, and to place 155 cubic yards of fill material covered by an additional 30 cubic yards of heavy riprap below the ordinary high water elevation.

The applicant has applied to the Colorado Department of Health, Water Quality Division, for certification of the project.

The latest published version of the National Register of Historic Places and its monthly supplements have been reviewed and there are no places either listed or recommended as eligible which would be affected. Presently unknown cultural resources may be located in the permit area. The proposed activity would not affect any threatened or endangered species or their critical habitat. The District Engineer has made this determination based on information provided by the applicant and on the Corps' preliminary evaluation.

Interested parties are invited to submit written comments on or before 22 October 1979. Any person may request, in writing, within the comment period specified in this notice that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

A permit issued by the Department of the Army does not give any property rights either in real estate or material or any exclusive privileges and does not authorize any injury of private property or invasion of private rights, or any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent to the work authorized.

The decision whether to issue a permit will be based on an evaluation of the impact of this activity on the public interest under authority of Section 404 (33 USC 1344) of the Clean Water Act as amended (33 USC 1251 et seq). Evaluation will include application of guidelines set forth by Administrator, EPA, under authority of the act (40 CFR Part 230.5). That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest. Based on our preliminary evaluation, there will be no significant environmental impacts. Therefore, we do not anticipate that the preparation of an Environmental Impact Statement will be required.

1 Inclosure  
2 Drawings

PAUL F. KAVANAUGH  
Colonel, CE  
District Engineer

## INDEPENDENT RANCHMEN'S DITCH ENCROACHMENT-RECHANNELIZATION

NEW HORIZON'S FOURSQUARE CHURCH

GRAND JUNCTION, COLORADO

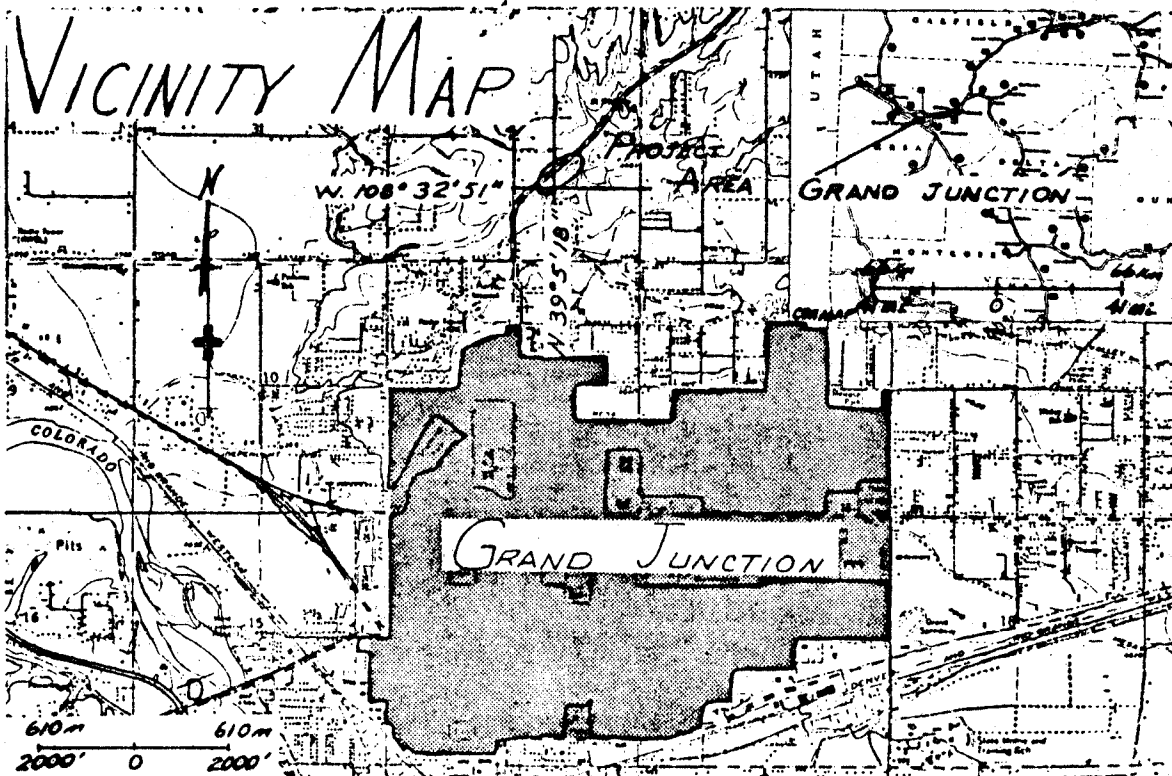
This project will consist of two main parts. The first part will be the filling and leveling of approximately 500 feet of land adjacent to and above the Independent Ranchmen's Ditch to accommodate future construction of residential housing (apartments). The second portion of the project will consist of rechannelizing about 225 feet of the Ditch near the fill area to accommodate the toe of the fill.

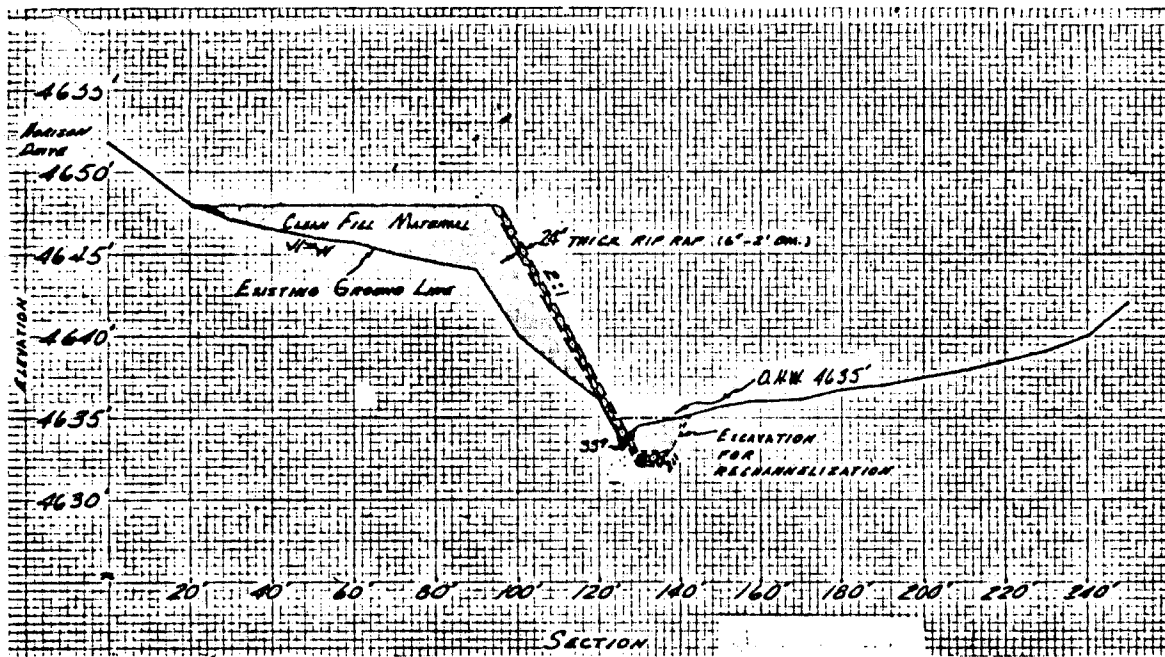
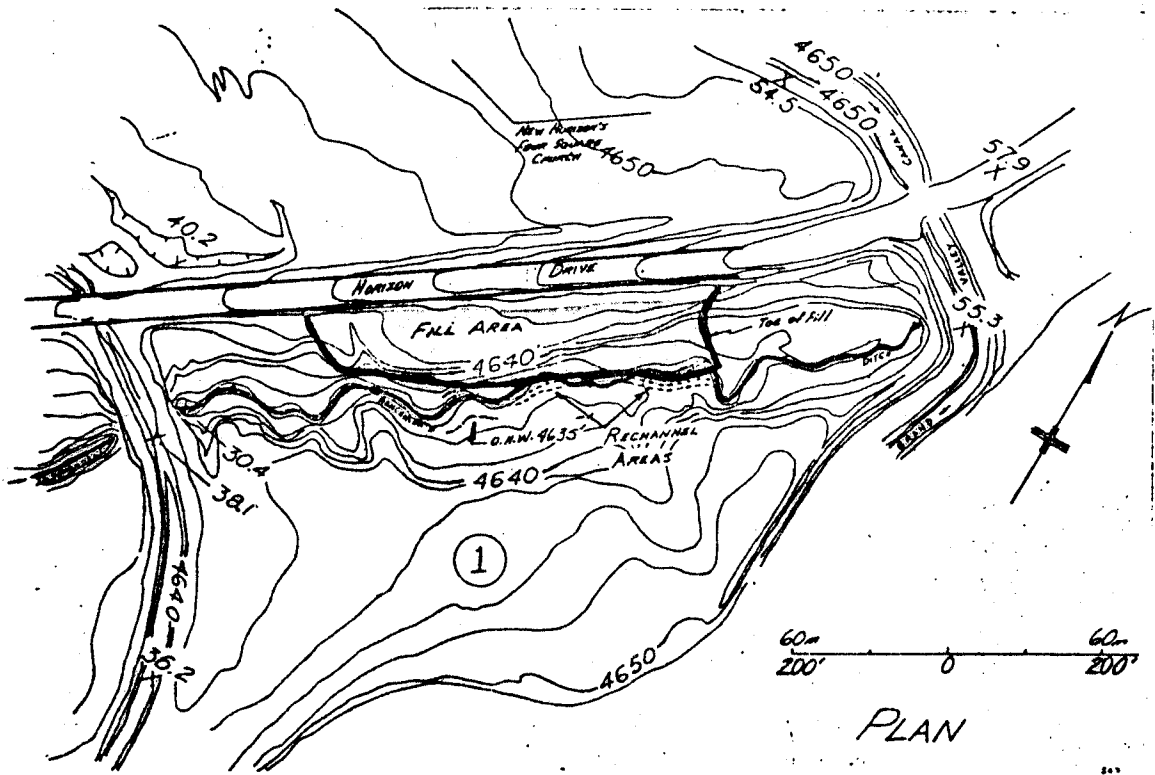
The bulk of the work to be done will not be within the limits of the Ditch. Approximately 155 cubic yards of clean fill material and 30 cubic yards of heavy rip rap will be placed below ordinary high water; much of the fill material will be obtained from the excavation of the new channel.

The work to be accomplished on this project will be done in an area which has previously been disturbed. Approximately 50 percent of the work has already been completed. There has been no encroachment upon the Ditch at this time.

The area adjacent to the project area is a wetland fed by the drainage Ditch. Typical freshwater marsh and riparian vegetation is common to the adjacent wetland (e.g., Cattails-*Typha* spp. and Tamarisk-*Tamarix* spp.). Some animal life has also been observed (e.g., passerine birds and small mammals). The main portion of this wetland lies to the south, west, and east of the project area; therefore, with the exception of the small encroachment and channelization area, the wetland habitat will not be affected.

All work on the project will be carried out with standard excavation equipment, and every effort will be made to keep the equipment out of the Ditch and adjacent wetland.





<p><b>Purpose:</b> Provide level site for future construction.</p> <p><b>Datum:</b> Mean Sea Level</p> <p><b>Adjacent Property Owners:</b> (1) Tom Benson</p>	<p><b>To:</b> Independent Ranchmen's Ditch</p> <p><b>At:</b> 641 Horizon Drive- Grand Junction, Colorado</p> <p><b>County:</b> Mesa <b>State:</b> Colorado</p> <p><b>Application By:</b> New Horizon's Four Square Church</p>
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